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SUGGESTIONS AND COMPLAINTS
The University welcomes suggestions and/or complaints from students, faculty, and staff, which should be directed to the unit or personnel most directly involved. It is only in this way that the institution can become aware of potential problems and take appropriate action. Also available are anonymous hot lines which deal with general concerns and scientific misconduct. The URLs are respectively: http://www.und.edu/dept/fraudhotline/index.html and http://www.und.edu/dept/rdc/reporting%20scientificmisconduct.html. The University may review with accrediting agencies a log of anonymously tracked written student complaints.

ACCESS TO RECORDS (FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT)
In compliance with the Family Educational Rights and Privacy Act of 1974 as amended, the University of North Dakota has developed policy guidelines for access to the education record with respect to the rights of eligible students and parents of dependent eligible students. All information contained in University records is considered confidential, except for directory information, which may be released publicly in printed, electronic, or other form. Directory information is defined in the Code of Student Life in “Section 8-2: Student Records/Directory Information.” Students who wish to restrict their directory information from public release should restrict their information as early in the term as possible. To insure restriction of directory information from the printed University Directory, the process should be completed by the tenth day of classes in the fall semester. To restrict directory information, students should go to the Office of the Registrar, Room 203, Twamley Hall.

UND GRADUATION RATE INFORMATION
The University of North Dakota graduation rate information is available online at: www.und.nodak.edu/dept registrar/gradrates. A paper copy of this report is also available by calling the Office of the Registrar at (701) 777-2711.

THIS CATALOG was published by the University of North Dakota Office of the Registrar, Suzanne Anderson, Registrar, and the UND Graduate School, Joseph N. Benoit, Dean. Printing by Nelson Printing of Grand Forks, North Dakota.

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ol. 100, Issue 3, July, 2009
Welcome to the University of North Dakota!

This catalog is really a roadmap; it describes more than 150 possible pathways to a bright future. Because of the need to compress a lot of information in a small space, most of the catalog describes degree programs, courses, and the names of faculty and their qualifications. The narrative doesn’t begin to convey the dynamic nature of the learning environment at the University of North Dakota and the rich opportunities students have to work with highly qualified faculty in the active pursuit of learning.

This volume also outlines the basic framework of university policies and procedures and the structure of the curriculum. The catalog begins with general information about the student body — the kinds of students with whom you will learn and grow; to give you some important context, it goes on to describe the mission, scope, and history of one of America’s great universities. This catalog also contains important information about a host of special services designed to ensure student success in learning.

Be assured that the University of North Dakota is organized first and foremost to prepare its graduates for a lifetime of success, regardless of how the world changes — for it surely will. Welcome to the learning community of the University of North Dakota, and to the next important stage in your personal development as a life-long learner.

Sincerely,

Robert O. Kelley
President
### Academic Calendar (Subject to Change)*

#### FALL SEMESTER 2009-2010 (1010) 2010-2011 (1110)

<table>
<thead>
<tr>
<th>Event</th>
<th>2009-2010 (1010)</th>
<th>2010-2011 (1110)</th>
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<tr>
<td>Beginning of instruction, 4 p.m.</td>
<td>August 24</td>
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<tr>
<td>Last day for advancement to candidacy for all graduate students</td>
<td>August 24</td>
<td>August 23</td>
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<tr>
<td>students planning to graduate in December</td>
<td>September 7</td>
<td>September 6</td>
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<tr>
<td>Last day to add a full-term course or drop without record</td>
<td>September 2</td>
<td>September 1</td>
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<td>Last day to add audit or change to/from audit</td>
<td>September 2</td>
<td>September 1</td>
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<tr>
<td>Last day on which candidate may apply for a degree</td>
<td>September 15</td>
<td>September 14</td>
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<tr>
<td>Last day for students to submit incomplete work to instructor</td>
<td>September 18</td>
<td>September 17</td>
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<tr>
<td>Last day for instructor to submit removals of incomplete</td>
<td>October 2</td>
<td>October 1</td>
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<tr>
<td>to the Office of the Registrar</td>
<td>November 13</td>
<td>November 12</td>
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<tr>
<td>Last day to drop a full-term course or withdraw</td>
<td>November 13</td>
<td>November 12</td>
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<tr>
<td>Last day to change to/from S/U grading</td>
<td>November 11</td>
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<tr>
<td>Holiday, Labor Day</td>
<td>November 11</td>
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<tr>
<td>Last day to file preliminary approval of thesis or dissertation form</td>
<td>November 19</td>
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<tr>
<td>in the Graduate School</td>
<td>November 26-27</td>
<td>November 25-26</td>
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<tr>
<td>Thanksgiving recess</td>
<td>November 10</td>
<td>December 3</td>
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<tr>
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<td>December 3</td>
<td>December 2</td>
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<tr>
<td>and independent study completion in the Graduate School</td>
<td>December 10</td>
<td>December 9</td>
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<tr>
<td>Reading and Review Day</td>
<td>December 10</td>
<td>December 10</td>
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<tr>
<td>Semester examination period</td>
<td>December 14-18</td>
<td>December 13-17</td>
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<tr>
<td>Winter Commencement and Official Graduation Day</td>
<td>December 18</td>
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<td>Grades due at noon</td>
<td>December 22</td>
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#### SPRING SEMESTER 2009-2010 (1030) 2010-2011 (1130)

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<tr>
<td>Last day for advancement to candidacy for all graduate students</td>
<td>January 11</td>
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<tr>
<td>planning to graduate in May</td>
<td>January 11</td>
<td>January 10</td>
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<tr>
<td>Holiday, Martin Luther King Jr. Day</td>
<td>January 18</td>
<td>January 17</td>
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<tr>
<td>Last day to add a full-term course or drop without record</td>
<td>January 21</td>
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<tr>
<td>Last day to add audit or change to/from audit</td>
<td>January 21</td>
<td>January 20</td>
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<tr>
<td>Last day on which candidates may apply for a degree</td>
<td>February 9</td>
<td>February 8</td>
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<tr>
<td>Last day for students to submit incomplete work to instructor</td>
<td>February 5</td>
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<td>Last day for instructor to submit removals of incomplete</td>
<td>February 19</td>
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<td>to the Office of the Registrar</td>
<td>February 15</td>
<td>February 21</td>
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<tr>
<td>Holiday, Presidents’ Day</td>
<td>March 15-19</td>
<td>March 14-18</td>
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<td>Last day to drop with record or withdraw</td>
<td>April 9</td>
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<td>Last day to change to/from S/U</td>
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<tr>
<td>Holiday, Easter</td>
<td>April 2-5</td>
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<td>in the Graduate School</td>
<td>May 6</td>
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<td>Last day to submit final copy of thesis or dissertation to the School</td>
<td>May 29</td>
<td>April 28</td>
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<td>Last day to file final report on degree examinations and independent</td>
<td>May 6</td>
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<td>study completion in the Graduate School</td>
<td>May 7</td>
<td>May 6</td>
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<tr>
<td>Reading and Review Day</td>
<td>May 10-14</td>
<td>May 9-13</td>
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#### SUMMER SESSION 2009-2010 (1040) 2010-2011 (1140)

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<td>May 17</td>
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<td>planning to graduate in August</td>
<td>May 17</td>
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<td>Last day to add a full-term course</td>
<td>May 24</td>
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<td>Last day to add audit or change to/from audit</td>
<td>May 24</td>
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<tr>
<td>Holiday, Memorial Day</td>
<td>May 31</td>
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<tr>
<td>Last day on which candidates may apply for a degree</td>
<td>June 15</td>
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<td>Holiday, Independence Day</td>
<td>July 5</td>
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<td>July 16</td>
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<td>Last day to drop record or withdraw</td>
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<td>Last day to file final report on degree examinations</td>
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<td>Grades due at noon</td>
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*All academic deadline dates apply to full-term, on-campus courses.*
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Satisfactory Progress

Any time you drop a course or withdraw from the University, you may be jeopardizing your federally funded student financial aid, now or in the future. You must successfully complete at least two-thirds of all the courses in which you enroll. Dropping after the first day of class may not affect your academic standing, but it may affect your ability to receive financial aid. Please review this policy and others pertaining to your financial aid in the Code of Student Life in the appendix section titled “A Summary of the Standards of Satisfactory Progress for Financial Aid Eligibility,” or contact the Student Financial Aid Office.

Policy on Equal Opportunity

It is the policy of the University of North Dakota that there shall be no discrimination against persons because of race, religion, age, color, sex, disability, sexual orientation, national origin, marital status, veterans' status, or political belief or affiliation, and that equal opportunity and access to facilities shall be available to all. This policy is particularly applicable in the admission of students in all colleges and in their academic pursuits. It also is applicable in University-owned or University-approved housing, food services, extracurricular activities and all other student services. It is the guiding policy in the employment of students either by the University or by non-University employers through the University and in the employment of faculty and staff. Inquiries as to the equal opportunity, affirmative action, or diversity policies for the University of North Dakota or coverage of state and federal civil or human rights statutes or regulations may be directed to the Equal Employment Opportunity Officer.

The Equal Employment Opportunity Officer, Sally J. Page (Office address: 101 Twanmley Hall; mailing address: 264 Centennial Drive, Stop 7097, Grand Forks, ND 58202-7097; phone: 701-777-4111; email address: sallypage@ mail.und.nodak.edu) is assigned the responsibility to be the University’s designated coordinator for receiving complaints of discrimination or harassment under the following federal regulations: Title IX of the Education Amendments of 1972 (sex/gender discrimination); Title VI of the Civil Rights Act of 1964 (race, color, national origin, discrimination); Age Discrimination Act of 1975 (age discrimination); Section 504 of the Rehabilitation Act of 1973 and the Americans With Disabilities Act of 1991 (disability discrimination); and other federal and state equal opportunity statutes for which a coordinator is not required. Any complaint or concern regarding discrimination or harassment, not resolved by the University, may be filed with the Office of Civil Rights, U.S. Office of Education, 111 North Canal Street, Suite 1053, Chicago, IL 60606-7204.

Discrimination or Harassment

The University of North Dakota does not tolerate harassment. If you feel that you have been harassed, please report the incident to one of the following: If you are a student, contact the Dean of Students Office. If you are a graduate student and the harassment deals with academic issues, graduate assistantships, awards, and scholarships, contact the Graduate School. If you work within the academic arena, contact the Office of the Dean. If you are a medical student or resident, contact the Associate Dean of Students of the School of Medicine and Health Sciences. If you are a law student, contact the Office of the Dean of the School of Law. If the incident occurred in housing, contact the Housing Office. If you are a student or graduate student and the incident occurred during your employment as a student, contact the Financial Aid Office. If you are a staff member, contact Human Resources. Also, the Affirmative Action Office is always available to help. If University officials receive a report of harassment, the University will promptly investigate the matter and take disciplinary actions, when appropriate, in accordance with the University’s procedures—as detailed in the full harassment policy—for reporting incidents of possible harassment observed or which come to their attention. Retaliation in any form against any person who reports harassment, brings a complaint charging harassment, or participates in the harassment complaint process, is strictly prohibited. A provision identifying the range of penalties that may be considered when the University determines an individual engaged in harassment is included in the full harassment policy. The full harassment policy and grievance procedure may be found at: www.und.edu/ dept/aae/poi.htm, or in the University’s Code of Student Life at: und.edu/dept/csl.

UND Statement on Institutional Diversity and Pluralism

Approved by University Senate December 7, 2006

The University of North Dakota takes pride in its mission to meet the individual and group needs of a diverse and pluralistic society through education, research, and service. The peoples served by and associated with the University vary widely; all must be valued for the richness their different cultures, heritages, perspectives, and ideas bring to the community. The University is in part, a conduit through which individual perspectives and global interrelationships are enhanced by a learning and teaching environment that is aware of and sensitive to the diversity of its constituents. Diversity in the University is constituted by the full participation of persons of different racial and ethnic heritage, age, gender, socio-economic background, religion, and sexual orientation; of persons with disabilities; and of people from other countries. Of special and particular importance is the University’s longstanding commitment to the education of American Indian students and the cultures and traditions of the American Indian people. In addition, the University’s commitment to diversity extends to historically underrepresented populations such as African Americans, Latino Americans, and Asian Americans. Furthermore, the University embraces our international student population as they enhance the culturally rich learning environment of campus. The University is committed to providing learning and teaching experiences which enhance all students’ self-determination, educational advantages, and professional opportunities. Policies and procedures of the University oblige its students, faculty, staff, and alumni to foster the awareness and sensitivity necessary for acceptance and understanding of all people in society. The University of North Dakota strongly disapproves and does not tolerate acts of racism, sexism, bigotry, harassment, and violence in any form and actively uses its human and other resources to provide opportunities for its constituents and public to learn and appreciate the values of a diverse and multicultural world.

Disability Access on Campus

The University of North Dakota is committed to providing access to all people using its facilities, programs and services. UND expects people to report access barriers so that appropriate action can be taken to correct the problems. Call the ADA Line (Facilities Department 24-hour call line) at 777-2591 (voice) or 777-2796 (TDD).

In addition, UND is responsible for making reasonable accommodations and adjustments to ensure there is no discrimination on the basis of disability, as established under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. For classroom accommodations, contact Disability Services for Students, 777-3425. For accessible campus bus service, contact Transportation at 777-4030; for accessible state fleet vehicles, contact Transportation at 777-4112; for accessible parking permits, contact the Parking/Traffic Office of the Department of Transportation.
Office at 777-3551; and for accessible campus housing, contact the Housing Office at 777-4251. Job accommodation requests should be directed to the employee’s supervisor or the Affirmative Action Officer at 777-4171.

**CODE OF STUDENT LIFE**

The University of North Dakota Code of Student Life is a publication issued each year to all students. The Code outlines the rights and responsibilities enjoyed by the students, faculty, and staff who make up the University community. The purpose of the information contained in the Code of Student Life is to promote and maintain a learning environment appropriate for an institution of higher education and to serve as a basic guide to help prevent abuse of the rights of others. Members of the University community are expected to be familiar with the rules and regulations contained within the Code and to act in compliance with them at all times. Nothing within the Code is intended to limit or restrict freedom of speech or peaceful assembly. Copies of the Code are available at: http://sos.und.edu/csl or the Office of the Vice President for Student and Outreach Services, 307 Twamley Hall and at the Dean of Students Office, 180 McCannel Hall.

**MEASLES/MUMPS/RUBELLA IMMUNIZATION**

Students enrolled in a course offered for credit at NDUS institutions in North Dakota must provide documentation of immunity against measles, mumps and rubella in accordance with North Dakota University System policy. Students enrolled only in distance learning or other courses taught off campus, students enrolled only in continuing education or non-credit courses, and students attending camps and workshops are exempt from this policy. Documentation of immunity means: (a) evidence of two doses of measles, mumps, and rubella (MMR) vaccine no less than one month apart from a licensed physician or authorized representative of a state or local health department, (b) proof of a positive serologic test for measles, mumps, and rubella, or (c) proof of date of birth prior to 1957.

Exemptions from immunizations. In the event a student wishes to be considered exempt from the stated NDUS policy, a written request is to be submitted to the Student Health Services Immunization nurse for review and approval. The request shall specify applicable legal criteria and medical provider support as appropriate.

North Dakota University System (NDUS) policy requires tuberculosis (TB) testing of new students from all countries except those classified by U.S. health officials as “low risk for tuberculosis.” All UND students, regardless of country of origin, will be required to complete a TB Screening form to determine their level of risk. If a student qualifies as “high risk,” he/she is required to have testing done or provide documentation of a tuberculin skin test done within the United States within the last six months. All UND International students who have arrived in the United States within the past five years from countries where TB is endemic will be required to have TB testing or provide documentation of a tuberculin skin test done within the United States within the last six months.

Failure to comply with MMR immunization documentation requirements and tuberculosis risk assessment may result in a hold on the student’s course registration for subsequent semesters.

**SECURITY COMPLIANCE**

The University of North Dakota is in compliance with the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act (Clery Act) formerly known as the Crime Awareness and Campus Security Act of 1990. For more information, contact the UND Police Department at (701) 777-3491, visit the UND Police Department web page at: http://www.police.und.edu, or e-mail: undpolice@mail.und.edu.

**EMAIL POLICY**

Electronic mail or “email” is considered an official method for communication at UND because it delivers information in a convenient, timely, cost effective, and environmentally aware manner.

A University assigned student email account shall be the University’s official means of communication with all students on the UND campus. Students can expect to receive official information regarding deadlines, student account balances, policy/procedure changes, changes in degree requirements, special events, course schedule changes, regulatory changes, emergency notifications, as well as other useful information from the Registrar, Office of Financial Aid, Student Account Services, the Provost’s Office, Dean of Students, the Graduate School and information from academic departments. Students are responsible for all information sent to them via their University email account. He or she is responsible for all information, including attachments, sent to any other email account.

**TOBACCO-FREE CAMPUS POLICY**

The University of North Dakota is a tobacco-free campus. Tobacco use is prohibited within University buildings, parking structures, walkways, arenas, in University or state vehicles, and on UND property. UND provides comprehensive tobacco cessation and prevention services. See http://www.tobaccofree.und.edu for more information.
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General Information

THE SCOPE OF THE UNIVERSITY

Classified as a high research activity, doctoral/professional and engaged university by the Carnegie Foundation for the Advancement of Teaching, the University of North Dakota is a coeducational, state-supported institution which recorded an enrollment of 12,748 students in the fall of 2008. UND is located in Grand Forks, a city of 50,000 situated across the Red River from East Grand Forks, Minnesota, about 300 miles northwest of Minneapolis and 150 miles south of Winnipeg.

This university is characterized by a solid foundation of the liberal arts, a manageable size, high-quality students and faculty, a comprehensive curriculum, a widely recognized program of graduate education and research, law and medical schools praised for quality and innovation, rich cultural resources, and an outstanding record of alumni support.

The University’s undergraduate and graduate programs are offered in 202 fields through 10 major units: College of Arts and Sciences (which includes a major division devoted to music, theater and visual art), Odegard School of Aerospace Sciences, College of Business and Public Administration, School of Engineering and Mines, College of Nursing, College of Education and Human Development, School of Law, School of Medicine and Health Sciences, Division of Continuing Education, and Graduate School (offering the doctorate in 26 programs, the specialist’s degree in one program, the master’s degree in 83 programs).

In the fall of 2008, about 52 percent of UND’s students were residents of North Dakota and about 30 percent were from Minnesota, with the remainder representing every other state, Canada and about 50 other countries. Some 80 percent were enrolled in UND’s undergraduate programs. The University awarded 2,694 degrees in 2007-2008, including 1,836 undergraduate degrees, 471 master’s degrees, 153 doctoral degrees, 85 law degrees, 60 M.D. degrees, 88 certificates and 1 specialist degree.

A total of $98.69 million in research and sponsored program activities was received in fiscal year 2008.

The University’s faculty and research staff numbers 774 individuals. Its total workforce of 2,756 makes it the state’s largest employer outside the two U.S. Air Force bases.

UND’s 549-acre campus, regarded as one of the most beautiful in the region, includes 223 buildings and over 6 million square feet of space. Facilities include a University bookstore and the Ralph Engelstad Arena, home of the University’s NCAA Division I ice hockey program. The Alerus Center, a 22,000-seat events and conference facility, joins such venues as the Fire Hall Theatre, Empire Arts Center, and North Dakota Museum of Art, as well as UND’s Chester Fritz Auditorium, Burtness Theatre, Josephine Campbell Recital Hall, and Hyslop Sports Center, in bringing cultural, entertainment, and athletic programming to the community.

BRIEF HISTORY OF UND

The University of North Dakota at Grand Forks was founded in 1883 by the Dakota Territorial Assembly, six years before North Dakota became a state. The cornerstone for the first building was laid that autumn. Four faculty members met the 11 students who entered the University on opening day, September 8, 1884. The first class was graduated in 1889. Unlike most state institutions of higher education west of the Mississippi, UND did not begin as an agricultural school or only as a teachers college. Organized initially as a College of Arts and Sciences, with a Normal School for the education of teachers, UND soon evolved into a full-fledged multi-purpose university. Instruction of graduate students (the first master’s degree was awarded in 1895) and the conducting of research were under way before the end of the 19th century. Depressions, drought, wars and financial crises have more than once threatened its future, but the University has been able to withstand these challenges and to prosper as an institution of national caliber.

The University today would be recognizable to its founders. UND was the only institution of higher education in the state to be originally established as a university, with all of the implications of that title. A university has an obligation to preserve knowledge, to disseminate knowledge, and to create new knowledge. The University of North Dakota has served as a capstone for the entire system of public education in the state, and from its earliest year has embraced all levels of higher education—undergraduate, professional and graduate—and maintained an active program of research and service. The University has created a tradition in instruction, research, and service which has served as a model for other institutions. Consistent with the intent of the founding legislators, the University has served as a standard-bearer and leader for higher education in the state.

MISSION OF THE UNIVERSITY

The following mission statement is on file with the State Board of Higher Education:

The University of North Dakota, as a member of the North Dakota University System, serves the state, the country and the world community through teaching, research, creative activities, and service. State-assisted, the University’s work depends also on federal, private, and corporate sources. With other research universities, the University shares a distinctive responsibility for the discovery, development, preservation and dissemination of knowledge. Through its sponsorship and encouragement of basic and applied research, scholarship, and creative endeavor, the University contributes to the public well-being.

The University maintains its legislatively enacted missions in liberal arts, business, education, law, medicine, engineering and mines; and has also developed special missions in nursing, fine arts, aerospace, energy, human resources and international studies. It provides a wide range of challenging academic programs for undergraduate, professional, and graduate students through the doctoral level. The University encourages students to make informed choices, to communicate effectively, to be intellectually curious and creative, to commit themselves to lifelong learning and the service of others, and to share responsibility both for their own communities and for the world. The University promotes cultural diversity among its students, staff, and faculty.

In addition to its on-campus instructional and research programs, the University of North Dakota separately and cooperatively provides extensive continuing education and public service programs for all areas of the state and region.

ACCREDITATION

The University of North Dakota has been accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools since the Association was organized in 1913. UND received its most recent NCA accreditation in 2004. Many individual colleges, schools, and departments are members of accrediting associations in their respective fields. The address and telephone number of the North Central Association are: Higher Learning Commission, 301 South Sagamore Street, Suite 300, Chicago, Illinois 60607-2992, telephone 800-227-4768.
ends.

UND Memorial Union are open for extended hours, including week-
evenings and program areas. See also the index at the back of the catalog.

See the academic calendar at the front of the catalog.

courses, workshops, institutes and special programs of various lengths. The
concludes in August. The UND Summer Session offers a variety of
and extending to mid-May. A Summer Session begins in May and
index.htm.

assessment plans for various programs or the University Assess-
information about assessment planning, activities, and findings, or to
department with identified learning outcomes has also developed a
plan for assessing learning in relation to those goals; assessment ac-
activities are carried out yearly and reported in the departmental annual
report, as described in the University Assessment Plan. For more

essential Studies program, and many student services programs. Each
department and including the institution as a whole, the
learning program offered at UND has identified goals for student learning
learning in courses and programs across campus. Every degree-grant-
ing program offered at UND has identified goals for student learning
within the program. Learning outcomes are identified in several areas
outside the major as well, including the institution as a whole, the

The University of North Dakota’s academic programs are de-
scribed elsewhere in this catalog. Please see the listings of the colleges
and schools and listings of the undergraduate and graduate depart-
ments and program areas. See also the index at the back of the catalog.

The University of North Dakota is committed to assessment of
student learning as part of an on-going effort to improve teaching and
learning in courses and programs across campus. Every degree-grant-

ASSESSMENT

THE ACADEMIC YEAR

The academic year is divided into two semesters, each approxi-
mately 16 weeks in length: the first, beginning near the end of August
and ending prior to Christmas; the second, beginning in mid-January
and extending to mid-May. A Summer Session begins in May and
concludes in August. The UND Summer Session offers a variety of
courses, workshops, institutes and special programs of various lengths.
See the academic calendar at the front of the catalog.

PROGRAMS OF STUDY

The University of North Dakota’s academic programs are de-
scribed elsewhere in this catalog. Please see the listings of the colleges
and schools and listings of the undergraduate and graduate depart-
ments and program areas. See also the index at the back of the catalog.

VISITOR INFORMATION

Visitors always are welcome at the University of North Dakota.

Office hours: 8 a.m. to 4:30 p.m., Monday through Friday, although some buildings such as the Chester Fritz Library and the UND Memorial Union are open for extended hours, including week-
ends.

Visitor Information: Stop at the Info-Center desk in the UND
Memorial Union, the main desk in Wilkerson Hall, the J. Lloyd Stone
Alumni Center, or the Chester Fritz Auditorium.

Telephone Numbers: The area code for Grand Forks is 701.
Call 777-2011 for administrative or academic office numbers; call
777-3565 for residence hall or family housing numbers. If you are
calling long distance, call 1-800-CALL UND.

Event Information: Call the Info-Center at 777-4321, watch
UND Television Cable Channel 3, stop at the Visitor information
locations listed above, consult UND’s on-line calendar on the world-
wide web: www.und.edu/calendar, or write or call the Office of Uni-
versity Relations, 777-2731.

Tickets: Athletic tickets are available at the Ralph Engelstad
Arena box office, hours 10 a.m. to 6 p.m., Monday -Friday and 10 a.m.
 to 2 p.m., Saturday (telephone 777-4689). Tickets are also avail-
able at the Chester Fritz box office, their hours are 8:30 a.m. to 4:00
p.m. Tickets for all athletic events can also be purchased by using
Ticketmaster, telephone 772-5151, or at any Ticketmaster outlet;
Burtens Theatre (site of Theatre Arts Department and touring pro-
ductions) Box Office open approximately two weeks prior to each
production, 2 to 5 p.m., Monday through Friday (telephone 777-
2587 for tickets; 777-3446 for information). Chester Fritz Audit-
rium Box Office open from 8:30 a.m. to 4:00 p.m., Monday through
Friday (telephone 777-4090 for information, 772-5151 to purchase
tickets or visit any Ticket Master outlet). Alene Center Box Office is
open 10 a.m.-4 p.m., Monday-Friday, 792-1420.

Prospective Student Tours: Arrange by contacting the Office
of Enrollment Services at: enrollmentservices@mail.und.nodak.edu,
telephone 777-4463 or 1-800-CALL UND, ext. 4463 (also see sec-
tion titled Campus Visits for Prospective Students).

Campus Police and Emergency Services: Call 777-3491 for
UND’s 24-hour a day police desk. For all emergencies, dial 911 from
both on and off campus phones. The UND Police Department
provides statistical information upon request in accordance with the
Clerk Act. This information is also available on the UND Police

Dining Facilities: Parents and visitors are welcome to dine in
the three dining centers with their student (guest meal prices are
available or students may use their dining dollars for guests). Resi-
dence hall dining centers are in Wilkerson Hall, Squires Hall and
the Memorial Union (Terrace). The Twamley Snack Bar offers some
breakfast fare, full noon lunches and convenience store food items. It
is open from 8:30 a.m. to 3:00 p.m. Convenience store service is also
available in Wilkerson Hall, 4 p.m. to 11 p.m., Monday-Sunday, the
Walsh Convenience store, main level of Walsh Hall, hours vary, and
the U-Snack at the Memorial Union, 7:30 a.m. to 8 p.m. The food
court at the Memorial Union, Old Main Marketplace, features A&W
Express, Sbarro Pizzeria, Dakota Deli, and World Market, as well as
grab n’ go options. Hours are Monday-Saturday, 10 a.m. to 9 p.m.,
Sunday, noon to 9 p.m. Stomping Grounds coffee shop in the Memo-
rial Union and University Place serves Seattle’s Best coffee, espresso,
speciality coffee drinks and features fresh baked items from the UND
Bakery. The Memorial Union location hours are 7 a.m. to 9 p.m.
Monday-Friday; the University Place location hours are 7:30 a.m.
to 5 p.m. Monday-Friday and noon to 5 p.m. Saturday and Sunday.

Other eating facilities include: Wings (Airport) Cafe, UND Ad-
ministrative Aerospace Center, Airport, 8 a.m. to 2 p.m., Monday
through Friday, providing subs, sandwiches, hot meal entrees, and
various other offerings. The food cart in the Medical School lower
level offers breakfast and lunch choices, including sandwiches and
beverages, 7:30 a.m. to 1:30 p.m., Monday through Friday (hours
may vary). For more information visit the Dining Services website at:
www.housing.und.edu/dining. The North Dakota Museum of Art
Cafe, on the lower level of the Museum building, serves cappuccino,
espresso, and pastries, 9:30 a.m. to 4:30 p.m., Monday through Friday,
and lunch is served 11:30 a.m. to 2 p.m. Stomping Grounds.

Parking: Visitors are always welcome on campus. You are en-
couraged to stop by the Parking office in the lower level of the Me-
orial Union to obtain a visitor’s permit. The parking restrictions
that apply to visitors are metered and time zones, reserved parking
in University Residence Halls or Apartments, Service Vehicle areas,
towable offenses, and handicap violations. Complete the visitor sec-
tion on the ticket and bring it to the Parking Office. For further
information, call 701-777-3551.

Books and Memorabilia: The University Bookstore, operated
by Follett Higher Education Group, is located on the Bronson Prop-
erty north of the main campus (725 Hamline Street).

Golf: The Ray Richards Golf Course, south of the main cam-
pus, is open to the public.

J. Lloyd Stone Alumni Center: This restored turn-of-the-
century mansion is open for tours; today it serves as headquarters for
the UND Alumni Association and Foundation, telephone (701) 777-
2611, 1-800-543-8764 out-of-state.
Athletic Hall of Fame: The colorful and accomplished past of UND sports will be recalled by a visit to the UND Athletic Hall of Fame display area, where plaques and descriptions recognizing the more than 200 former Sioux athletes are included. It is located in the Ralph Engelstad Arena on the south end of the upper concourse.

North Dakota Entrepreneur Hall of Fame: North Dakota entrepreneurs and innovators are recognized for their long-standing entrepreneurial contributions to the state and nation. Located on the second level of the atrium area in the Skalicky Technology Incubator on the west end of campus, the Entrepreneur Hall of Fame includes about 70 inductees.

Performer Hall of Portraits and Posters: The large and eclectic array of internationally famous performers who have appeared in the Chester Fritz Auditorium over the years since its opening in 1972 are reflected through interesting displays of their portraits, photographed specifically for their appearance at the Auditorium. Also displayed are promotional posters, some of which are prize winners created by UND graphic designers specially for the UND shows. The dozens of portraits and posters are located in the Auditorium mezzanine areas.

CAMPUS VISITS FOR PROSPECTIVE STUDENTS

The school you attend can be one of the most important investments in your life, so you will want to learn as much as possible about the colleges and universities you are considering. Brochures and catalogs can tell you much, but a visit to the campus can go beyond that in providing the mood and the atmosphere of an institution and its people. A campus visit gives you the opportunity to experience the total environment, including the host community. After all, you will not be spending all your time in the classroom.

During a visit you can meet with campus personnel in a variety of situations. You can talk to an Enrollment Services representative, faculty members, and to students. You can also eat in campus dining facilities and participate in a residence hall tour. When you set up an appointment for a visit to UND, we can assist you with arrangements for your overnight stay.

Tell us when you want to come and we will work out the details. We will send you a special brochure about visiting the University to help answer questions about what to do when you come to campus. If special accommodations are needed, let us know in advance. It is best if you give us a week’s notice for a visit, but feel free to stop in or call at any time. The easiest way to set up a visit is to call 1-800-CALL UND and ask for the Office of Enrollment Services, call (701) 777-4463, send an email to: enrollmentservices@mail.und.nodak.edu, or write to: Office of Enrollment Services, University of North Dakota, Carnegie Hall Room 100, 250 Centennial Drive, Stop 8135, Grand Forks, ND 58202-8135. You can also find us on the web at: http://www.go.und.edu.

PARKING REGULATIONS

All parking on campus is permit parking only. Students who drive a vehicle on campus must purchase a parking permit upon arrival. Permits can be purchased at the Parking Office (lower level of Memorial Union). It is the responsibility of the individual to properly display the permit and comply with University Motor Vehicle Regulations at all times.

If you are a VISITOR ON CAMPUS, please see the Visitors Information Section about visitor parking permits.

STUDENT RECORDS

The student records maintained by the University fall into two general categories—public directory information and educational records. As the custodian of student records and in compliance with the Family Educational Rights and Privacy Act of 1974 as amended, the University assumes the trust and obligation to ensure the full protection of these student records. The University practices the policy of maintaining the confidentiality of educational records. It also guarantees that all records pertaining to a student (with the exception of those specifically exempted in the Code of Student Life) will be produced, with reasonable notice, for inspection by that individual student. The administrative procedures on student records as outlined in the Code of Student Life are adhered to by University personnel who have or accumulate educational records which are in a personally identifiable form.

PUBLIC DIRECTORY INFORMATION

Directory information, which may be released publicly in printed, electronic, or other form, is defined to include the following: name (all names on record); address (all addresses on record); e-mail address (all electronic addresses on record); phone number (all phone numbers on record); height, weight and photos of athletic team members; date of birth; place of birth; major field of study (all declared majors); minor field of study (all declared minors); mass level; dates of attendance; enrollment status; names of previous institutions attended; participation in officially recognized activities and sports; honors/awards received; degree/s earned (all degrees earned); date degree earned (dates of all degrees earned); and photographic, video or electronic images of students taken and maintained by the institution.

The student may request directory information not be made public by completing an appropriate form in the Office of the Registrar. In order to effectively suppress release of directory information, students should restrict their information as early in the term as possible. To insure restriction of directory information from the printed University Directory, the process should be completed by the tenth day of classes in the fall semester.

EDUCATIONAL RECORDS

Educational records are those documents, records, files, and other materials which contain information directly related to a student and are maintained by the University of North Dakota or a person acting on behalf of the University. Educational records include more than academic records. Educational records, with the exception of those designated as public directory information, may not be released without written consent of the student to any individual, agency or organization other than authorized personnel. Directory Information may be released publicly in printed, electronic, or other form. See the Code of Student Life, section 8, for details on the various ramifications of the Family Educational Rights and Privacy Act (FERPA), its implementing federal regulations, and UND policies. Students have a right to file a complaint regarding a violation of FERPA with the Affirmative Action Office, 101 Twamley Hall, P.O. Box 7097, Grand Forks, ND 58202-7097, or with the Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue SW, Washington, D.C. 20202-5920.

RESEARCH

Research is a critical component of the mission of the University of North Dakota. As a result of research activities conducted by the faculty, UND undergraduate and graduate students have expanded opportunities to broaden and enrich their educational experience. In addition to contributing to the educational mission of the University, the results of the research are often of direct benefit to the residents of the state and to the nation as a whole.

Research activities are conducted through University research programs and individual faculty members working within their own departments. Several of the UND research programs are involved in public service activities which provide an opportunity for faculty and students to conduct research projects directly benefiting the public.
Financial support for research activities is provided either from University sources, such as the University Senate Scholarly Activities Committee, the Faculty Research Seed Money Program and Research Development and Compliance (RD&C), or through funds provided from external agencies such as Federal or State government, private foundations, and industry. In fiscal year 2008, $87.7 million of external support was received for sponsored program activities. Sponsored program expenditures were $91.3 million.

Major UND research programs include:

**Anthropology Research:** Anthropology Research is affiliated with the Department of Anthropology at the University of North Dakota. The program provides a variety of archeological and cultural resources management services to federal, state, and private organizations. Its primary research involves archeological investigation of the prehistoric cultures and peoples who occupied the Northern Great Plains, chiefly in the Dakotas. The program has a number of full-time faculty and staff who provide in-house specialities and who consult with other organizations that provide additional research capabilities. Student training and involvement in lab and field research projects are also provided.

**Center of Excellence in Neurosciences:** The goal of the Center of Excellence in Neurosciences is to help talented investigators develop expertise in multidisciplinary approaches toward the understanding of brain function in health and disease, including Parkinson’s disease and Multiple Sclerosis which have high incidences in the State of North Dakota.

**Center for Rural Health:** The Center for Rural Health works to connect resources and knowledge to strengthen the health of people in rural communities. For 25 years, the Center for Rural Health has worked with the public and private sectors, expanding a circle of partners to develop creative solutions to critical health issues.

Located at the University of North Dakota School of Medicine and Health Sciences in Grand Forks, the Center for Rural Health uses a multidisciplinary approach to create solutions to complex challenges. To do this, the Center for Rural Health works closely with communities, health care organizations, health care providers, policymakers, researchers, tribal nations and other rural health stakeholders.

The Center for Rural Health serves the people of the state, region and nation by using research and knowledge to inform policymakers and assist communities. As a resource, its staff advocates for rural concerns, analyzes health policy, assists with community and economic development relating to health systems, develops community-based alternatives, enhances networks, identifies and researches rural health issues, targets underserved communities and populations, and strengthens local health care capabilities.

Because of the extensive and quality-driven work of the Center for Rural Health, it has been named a University of North Dakota Center of Excellence in Research, Scholarship and Creative Activity.

More information is available at: http://medicine.nodak.edu/crh.

**Energy and Environmental Research Center:** The EERC is a research, development, demonstration, and commercialization facility recognized as one of the world’s leading developers of cleaner, more efficient energy technologies as well as environmental technologies to protect and clean our air, water, and soil.

The EERC is a high-tech, nonprofit branch of the University of North Dakota, which operates like a business. The EERC currently employs more than 270 people and is aggressively expanding its staff. The Center was founded in 1951 as the Robertson Lignite Research Laboratory, a federal facility under the U.S. Bureau of Mines. It became a federal energy technology center under the U.S. Department of Energy (DOE) in 1977 and was defederalized in 1983. Today, the EERC leverages and enhances government research dollars by developing working partnerships with industry, government, and the research community. Since 1983, the EERC has had more than 800 clients in all 50 states and 47 countries. In FY2004, 90 percent of its contracts were funded by non-federal entities.

The EERC conducts research, development, demonstration, and commercialization activities involving all fossil, renewable, and alternative fuels; advanced power and energy systems; environmental chemistry; environmental control technologies; hydrogen production, distribution, and fuel cell technology; waste utilization, management, and site remediation; and water management. In addition, to its nine centers of excellence which include the Center for Air Toxic Metals® (CATM®), the Center for Biomass Utilization® (CBU®), the Coal Ash Research Center, the Coal Utilization Technologies Center, the Emission Control Technologies Center, the National Alternative Fuels Laboratory® (NAFL®), the Supercritical and Subcritical Extraction Technologies Center, the Water Management Center, and the Wind Energy Resources Center, the EERC has been designated as the National Center for Hydrogen Technology.

**North Dakota Biomedical Research Infrastructure Network (INBRE):** North Dakota INBRE’s purpose is to build biomedical research capacity within the state. Networking and human resource development are the watchwords for this collaborative effort between the two North Dakota research universities, four baccalaureate institutions in the North Dakota University System and five tribal community colleges. The Center is a research oriented program involving basic science and clinical departments. All faculty are involved in research and the graduate students are in training to become independent investigators. A major feature of the Center is the extensive collaborative interactions among its faculty. Faculty and students have numerous collaborative interactions that enable them and their colleagues to pursue common research goals, often at the interface between traditional areas of research.

**Regional Weather Information Center:** The Regional Weather Information Center (RWIC) is a weather education and research center focusing on issues of climate, transportation, agriculture, fine-scale weather phenomena, and geospatial technology. As a research, outreach, and information center, RWIC provides support to students, faculty and staff in the Atmospheric Science program, the University of North Dakota (UND), the State of North Dakota, and the Upper Midwest. RWIC provides students pursuing degrees in atmospheric sciences opportunities to participate in both operational and research aspects of contemporary meteorology. The programs and data resources of RWIC allow students to broaden their knowledge base within their areas of interest as they complete their undergraduate and graduate education. A major component of RWIC is experiential learning in a wide range of research and operational meteorology endeavors. This permits students to improve their skills while continuing their on-campus courses. Students with an interest in remote sensing have access to geostationary and polar orbiting satellite information and to national radar data. Students with an interest in analyzing current and predicting future atmospheric conditions can utilize the latest atmospheric analysis systems and models. These include a locally executed analysis system and mesoscale model to compare and analyze data in creating forecasts. As part of its endeavors, RWIC uses data from numerous observational platforms. Thus, students with an interest in data collection and analyzing observations have opportunities to enhance their skills at RWIC.

**Upper Midwest Aerospace Consortium:** UMAC develops products and services for agriculture, for natural resource management, for cultural resource preservation, and for K-12 education, using satellite imagery and other spatial technologies. UMAC also provides information and educational outreach services to the general public with respect to regional impacts of environmental and climatic change by operating as the Northern Great Plains Center for People
and the Environment, committed to leading a transition to sustainability. As a consortium, UMAC is led by the University of North Dakota, and includes participants from academia, industry, and government located throughout North Dakota, South Dakota, Montana, Wyoming, and Idaho.

**LEARNING COMMUNITIES AT UND**

There are programs at UND that purposefully offer students the opportunity to participate in academic programs while developing lasting relationships with a small group of students and faculty. These programs afford students a relatively small “community” for pursuing their academic studies, although each community varies in its structure and methods.

The *Integrated Studies Program*, one of these learning communities, is a nationally-known, award-winning program. Integrated Studies (ISP) provides a unique way to take the Essential Studies classes which UND requires. Each semester of ISP includes credit from each of the four Essential Studies categories: Communications; Social Sciences; Arts and Humanities; and Math, Science, and Technology. To emphasize and build connections between disciplines, all class activities and discussions are organized around a central theme; class meeting time includes a variety of small group settings in which discussion among students is emphasized. For more information, refer to the Integrated Studies catalog listing, call (701) 777-3622, or visit our website at: www.und.edu/dept/integr8.

The *Wellness Community* focuses on living a balanced lifestyle within the college environment. As members of the Wellness floor in Brannon Hall, you will have the opportunity to develop healthy practices, and incorporate the seven aspects of wellness: emotional, intellectual, physical, occupational/vocational, environmental, social and spiritual. For information on the Wellness Community, contact the Housing Office at (701) 777-4251.

The *Honors Program* (described below) is a learning community designed for students with an interest in intellectual and creative pursuits. Students participate in an Honors class or two per semester as part of their program of study throughout their undergraduate education. Other educational, social, and service activities extend their learning beyond the classroom experience. Honors Housing allows students the option of carrying the learning community into Fulton Residence Hall. For information on Honors housing, contact the Housing Office at (701) 777-4251. Students in any college of the University may apply for admission to this learning community. For more information, call (701) 777-2219.

The *American Indian Student Services (AISS)* Community is a distinctive living option that takes academics into the residence halls through advising and referral services, tutors, and special opportunities to interact with fellow students and staff at UND. The members of AISS must live in a designated wing of Brannon Hall and be enrolled in Introduction to University Life. For more information on the AISS Community, contact the Housing Office at (701) 777-4251.

**THE HONORS PROGRAM**

http://www.und.edu/dept/honors/

I. General

The Honors Program serves motivated, accomplished students by nurturing creativity, critical thinking, and scholarship beyond the usual academic frameworks. Through classes, co-curricular activities, service projects, and advisement, the Honors Program creates a learning community that emphasizes intellectual exploration. Students may participate in the Honors Program throughout their undergraduate career. High school graduates are encouraged to apply at the time of their initial registration at the University. Students may also enter the Program after the first year, and inquiries from interested students are welcome. Please phone (701) 777-2219 or email: honors@und.edu. Students in any college of the University may enroll in the Honors Program.

**II. Administration**

The Program is administered by a Director and a University Honors Committee. The Honors Program can adjust its academic program to fit the needs and goals of individual students. In response to this flexibility, Honors Program students are expected to demonstrate intellectual excellence and to pursue learning independently. Opportunities to do so are offered in Honors colloquia, other special classes, Honors sections of regular courses, and regular courses taken in Honors mode. Most students graduate from the Program as “Scholars in the Honors Program” while also fulfilling a major in one of the Colleges, but the Honors Program also offers the option of creating an individually designed program of study through Honors. This option may result in either a B.A. or a B.S. degree earned through the College of Arts and Sciences.

**III. Means**

For beginning students, special introductory courses are available to familiarize students with the nature of the Program and to acquaint Honors faculty with students. Advanced courses and colloquia introduce students to the full range of the disciplines which make up the University.

The requirements to graduate as a Scholar in the Honors Program are: (a) a minimum of 24 credits in Honors work including 8 credits of colloquia; (b) a Sophomore Honors Portfolio; and (c) a senior thesis and oral presentation (with a grade no lower than “B”) in a chosen field. After successful completion of 9 Honors credit hours and submission of the Sophomore Honors Portfolio, the student will be considered for full membership in the Honors Program. Students who complete all Honors requirements may substitute Honors requirements for the Essential Studies Requirements. To graduate without a major in the Colleges, students are additionally required to develop, in conjunction with an Honors advisor, an academic program based around individual needs. This program of study must be approved by the Honors Program. The colloquia mentioned above are topical and, usually, interdisciplinary discussion courses, one semester in length, on topics chosen according to student and faculty interests. The Honors mode entails an extra credit of work in a regular course so a greater than usual depth and/or breadth of knowledge can be achieved in that course.

In addition, Honors Program students are expected to maintain a solid academic performance. A student should attain a 3.2 grade point average by the sophomore year and maintain it. If this does not occur, the Honors Committee reviews the standing of the student.

IV. Advantages

Students in the Honors Program have many opportunities to develop their own ideas and their writing and research skills; they also benefit from close association with faculty and other students who share their intellectual interests. Honors Program courses encourage students to think independently, creatively, and critically; to express their thoughts clearly, orally and in writing; to expand their perspectives on the world; to develop as citizens; to understand the nature of scholarly inquiry; and to forge connections among disciplines. Successful completion of the Program is a clear signal to prospective employees and graduate schools that the graduate is a serious, well-prepared, accomplished student.

**THE SENIOR HONORS SYSTEM**

http://www.und.edu/dept/honors/

In the Senior Honors System (formerly known as Departmental Honors), students of marked ability may pursue, in their senior year, a voluntary program of supervised independent study, leading to the bachelor’s degree with honors in the major field of study. The pur-
pose of this program is twofold: first, to give public recognition to the superior student; and second, to enable the student to broaden, deepen, and enrich the educational experience.

In order to be eligible, a student must have completed 75 credit hours by the end of the first semester of the junior year with a general grade point average of at least 3.2. Students must apply for admission to pursue honors work by April 1 of their junior year. If he or she is certified by the chairperson of his or her major department, Academic Dean, and the Honors Committee, the student and his or her supervisor will then plan a course of independent study for the following year.

The credits in independent study shall total nine credits. At the discretion of the department and of the Honors Committee, these credits may be either in addition to major requirements or in place of some requirements. Such a study may consist of Honors Program courses, tutorial readings, projects of research, seminars, creative work, a thesis, or any combination of these which the department and the Committee may approve. This study, whatever its nature may be, will appear on the student’s record with the number 489 and the title “Senior Honors Thesis.” The study may be either departmental or interdepartmental. To qualify for Senior Honors, the student must receive a grade no lower than a “B” for this work. Theses will be bound and deposited in the University Library. The student will be expected to meet the nominal charge involved.

The student must maintain a GPA of at least 3.2, make satisfactory progress in his or her course of independent study, and submit a progress report to the supervisor at the end of the first semester of the senior year. At that time, the student, the department, or the Committee may decide to terminate the student’s honors work. At or near the end of the senior year, if the work is continued, the student will participate in the Honors Undergraduate Research Conference or take a comprehensive oral examination at which a member of the Honors Committee shall be present.

An unsuccessful candidate for Senior Honors will receive the bachelor’s degree with the usual General Honors if his or her record meets the grade-point requirements. A successful candidate for Senior (Departmental) Honors will receive the same distinction; the additional notation “Departmental Honors” will appear on the Commencement program and transcript.
## Tuition, Fees, Financial Information

### Tuition and Fees, as of Spring 2009*

*(Per semester, 12 or more credits)***

<table>
<thead>
<tr>
<th></th>
<th>Resident</th>
<th>Minnesota States</th>
<th>Non-Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>$3,256.56</td>
<td>$3,370.56</td>
<td>$7,662.56</td>
</tr>
<tr>
<td>Graduate</td>
<td>3,456.06</td>
<td>3,991.06</td>
<td>8,195.06</td>
</tr>
<tr>
<td>Law****</td>
<td>212.42</td>
<td>318.62</td>
<td>567.15</td>
</tr>
<tr>
<td>Medicine</td>
<td>11,876.06</td>
<td>13,002.06</td>
<td>21,456.06</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>5,821.56</td>
<td>5,821.56</td>
<td>7,817.06</td>
</tr>
</tbody>
</table>

***Law tuition only per credit hour (fees not included) - not subject to 12 credit cap.***

Since the University of North Dakota is supported by legislative appropriations, tuition and fees paid by students constitute only a part of the actual cost of the student’s education. An individual registration is not complete until all tuition/fees are paid. Tuition for North Dakota’s institutions of higher education is determined annually by the State Board of Higher Education. In addition, the Board authorizes the individual institutions to collect certain other mandatory fees, which in 2008-09 totaled $618.56 per semester at UND and is included in the above table. These include the student fees which support, among other functions, Student Government, Student Health, Bonds, Wellness, Memorial Union, Career Services, Substance Abuse Prevention Programming, Multicultural Student Services, Athletics, Student Success Center and the Judicial/Crisis Team, $487.20; the NDUS Fee, which supports functions that are managed at the N.D. University System level, $81.36; and the technology fee, which supports technology needs, $50. Most student fees were approved by votes of the student body.

For more current information on tuition and fee rates, please visit the Student Account Services website at [http://www.und.edu/dept/studentaccounts/](http://www.und.edu/dept/studentaccounts/).

*All fees are subject to change without notice; contact the Office of Enrollment Services for up-to-date cost estimates. Contiguous states and provinces include South Dakota, Montana, Manitoba and Saskatchewan. Part-time students taking 11 or fewer hours are billed on a per-credit hour basis. Summer session tuition and fees are 75 percent of the semester rate.*

**In addition to this tuition fee schedule, program fees are assessed in the College of Business and Public Administration, Engineering, Law, Nursing, Teacher Education and for graduate students as indicated in a following section titled “Other Fees.”

***Online courses are charged at the resident rate and are not subject to the 12 credit cap. See schedule in Division of Continuing Education section of catalog.*

### Other Fees

<table>
<thead>
<tr>
<th>Fee</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Fee (Undergraduate)</td>
<td>$35.00*</td>
</tr>
<tr>
<td>Application Fee for Graduate Students</td>
<td>$35.00*</td>
</tr>
<tr>
<td>Application Fee for Readmission for</td>
<td>$35.00*</td>
</tr>
<tr>
<td>Graduate Students</td>
<td></td>
</tr>
<tr>
<td>Application Fee for Medical Students</td>
<td>$50.00*</td>
</tr>
<tr>
<td>Application Fee for Housing</td>
<td>$35.00*</td>
</tr>
<tr>
<td>(residence halls and apartments)</td>
<td></td>
</tr>
<tr>
<td>Auditing Fee</td>
<td></td>
</tr>
</tbody>
</table>

**Auditing fees will be 50% of the regular, per hour tuition charge for the same course.**

### Aviation Laptop Computer Program Fee

A program fee of $340 per semester (fall and spring) will be charged to all aviation students.

### College of Business and Public Administration

A program fee will be charged to all students in the College of Business and Public Administration sophomore through graduate level, pre-business and other majors, instructed by CoBPA faculty. The program fee will be $150 per semester for full-time students and will be prorated for part-time students.

### Engineering Program Fee

A program fee of $12.50 per credit hour (to a maximum of 12 credit hours) will be charged each semester to undergraduate students in engineering who have completed 60 semester credit hours on their UND transcript.

A program fee of $25.00 a semester will be assessed to undergraduate students in engineering with less than 60 accumulated credits. A program fee of $150.00 a semester will be charged to graduate students in engineering.

### Graduate Student Continuing Enrollment Fee

Payable by each student registering for 996 (Continuing Enrollment).

### Graduate Student Thesis Fee

Payable for binding and microfilming the original copy of a thesis.

### Graduate Student Dissertation Fee

Payable for binding and microfilming a dissertation and publishing the abstracts in dissertation Abstracts.

### Graduate Student Copyright Fee

Payable for securing copyright to a dissertation.

### Late Payment Penalty

Payable up to $200.00. Students with an unpaid tuition and fee balance after the payment deadline will be assessed a late fee of 7% of their unpaid tuition and fee balance (minimum fee of $7; maximum fee of $200). The amount due is calculated as follows:

Tuition and Fees charged for the current term, less anticipated aid for the current term, equals remaining balance due.

No late payment fee will be charged to those students that are granted a tuition fee deferral exception by UND Student Financial Aid, unless the student does not make payment before the deferral exception expiration date. If payment is not made on or before the expiration date, the student will be charged the late payment fee at that time. Deadline dates are listed in the semester schedule of classes.

### Law Program Fee

A program fee of $53.33 per credit hour, maximum of $800 per semester ($1600 per academic year), will be charged to all law students.

### Nursing Program Fees

For all students newly admitted to Nursing, a program fee of $300 per semester will be charged all undergraduate students enrolled in the professional nursing education programs that lead to a Bachelor of Science Degree and eligibility for licensure as a Registered Nurse.

A program fee of $500 per semester (prorated for part-time students) will be charged to all graduate students. Anesthesia graduate students have a program fee of $53.33 per credit hour, maximum of $800 per semester. Family Nurse Practitioner has three semesters and will be charged $1,500 per academic year.

### Outreach Programs Courses

Payable at the beginning of the fall semester for the entire year by students who own or operate a motor vehicle on campus. New second semester students pay $35 for a regular parking permit, and new summer session students pay $17.50. Permits are subject to availability, and fees are subject to change.
Recreation and Tourism Studies/Rehab and Human Services
A program fee of $225 per semester, pro-rated for part-time students, will be charged to all students admitted to these programs.

Social Work
A program fee of $225 per semester, pro-rated for part-time students will be charged to all undergraduate students admitted to the program. A program fee of $300 per semester, pro-rated for part-time students will be charged to all graduate students.

Special Examination for Credit
Fee per Semester Hour .......................... 1/2 the regular credit hour fee

Teacher Education Program
A program fee of $100 per semester will be charged to all students admitted to the Teacher Education Program.

* Non-refundable; subject to change
** Non-refundable; approved rate effective Fall, 2007

ESTIMATED YEARLY EXPENSES

The following table gives an estimate of the expenses of a single, undergraduate student residing on campus during the nine month, 2008-2009 college year. Detailed information about the cost of attending the University is available from the Office of Enrollment Services.

<table>
<thead>
<tr>
<th></th>
<th>North Dakota</th>
<th>Minnesota</th>
<th>Contiguous &amp; WUE States</th>
<th>Non-Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition and Fees*</td>
<td>$5,514</td>
<td>$6,546</td>
<td>$9,152</td>
<td>$15,324</td>
</tr>
<tr>
<td>Room and Board**</td>
<td>3,463</td>
<td>3,463</td>
<td>3,463</td>
<td>3,463</td>
</tr>
<tr>
<td>Books and Supplies</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
</tr>
<tr>
<td>Personal Expenses</td>
<td>3,200</td>
<td>3,200</td>
<td>3,200</td>
<td>3,200</td>
</tr>
<tr>
<td>Total Est. Costs</td>
<td>$15,717</td>
<td>$16,309</td>
<td>$18,615</td>
<td>$24,787</td>
</tr>
</tbody>
</table>

*Plus matriculation fees ($35 one time)
**Costs based on UND residence hall rates (double room and 14 meal contract) and includes the Association of Residence Halls fee.

REGULATIONS REGARDING NON-RESIDENT FEES

TUITION FOR NON-RESIDENT STUDENTS (Requirements subject to change without notice. Please visit Student Account Services’ website at: http://www.und.edu/dept/studentaccounts/html/residency.htm for the most current information.) Non-resident students seeking to declare North Dakota residence for tuition purposes must submit an affidavit of residency to Student Account Services for the term in which they are currently enrolled within 30 days from the first day of regular term classes. For purposes of determining residency, a resident student is defined by law as follows:

a. A child, spouse, widow, or widower of a veteran as defined in NDCC section 37-01-40 who was killed in action or died from wounds or other service-connected causes, was totally disabled as a result of a service-connected cause, died from service-connected disabilities, was a prisoner of war, or was declared missing in action.

Applications for residency are available online at: http://www.und.edu/dept/studentaccounts/Documents/ND_Residency_Application_120808.pdf and in Student Account Services.

Legal residence in the State of North Dakota includes, but is not necessarily limited to the following responsibilities and rights:

1. To vote in general or special elections in the State.
2. To obtain a North Dakota driver’s license.
3. To obtain a North Dakota license for motor vehicle ownership.
4. To file a North Dakota resident income tax return.
5. To obtain a ND resident game or fishing license after 6 months residency in the state.

International Students: To qualify as a North Dakota resident for tuition purposes, international students who are not refugees must have an Alien Registration Receipt Card (Green Card) proving permanent residency or immigrant status and must meet all the other North Dakota residency requirements for tuition purposes. Refugee students should contact Student Account Services for requirements.

MINNESOTA TUITION RECIPROCITY

Residents of Minnesota and their dependents may attend a North Dakota state institution of higher learning and pay a special tuition rate that is lower than the normal non-resident rate. (Minnesota reciprocity tuition rates are not available to Medical and Law students enrolled beginning fall semester 2006.)

To be certified for reciprocity at UND, Minnesota students must do two things: 1) file UND’s standard admission application; and 2) file a reciprocity participation application with Minnesota at their website: www.getreadyforcollege.org. Students who previously participated in the reciprocity program and have had a break in their enrollment of one year or more, must re-apply for reciprocity.

CONTIGUOUS STATES/PROVINCES, WESTERN UNDERGRADUATE EXCHANGE PROGRAM, MIDWESTERN HIGHER EDUCATION CONSORTIUM

Rates are determined at the time of admission and are based on information provided on the admission application.

Tuition rate adjustments will only apply to the current term. Prior terms will not be adjusted.

DEPENDENTS AND SPOUSES OF NORTH DAKOTA UNIVERSITY SYSTEM GRADUATES

Dependents and spouses of North Dakota University System campus graduates may be eligible for a lower tuition and fee rate than other nonresidents. If qualified, students may attend a North Dakota University System institution at a tuition rate of 150% of the resident tuition rate plus all applicable fees. This program applies to all qualified students who are newly enrolled for the Fall 1999 term or later. This category is for undergraduate instruction only.

REFUND OF INSTITUTIONAL CHARGES FOR WITHDRAWN STUDENTS

1. A student who withdraws from the University under normal conditions and after the beginning of instruction will be granted a refund of tuition/fees in accordance with federal
regulations and North Dakota State Board of Higher Education policy 830.2.

2. Institutional charges shall be refunded according to a schedule approved by the Chancellor that provides for a percentage refund, which approximates the amount the institution must return to the Title IV financial aid programs.

3. A student must withdraw officially from the University within the stated refund period to be eligible for a refund of tuition and fees. No refund will be made to a student who is suspended, dismissed, or expelled for breach of discipline. Please visit this link for more detailed information: http://www.und.edu/dept/studentaccounts/html/withdrawal.htm.

4. Any student who has an approved rescind (Room and Board Contract Cancellation) shall receive a refund for his/her room and board in accordance with the State Board of Higher Education refund policy.

5. A student may appeal the refund percentage by submitting a Campus Connection Charges Appeal form to Student Account Services in accordance with appeal process outlined in State Board policy 830.2 (#5).

STUDENTS IN DEBT TO THE UNIVERSITY

A student who is in debt to the University will not be permitted to early register or register in the University and will not be entitled to receive a transcript of credits or a diploma until the indebtedness has been paid in full.

SATISFACTORY PROGRESS

Any time you drop a course or withdraw from the University, you may be jeopardizing your federally-funded student financial aid, now or in the future. You must successfully complete at least two-thirds of all courses in which you enroll. Dropping after the first day of class may not affect your academic standing, but it may affect your ability to receive financial aid. Please review this policy and others pertaining to your financial aid in the Code of Student Life in the appendix section titled “A Summary of the Standards of Satisfactory Progress for Financial Aid Eligibility,” or contact the Financial Aid Office.

REFUND FOR CLASS CHANGES (DROP/ADD)

Any student who drops a class before 9% of the period of enrollment for the class is completed shall receive a 100% refund of tuition and fees for the credit hours attributable to the class or classes dropped. After 9% of the period of enrollment for a class is completed, no refund shall be made for a class which is dropped. However, classes of the same number of credits may be substituted for the dropped class at no additional tuition and fee charge, unless the added class requires a special fee or change in tuition. Correspondence, online, and collaborative courses are not eligible for exchange.

STUDENT FINANCIAL AID

Financial aid is available to students who, without such help, would be unable to attend the University of North Dakota.

The primary responsibility for financing a college education rests with the student and family. UND financial aid is viewed as a supplement to family support.

Most student aid is awarded on the basis of need. “Need” is the difference between cost of education (tuition, fees, room, board, books, supplies and related educational expenses) and the Expected Family Contribution, which is the amount the student and family is expected to contribute, as determined by a standard formula. In determining family contribution, four major sources are considered: (1) family income, (2) family assets, (3) student’s income, and (4) student’s assets.

If cost exceeds the family contribution, need will exist; and every effort will be made to provide adequate financial aid. To offer maximum assistance, awards often are made in the form of a financial aid “package” combining two or more different types of aid (loans, scholarships, grants, or employment).

The final determination regarding the type(s) and amount of aid awarded is based upon an evaluation of the applicant’s eligibility for a particular type of aid and upon the availability of funds under the various aid programs.

Types of Aid. Four different types of financial aid are offered: (1) employment, (2) loans, (3) scholarships, and (4) grants. Employment enables recipients to work and earn money. Loans are borrowed money which must be repaid with interest. Scholarships are gifts awarded on the basis of academic performance and potential. Grants are gifts of money which do not have to be repaid. Most financial aid recipients may expect to receive more than one of these types of aid.

Student Employment: Student employment provides financial assistance and reduces students’ loan indebtedness. There are several student employment programs which complement the students’ learning and give the University the opportunity to utilize student skills.

Federal Work-Study (FWS) is a form of federal aid based on financial need, and is awarded to students as part of their total aid package. A FWS award indicates a student’s eligibility to seek available FWS jobs. Wages are paid primarily from federal funds allocated to the University.

Wages for institutional (INST) employment are paid from funds allocated to individual University departments. Financial need is not a requirement.

All students who work through FWS and/or INST employment will be hired at least at the federal minimum wage rate. Wage rates vary, depending upon the skills required and job responsibilities.

The grievance procedure for student employees is described in the Code of Student Life.

Job Location and Development (JLD) is a cooperative effort with Job Service North Dakota to secure part-time work for students with area businesses. Although financial need is not a requirement, jobs secured through JLD can be part of a financial aid package.

Veterans Work-Study is a program for veterans attending school full-time and receiving VA benefits. Veterans can work up to 250 hours a semester and be paid at the minimum wage. Eligibility is determined by the Veteran Services office on campus.

Information concerning Head Resident, Resident Assistant, Cooperative Education Program, and/or departmental internships is available by contacting individual departments responsible for selection.

Loans. Student loan funds can be categorized into two classifications: long and short term loans. Long term loans are generally low-interest loans administered by the federal Department of Education. Interest rates, eligibility, repayment terms, deferment, and cancellation provisions vary with the specific loan program. Some of the federal loan programs in which the University of North Dakota participates are: Perkins Loan, Stafford Loan, PLUS, Grad PLUS, Nursing Student Loan, Primary Care Loan, The Minnesota Student Educational Loan Fund (SELF), Canadian Higher Education Loan Program (CanHELP) and commercial educational loans are also available at UND. Many of the commercial education loan programs are available to students who are not degree-seeking or are enrolled less than half-time. A more complete listing of alternative education loans is available at: www.und.edu.

Federal requirements require all first time borrowers at UND to attend an Entrance Loan Counseling session prior to receiving loan funds. Exit Loan Counseling is also required at the time a student graduates or drops below half-time enrollment at the University. These requirements must be completed on the Internet at: www.und.edu.
The short-term emergency educational loan program derives its funds from different sources provided primarily by private donations. Short-term loans are to be paid back within 30 days or the end of the semester, whichever comes first. Students are limited to one short-term loan at a time. The availability of these loans may be restricted based on the amount of funds remaining.

**Scholarships.** The scholarship program at the University of North Dakota is one of the best at public institutions of its size. Scholarships are supported by gifts from UND alumni and friends.

Because high educational quality comes less expensively at UND than at most other academic institutions, scholarships can significantly help students in their financial preparation for college.

Past academic excellence and the expectation of continued achievement determine the recipients of more than 3,000 undergraduate scholarships totaling over $2.80 million per year. These vary in amounts up to $5,000 per academic year.

Each of the awards is based upon a number of variable factors stipulated by the donors. UND awards scholarships to the most worthy, promising applicants who meet the qualifications of the particular scholarship. Most of the undergraduate scholarships are awarded on the basis of past academic performance.

Scholarships to entering freshmen are usually limited to students who have exceptional ACT or SAT scores and who have a high school grade point average (GPA) commensurate with their ACT or SAT score. Transfer students and returning UND undergraduate students receiving 4.0 (straight A) averages are awarded scholarships first, and the rest of the scholarships are awarded to students with the next lower grade point average until all of the money is exhausted.

New students are considered for undergraduate scholarships at the time of admission to UND. No additional application is required. Current students should complete the Returning Student Scholarship Application form which is available at: www.financialaid.und.edu.

**Cultural Diversity Tuition Waivers.** UND awards several tuition waivers to broaden the cultural diversity on campus. Cultural diversity, for this waiver, is defined as individuals who come from historically under-represented groups (African American, American Indian, Asian American, Hispanic American, and the economically disadvantaged). Application information is available at: www.financialaid.und.edu. The priority date for top consideration is April 15.

**Grants.** The largest of the grant programs, the Federal Pell Grant entitlement program, provides grants to those students who meet the eligibility and need criteria established by Federal regulations. For the 2008-2009 school year, grants range from $445 to $4,731. The entitlement program, provides grants to those students who meet the priority date of March 15. Eligible students enrolled at least half-time may receive grants up to $800 per year.

The Teacher Education Assistance for College and Higher Education (TEACH) Grant/Loan Program provides up to $4,000 per year in grants to undergraduate and graduate students who intend to teach full-time in high-need subject areas for at least four years at schools that serve students from low-income families. Students can receive up to $4,000 per year and the grant is available to students who are enrolled less than half-time. Students who fail to complete the 4-year teaching obligation within 8 years of completing or ceasing their program of study will have to repay the grant with interest (it will become a Federal Direct Unsubsidized Loan). More information on the application and eligibility requirements for this program are available at: www.financialaid.und.edu.

The North Dakota Student Financial Assistance Program provides non-repayable grants to North Dakota residents to aid undergraduate students in need of financial assistance. The Free Application For Federal Student Aid (FAFSA) serves as the application for the State Grant Program. To ensure that your FAFSA will be received by the State Grant Program and be considered as an application for the Program, you must list at least one eligible North Dakota college code on the FAFSA. The deadline for priority consideration is March 15. For 2008-2009, students awarded a Student Financial Assistance Grant will receive $800 for the academic year. Additional information may be obtained from the Student Financial Assistance Program, North Dakota University System, 600 E. Boulevard, Bismarck, ND 58505.

**Other Sources of Aid.** The United States Army and U.S. Air Force provide scholarships to students pursuing studies in the Army ROTC program. Four year scholarships are offered on a competitive basis to outstanding students entering college for the first time. ROTC also offers two and three year scholarships to students who have successfully completed one or two years of college and have been selected as the most qualified applicants for the available awards. Enrollment in ROTC is not a prerequisite to applying for a two or three year scholarship. For information, contact the Military Science Department.

American Indian students should contact their local tribal agency concerning their eligibility for BIA/Tribal Scholarship funds. The awarding of BIA/Tribal Scholarships will be dependent upon the availability of funds.

Any active member of the North Dakota National Guard presently serving in either the Army Guard or the Air Guard may receive a partial tuition reimbursement. Loan repayment assistance is also available. For information on eligibility requirements, contact your local National Guard unit or the Office of the Adjutant General, PO Box 551, Bismarck, ND 58502-5511 or (701) 224-5110.

Veterans may be able to receive special educational assistance. Benefits have also been extended to children, wives and widows of deceased or permanently and totally disabled veterans. The Veteran Services officer on campus can assist in any VA related questions or problems. Applications and more information can also be obtained from any Veterans Administration Regional Office.

Students with a physical limitation or health problem may be entitled to certain benefits such as tuition, fees and textbooks reimbursement. Interested students should communicate with the Division of Vocational Rehabilitation at the nearest district or regional office.

There are many outside agencies and sources which offer financial assistance to students. They are so numerous it is impossible to list them all. However, most libraries have available various types of resource materials in order to review the various sources of aid.

**Financial Aid Procedures and Award Policies.** March 15 is the priority deadline at the University of North Dakota. To receive
top consideration for all programs, students are advised to complete the FAFSA by March 1. Students must submit the FAFSA or Renewal FAFSA each year.

The Student Financial Aid Office awards aid to the neediest students who have a complete file by March 15. After that date, students’ files are considered by the date the FAFSA was received for processing until all funds are awarded. Late applicants, as well as those who incorrectly fill out their application materials, may experience a considerable delay in receiving notification of their eligibility and subsequent delivery of any remaining financial aid funds.

All students whose files are complete will be notified by early summer regarding the action taken on their application. Recipients of financial aid must accept or reject the aid within 30 days after summer regarding the action taken on their application. Recipients of financial aid must accept or reject the aid within 30 days after receiving notice of the award.

Coursework that does not count toward the graduation requirements at UND, i.e., Math 102 Intermediate Algebra, all audited coursework, also does not count toward enrollment requirements for financial aid eligibility.

Verification. The Department of Education or UND may ask students to prove the information they provided on their applications for financial aid is correct. If students are selected, they may be asked to verify such information as income, federal income tax paid, household size, number in college, status as a dependent or independent student, and citizenship. As part of this process, students must provide the Student Financial Aid Office with their and/or their parents’ Federal Income Tax Return and in some cases, statements from Social Security Administration, Veterans Administration or other agencies to verify benefits the student and/or the student’s family has received. If information on any of these documents conflicts with the information reported on the student’s application, they may be required to provide additional information. Failure to provide proof may result in the cancellation of aid from all of the Title IV programs and may also result in the cancellation of aid from other sources.

Federal financial aid received because a student reported incorrect information will have to be repaid. Any person who intentionally makes false statements or misrepresentations on a Federal financial aid application is violating the law and is subject to a fine or imprisonment or both, under provisions of the U.S. Criminal Code.

Satisfactory Academic Progress for Financial Aid Eligibility. To be eligible to receive financial aid, students must meet the following minimum standards as established by the University:

**Academic Standard:**

1. **Undergraduate Students**
   a) Students classified as juniors or seniors by the Registrar or students who have attended UND for two years (defined as 4 academic semesters) or more must have a minimum institutional cumulative grade point average of 2.00. All other undergraduate students who meet the University’s minimum academic standards as defined in the UND Undergraduate Catalog meet this standard.

2. **Graduate Students**
   a) Graduate students who have been in attendance for two academic years or more as a graduate student must have a minimum 3.0 institutional cumulative grade point average to meet this standard.

3. All students must be eligible to re-enroll in the next term in order to meet this standard. The student’s institutional cumulative grade point average will be reviewed at the end of each regular period of enrollment.

**Rate of Progress Standards:**

1. **Maximum Time Frame**
   a) **Undergraduate Students**
      Undergraduate students shall be making satisfactory progress for financial aid purposes if their program of study is completed within 150% of the length of the program (a maximum of 187 attempted credits for all programs except Accountancy, Chemical Engineering, Clinical Laboratory Science, Civil Engineering, Geological Engineering, Mechanical Engineering, and Nursing).
      Post-baccalaureate students (not admitted to graduate, law, or medical programs of study) enrolled in an educational program that leads to an undergraduate degree or teacher certification are also subject to the undergraduate maximum time frame standard.
   b) **Graduate Students**
      Students admitted to the Graduate School shall be making satisfactory progress for financial aid purposes if their program of study is completed within a maximum of 135 attempted credits.
   c) The maximum time frame standard will be reviewed at the end of each regular period of enrollment.

2. **Minimum Percentage of Completed Hours**
   a) In order to earn enough credits to graduate within the above maximum number of attempted hours, students are required to successfully complete two-thirds (66.66%) of the cumulative credit hours attempted.
   b) The percentage of completed hours standard will be reviewed at the end of each regular period of enrollment.


**Repayment of Financial Aid.** Financial aid funds can be used only for educational expenses. Therefore, repayment may have to be made if a student officially or unofficially withdraws from the University. If withdrawal is before first day of classes, or if the student fails to pay tuition, all cash disbursements are overpayments and must be repaid in full. If withdrawal is on or after the first day of classes, the University will determine the amount of “unearned aid” to be repaid according to a federal formula. To officially withdraw, a student must complete a withdrawal form at the Registrar’s Office, 201 Twamley Hall. If a student does not officially withdraw, the unofficial withdrawal date will be the student’s last documented date of attendance or the midpoint of the semester, whichever is later.

**Access to Records.** In compliance with the Family Educational Rights and Privacy Act of 1974 as amended, the University of North Dakota has developed policy guidelines for access to the education record with respect to the rights of eligible students and parents of dependent eligible students. All information contained in University records is considered confidential, except for directory information, which may be released publicly in printed, electronic, or other form. Directory information is defined in the Code of Student Life in “Section 8-2: Student Records/Directory Information.” Students may request the release of directory information no later than the tenth class day of the semester, in person, at the Registrar’s Office, Room 203, Twamley Hall, or online through the UND campus connection available at: www.und.edu.
Student Services, Support Programs and Activities

ACADEMIC SERVICES
(see Student Success Center)

ADMISSIONS OFFICE
205 Twamley Hall
Phone (701) 777-3821

The Office of Admissions reviews and processes all applications for undergraduate admission, determines a student’s eligibility for admission according to university policy, and notifies the student regarding current admission status. The office responds to all inquiries relating to admission policies and procedures, coordinates the admission service with other administrative offices, and compiles data for reports. Permanent university records for all undergraduate students are created in this office.

AFFIRMATIVE ACTION-
EQUAL OPPORTUNITY COMPLIANCE
101 Twamley Hall
Phone (701) 777-4171 (Voice/TDD)

The Affirmative Action Office is responsible for oversight of the University’s equal opportunity and affirmative action programs, including Sections 503 and 504 of the Rehabilitation Act of 1973; Titles VI and VII of the Civil Rights Act of 1964; Age Discrimination in Employment Act; Title IX of the Education Amendments of 1972; Americans with Disabilities Act; and related Federal and State laws and regulations involving civil rights, equal employment and equal educational opportunity. The University declares that it will not discriminate on the basis of race, religion, age, color, sex, disability, sexual orientation, national origin, marital status, veterans’ status, or political belief or affiliation. It encourages the inclusion of members of minority groups (Black or African American, Hispanic or Latino, Asian, American Indian or Alaskan Native, Native Hawaiian or other Pacific Islander), women and men in non-traditional roles, persons with disabilities, and Viet Nam era and disabled veterans in the mainstream of University employment, education, and services where these individuals, as a class, may have had limited opportunities in the past. Inquiries, reports, or complaints of discrimination, harassment, or the Family Educational Rights and Privacy Act may be addressed to the Affirmative Action Officer or other designated administrator. Policies and procedures are at: www.und.nodak.edu/dept/aao/Pol.htm.

UND ALUMNI ASSOCIATION AND UND FOUNDATION
J. Lloyd Stone Alumni Center
Strinden Center
Phone (701) 777-2611 or (800) 543-8764

Bleeding green is an important part of life at UND. That sense of pride stays with UND graduates forever. The UND Alumni Association and UND Foundation foster that pride so graduates keep connected with each other, stay engaged in what’s happening at the University and can help UND grow for the future.

Alumni relations programs and benefits reach out to the more than 109,000 alumni and friends of the University. Programs and benefits include an online Alumni Career Center where graduates can post resumes and job openings, learn tips and tactics for professional development as well as options for continuing education. Alumni can also take advantage of getting involved in chapter activities across the country to network with fellow alumni and enjoy school spirit. Other benefits include the Alumni Review magazine (online and in print), e-newsletters, insurance discounts, reunions and sporting events, e-mail forwarding options and, of course, returning to campus for Homecoming each fall.

While the Alumni Association strives to keep alumni and friends connected and engaged, the UND Foundation leans on the relationships and passion of graduates to support the future of our University. Fundraising revolves around current and ongoing needs at UND, determined by University and student leadership, as well as by the desires of the donors themselves. Annual gifts support regularly occurring expenses on campus; whereas specific fundraising campaigns are held at various times to support growth in student scholarships, technology, faculty goals, and facility enhancements. In fact, the UND Foundation manages more than 700 endowments which help finance this support to the University. Donations can be made through the UND Foundation in any amount, designated toward any and all entities on campus.

The UND Alumni Association and UND Foundation are two private, non-profit organizations which exist under partnering missions, overseen by one board of directors and led by one executive vice president/CEO. This unique structure has, since 1978, facilitated over $100 million to the University for the benefit of students, faculty and staff.

Alumni and friends are integral to the success of the University of North Dakota. Individuals give back in a variety of ways including intellectually, financially and through fan support. Every college, school, department, faculty member, and student has benefited from the connections and the generosity of alumni and friends in one form or another. This rich tradition was established by UND’s first eight graduates in 1889 and continues passionately today.

AMERICAN INDIAN STUDENT SERVICES
315 Princeton Street
Phone (701) 777-4291

American Indian Student Services (AISS) are designed to promote and foster the academic and personal success of American Indian students enrolled at the University of North Dakota. AISS works directly with the UND Enrollment Services Office to actively recruit American Indian high school and community college students and introduces these new students to UND by serving as an information and resource center.

Services are provided to assist students in their transition to the University through the student support and student academic service components at AISS. The student support component provides both academic and personal advisement. AISS will also assist new and transfer students with University orientation, the early registration process, academic advisement, financial aid and scholarship information, general information and referral resources.

The AISS Retention Program is a student success program for American Indian freshman and transfer students at UND that monitors their academic progress, gives guidance and direction, provides tutoring, etc. The program was created to support, guide, and encourage American Indian students to successfully achieve academic goals, foster career goals, develop personal life skills, and attain leadership skills.

The student academic services component strives to meet the scholarly needs of the American Indian student at UND. Students are encouraged to utilize the tutoring services, free of charge. Tutors are available on a daily basis in Math, Natural Sciences, Physics, Chemistry, Indian Studies, and writing assistance. AISS also sponsors study...
skills, time and money management, and writing workshops. The American Indian Student Learning Lab provides opportunities for students to enhance their computer skills.

The American Indian Center itself houses AISS and the Student Learning Lab. The American Indian Center serves as an academic and social gathering area for American Indian students, while providing the students “a home away from home.” American Indian student organizations and programs, faculty, and staff host a variety of cultural activities, meetings, academic enhancement workshops, etc., at the Center.

ART MUSEUM
(see North Dakota Museum of Art)

ATHLETICS
(see Intercollegiate Athletics)

AUDITORIUM
(see Chester Fritz Auditorium)

CAREER SERVICES
280 McCannel Hall
Phone (701) 777-3904
www.career.und.edu

Career Services’ goal is to guide students in preparing, planning for and carrying out their career goals and to provide students with opportunities to apply the learning environment beyond the classroom through employer partnerships. This is accomplished through individual and/or group assistance in job search techniques, resume/cover letter writing, and interviewing skills. Cooperative Education, a component of Career Services, works with employers and academic departments to provide opportunities for students to combine course work with practical, professional employment in their chosen fields.

The Career Services office coordinates activities such as on-campus interviews, provides specialized workshops, and holds three Career Fairs annually. The resource library houses labor market information, audiovisual materials, company literature, computerized job information systems, and direct on-line access to the Internet.

Students in all disciplines are encouraged to register. Registration is done on-line via the Career Services homepage. Once registered, students will have access to job openings, become available to employers searching the data base, and be able to sign up for Cooperative Education opportunities and on-campus interviews.

CEREMONIES AND SPECIAL EVENTS,
OFFICE OF
309 Twamley Hall
Phone (701) 777-2724

The Office of Ceremonies and Special Events is responsible for the planning and coordination of Commencement ceremonies and a select slate of official events of the University of North Dakota. In addition to UND’s Commencement ceremonies, these special events include Founders Day, the Statewide Bus Tour for New Faculty and Administrators, activities for UND Presidential Scholars, Student Graduation Expos, and groundbreakings and dedications of campus buildings. The Office also provides leadership for planning activities held to celebrate special UND milestones and traditions. The Office coordinates special projects as requested by the President or Vice President for Student and Outreach Services. The staff of the Office of Ceremonies and Special Events is available to serve in a consulting role to UND units upon request.

CHESTER FRITZ AUDITORIUM
Phone (701) 777-3076

The 2,400-seat Chester Fritz Auditorium is used for a variety of events. It is the site for graduations, symphony concerts, lectures, workshops, Broadway shows, and concerts by major stars.

The auditorium, an integral part of the University intellectual and social environment, has a three-fold mission: (1) As a cultural and educational resource for the University and community; (2) For general entertainment, ranging from contemporary performers, the art of dance, and the literature of theatre; and (3) As a public facility to be used by both University and non-university programming groups.

CHILDREN’S CENTER, UNIVERSITY
525 Stanford Rd.
Phone (701) 777-3947
www.housing.und.edu/ucc

The University Children’s Center offers child care to parents who are UND students or employees and also to parents of the greater Grand Forks community. The Center serves children ages 2 to 12 years old. The Center is open five days a week from 7:00 a.m. to 5:30 p.m. during the UND academic year and summer session. Daily attendance is limited to a full-time equivalency of 103 children, with no more than nine children being cared for by one teacher.

The Center provides quality care and education to children from a variety of ethnic, cultural, socio-economic, and educational backgrounds and to children with special needs. Teachers have four-year degrees and work with an Early Childhood Education student teacher or teaching assistant to develop programming for children.

The University Children’s Center provides experiential learning opportunities for UND students. All Early Childhood Education majors utilize the Center for their student teaching experience. Other academic areas also use the Center for field experiences and observations focusing on Early Childhood Education.

For more information, call (701) 777-3947 or visit our website at: www.housing.und.edu/ucc, or write to the University Children’s Center, 525 Stanford Road, Stop 9026, Grand Forks, ND 58202-9026. You are also welcome to visit and tour the Center.

COMMUNITY ENGAGEMENT, CENTER FOR
317 Cambridge Ave.
Phone (701) 777-0675
www.communityengagement.und.edu

The Center for Community Engagement’s mission is to link academic resources with community needs. The Center coordinates and supports opportunities for faculty and students to learn from and with nonprofit organizations, rural communities, tribal communities, and other public partners in the state. It works with departments, faculty, and students across campus, coordinates activities with other units with relevant teaching, research, and service missions, and develops relationships with public and community partners. This Center houses two main activities:

- Experiential Learning takes academic learning for credit out of the traditional classroom. Students apply their disciplinary knowledge or they serve communities and nonprofit organizations while learning civic responsibility. The Center assists students and faculty with the development of experiential learning opportunities in the curriculum.

- Public Scholarship includes scholarly and creative work in the public interest, scholarship planned and carried out in coopera-
tion with community partners, and academic work that produces a “public good” such as exhibits, performances, and broadly accessible research results. Financial, technical, and promotional support is provided for a variety of research projects enabling UND to address public needs in North Dakota that might not yet be addressed.

CONTINUING MEDICAL EDUCATION AND OUTREACH
School of Medicine and Health Sciences
Phone (701) 777-3201

The Office of Continuing Medical Education and Outreach mission is to foster and support continuing professional development of health care professionals within the state of North Dakota and the High Plains region. The office includes program offerings to physicians, faculty, nurses, physician assistants, and other health care professionals by conferences, workshops, seminars, review courses, symposia, lecture series, grand rounds and distance education. Last year the OCMEO office had 11,864 participants in over 340 programs throughout North Dakota. The program is an important link for life long continuing medical education opportunities.

COUNSELING CENTER
200 McCannel Hall
Phone (701) 777-2127

The University Counseling Center (UCC) offers a variety of programs and services for University students. It is a resource which provides assistance in solving personal problems, making career choices, addressing substance use or abuse issues, developing educational skills, and reaching academic goals.

You can request UCC services by calling (701) 777-2127 or by visiting 200 McCannel Hall during regular business hours: 8 a.m. to 4:30 p.m., Monday through Friday. Initial appointments are typically set within one week. You can also walk-in for a one-time appointment on urgent matters from 10 a.m. to 3 p.m., Monday through Friday. Limited evening hours and services are also available both at the UCC and at the Apartment Community Center. Please call the main number for current office hours.

Most UCC services are covered by your student fees. Exceptions will be brought to your attention; they typically apply to testing fees or court ordered evaluations. All contacts are confidential. Specific UCC services include the following:

Individual Counseling and Therapy. UCC offers counseling for individuals and couples in an effort to meet a variety of personal-social, career, and academic needs. Students seek assistance for a number of reasons: developing a sense of competence in a new environment, meeting increased academic or social demands, making career decisions, resolving interpersonal conflicts, adjusting to the University, and follow-up counseling to past trauma. Specialized counseling is available through our Suicide Intervention Team (SIT) as well as the Eating Disorders Interdisciplinary Team (EDIT).

Testing Services. The administration of the College Level Examination Program (CLEP) and numerous graduate or professional school entrance examinations (GRE, LSAT, etc.) are done by Testing Services. In addition, the administration and interpretation of career, self-assessment, or ability inventories is available through UCC. There may be a small charge for some of the tests and assessment instruments. Prometric Testing will be available to students Spring Semester 2009.

Career Counseling Services. Career Counseling Services offers assistance to help UND students make informed and satisfying decisions about career and educational goals. Counselors are available for students who want personal, on-going career counseling. Students may opt for individual career counseling for a variety of reasons including increasing stress or anxiety about career decision making, returning to school, making a career change, and balancing multiple roles and responsibilities.

Substance Abuse Prevention Office. The Substance Abuse Prevention Program offers presentations, workshops, or personal sessions to students at the University of North Dakota. They also provide alternative acts on campus such as NightLife @ UND each Friday and Saturday evening from 9 p.m. until 1 a.m. Our goal is to educate and empower students to make healthy decisions. The presentations are offered by the Substance Abuse Prevention Specialist and/or UND Peer Educators (Adapt Team) who are undergraduate students that are trained as Certified Peer Educators. UND Peer Educators’ offices are located in the lower level of the Memorial Union. You can reach a UND Peer Educator at 701-777-4165 or the Substance Abuse Prevention Specialist at 701-777-4188.

Groups and Workshops. The group counseling and workshop program provides small group experiences and workshops in skill development and personal growth. Issues and concerns addressed by this activity include assertiveness, career and personal exploration, stress management, eating disorders, relationship skills, and drug and alcohol awareness. Groups may be held at areas other than the UCC. The offerings vary depending on the current needs of UND students. Use the UCC website (www.ucc.und.edu) or call the main telephone line to determine current offerings in this area.

Internship Training. The UCC is committed to the training of future counselors and psychologists through its comprehensive training programs. UCC is a training site for Counseling masters interns and Clinical and Counseling Psychology doctoral fieldwork students. The University of North Dakota Psychology Internship Center (NDPIC), administered through the UCC, provides pre-doctoral training of psychologists from APA psychology programs across the nation. NDPIC is an Association of Psychology Postdoctoral and Internship Centers (APPIC) member site. Each trainee is supervised by a senior staff counselor or psychologist while at the University Counseling Center. Trainees also work in a supervisory capacity to one another through case conferences, training seminars, and individual supervision. It is the aim of the University Counseling Center training program to assist each trainee to develop professionally, ethically and therapeutically, so that she or he becomes a competent service provider.

Outreach. The UCC staff will provide presentations on a variety of mental health topics. Any campus group or class (including the cultural centers, housing and Greek organizations) may request an event by calling 777-2127. Please call at least two weeks in advance.

DEAN OF STUDENTS OFFICE AND ASSOCIATE VICE PRESIDENT FOR STUDENT SERVICES
180 McCannel Hall
Phone (701) 777-2664

The Dean of Students Office assists current and prospective students in meeting various needs and also serves as a liaison among the diverse populations of students, faculty, staff, the UND community, the state, and the region. The Dean of Students Office personnel enhance and support the educational experience of students by identifying needs and providing tools and opportunities for students to learn and grow in a community which honors scholarship and respects differences in thought and appreciation of individual differences. The Dean of Students Office personnel provide support of the various constituencies through consultation with faculty, students, and staff. Students are treated as responsible citizens capable of making decisions for themselves and taking responsibility for their actions and decisions. The Associate Vice President for Student Services provides assistance to the Vice President for Student and Outreach Services in areas of planning, budgeting, and professional development and training for the Student Services Division.
The Dean of Students Office provides the following services:

- Advocacy for Student Issues
- Student Judicial Affairs
- Crisis Programs
- Initiation of Programs
- Special Circumstance Late/Drop Withdrawal from UND
- Programs to Increase Student Satisfaction

**DINING SERVICES**
(see Residence Services)

**DISABILITY SERVICES FOR STUDENTS**
190 McCannel Hall
Phone (701) 777-3425 (Voice or TTY)

UND recognizes its responsibility for making reasonable accommodations/adjustments to ensure there is no discrimination on the basis of disability, as established under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act.

Disability Services for Students (DSS) provides accommodations, collaborates with faculty on providing reasonable accommodations, and consults with UND personnel about making all other UND programs and services accessible.

Students planning to use accommodations must complete a DSS application and submit current documentation of disability. DSS will verify their eligibility and identify the accommodations they will be authorized to use on a semester by semester basis. For more information, contact DSS or check the DSS web site at: http://www.und.edu/dep/dss/.  

**ENROLLMENT SERVICES, OFFICE OF**
100 Carnegie Hall
Phone (701) 777-4463
(701) 777-3367 TTY Service Only

The Office of Enrollment Services is the central contact point for dissemination of enrollment information about the University of North Dakota. The primary mission of Enrollment Services is to inform, counsel, and assist prospective students regarding admission, housing, academic programs, and campus procedures. The office provides tours of campus as well as sends general information and applications for the University. Additional information about visiting campus may be found in the Visitor Information and Campus Visits sections.

**EXTRACURRICULAR OPPORTUNITIES**
As a complement to classroom instruction, individual colleges and departments, residence halls, fraternal organizations, Student Government, University Program Council, and other groups sponsor programs of social, cultural, educational, and physical activities which contribute to the personal growth of students at the University. Involvement activities provided by various departments and organizations include games and sports, social functions, dramatics, dances, music, films, lectures, and other programs throughout the year. In addition, students may choose to participate in over 200 recognized student organizations, which are formed around academic pursuits, politics, cultural, religion, service and other interests.

Believing that such participation contributes to the total development of the student, the University encourages students to participate in the extracurricular programs. Complete information about student activities and volunteer opportunities are available from the Center for Student Involvement and Leadership in the Memorial Union.

**FINANCIAL AID OFFICE**
(see Student Financial Aid Office)

**FOOD SERVICE**
(see Residence Services)

**FRATERNITY AND SORORITY MEMBERSHIP**
Twelve national social fraternities and six national social sororities maintain houses adjacent to the campus in which residence and, in some instances, dining facilities are available to members.

Eligibility for membership in a fraternity or sorority is a mutually selective process between the individual chapters and individuals seeking membership. All individuals meeting certain minimum standards are eligible to join a group. Membership recruitment typically occurs at the beginning of the Fall and Spring semesters.

Greek life affords the student a small group experience with opportunities for learning about interpersonal relationships, leadership, informal contact with administrators and faculty, and social relationships.

For further information, please contact the Greek Life office in the Memorial Union by calling (701) 777-3667 or by emailing greeklife@und.nodak.edu, or check out our web site at: http://www.union.nodak.edu/involvement/greeklife.

**GENERAL COUNSEL, OFFICE OF**
O’Kelly Hall, Room 104
221 Centennial Drive, Stop 8196
Phone (701) 777-6345

The Office of General Counsel is comprised of General Counsel, Associate General Counsel, and Assistant General Counsel. As the chief legal advisors to the President, officers, faculty, and staff of the University, members of the Office of General Counsel are responsible for handling all legal matters affecting the University. This office is also responsible for approving all requests for the use of off-campus legal counsel and the supervision thereof. Requests for outside legal services should be routed through the appropriate vice president. Services are not available to students.

**HEALTH SERVICE**
(see Student Health Service)

**HONOR SOCIETIES**
- **Alpha Eta Rho** (1966) is an international aviation fraternity.
- **Alpha Kappa Delta** (1966) is open to all students who have an interest in current social issues and a willingness to discuss feasible solutions and participate in activities which address those issues.
- **Alpha Lambda Delta** (1950) aims to interest freshmen in the pursuit of learning and in high scholastic achievement.
- **Alpha Phi Omega** (1947) is a National Service fraternity of former Boy Scout members.
- **Alpha Tau** (1921) is the student organization of industrial technology.
- **Beta Alpha Psi** (1923) elects from junior, senior and graduate students in accounting. Election is based on scholarship and promise in the field.
- **Beta Gamma Sigma** (1926) selects to membership a limited number of academically outstanding students from the primary disciplines in Business Administration.
- **Delta Theta Phi** promotes awareness of the role of the lawyer in the community and to further the objectives of the fraternity.
- **Epsilon Pi Tau** is the international honorary professional fraternity for education in technology.
- **Eta Kappa Nu** (1962) elects to membership a limited number of academically outstanding students in electrical engineering from the School of Engineering and Mines.
- **Gamma Sigma Alpha** is a national greek honor society which recognizes juniors and seniors with a GPA greater than 3.5.
Gamma Theta Upsilon (1948) a professional fraternity, has for its purpose the recognition of merit among those enrolled in the study of geography.

Golden Key National Honor Society (1996) recognizes and awards academic achievement for upperclassmen.

International Honorary for Leaders in University Apartment Community (IHLUAC) recognizes exceptional apartment leaders.

Lambda Pi Eta (2005) is a national honor society for students in the field of communication.

Magna Iota provides social as well as academic outlet for graduate students in the counseling department.

Mortar Board (1932) aims to foster the ideal of service and to promote leadership and scholarship.

National Residence Hall Honorary (NRHH) recognizes and elects to membership the top 1% of the most involved residence hall student leaders.

Omicron Delta Epsilon confers distinction for academic excellence in economics.

(The) Order of the Coif (1925) elects its members from the upper 10 percent of the third-year class in Law School.

Order of Omega (1984) is a society which recognizes service to community and academic achievement among members of the Greek system.

Phi Alpha (1962) elects to membership academically outstanding students of at least junior status who are majoring in social work.

Phi Alpha Delta (1911) is a fraternity in the School of Law.

Phi Alpha Theta (2004) is an international honor society for students in the field of history.

Phi Beta Kappa (1913) elects to membership a limited number of academically outstanding students from the College of Arts and Sciences.

Phi Beta Lambda (1970) is a national organization for students enrolled in business, office, or business teacher education programs.

Phi Delta Kappa (1924) elects those in the Center for Teaching and Learning on the basis of scholarship, personality, and professional ability.

Phi Eta Sigma (1929) elects to membership sophomores on the basis of high scholastic achievement as freshmen.

Pi Alpha Alpha (2006) aims to encourage and recognize outstanding scholarship and accomplishment in public affairs and administration.

Pi Sigma Alpha (1982) is an honorary society for political science and public administration.

Pi Theta Epsilon (1968) junior and senior students majoring in occupational therapy selected on the basis of scholarship.

Psi Chi is an honorary society in psychology.

Sigma Alpha Iota (1916) endeavors to uphold standards of music education.

Sigma Gamma Epsilon (1950) is a professional fraternity dedicated to the advancement of its members in the earth sciences, geology, mining, metallurgy, ceramics, and petroleum engineering.

Sigma Iota Epsilon (1996) is a national honorary society for students in the field of management.


(National) Society of Collegiate Scholars recognizes scholastic achievement and promotes community service.

Society of Professional Journalists (1922), formerly Sigma Delta Chi, encourages the maintenance of high standards for journalists.

(National Student) Speech-Language-Hearing Association (1966) for majors in the area of speech pathology and audiology.

Tau Beta Pi (1974) (formerly Sigma Tau) elects to membership a limited number of academically outstanding students from the School of Engineering and Mines.

Tau Sigma (2005) is a national honorary that recognizes academic excellence of transfer students.

Upsilon Pi Epsilon (2006) elects to membership a limited number of outstanding students in computer science.

HOUSING
(see Residence Services)

HUMAN RESOURCES, OFFICE OF
313 Twamley Hall
Phone (701) 777-4361

The Office of Human Resources supports a fair and equitable work environment by providing management and development training to supervisors and staff, a fair and effective salary administration program, a broadbanding program including market data information, advisement on policies and procedures on wage and employment regulations, an effective performance management program, and successful staff recognition programs. These services contribute to the mission of the University by the recruitment, retention and development of a qualified work force.

The Office of Human Resources adheres to the University’s equal opportunity/affirmative action policies. Additional information on employment at the University may be obtained from the Office of Human Resources, 264 Centennial Drive, Stop 8010, Grand Forks, ND 58202; telephone (701) 777-4361; e-mail human.resources@mail.und.nodak.edu; or visit our website at: http://www.humanresources.und.edu. The Office of Student Financial Aid should be contacted by students seeking part-time employment.

INFORMATION TECHNOLOGY
SYSTEMS & SERVICES (ITSS)
Upson Hall II, 104 Robertson Sayre, Carnegie Hall
Phone (701) 777-3171, 777-2129, 777-4111
http://itss.und.edu

The University Information Technology (IT) Systems and Services (ITSS) is committed to providing high quality, reliable and timely IT services to UND. Staff provide e-mail, web publishing, IT training workshops, general purpose computer labs, help desk services, IT consulting and desktop support, IT security, wireless and wired data network and server and storage infrastructure through the main ITSS offices in Upson II. In collaboration with the Vice President for Research, ITSS provides cyberinfrastructure — high performance computing, related storage, visualization facilities and necessary support and consulting.

The Help Desk provides a single contact point for users who need help with computing problems or questions. Contact the Help Desk by telephone (701) 777-2222, e-mail ITSSHelp@mail.und.edu) and web page (www.und.edu/depitss/help.html), or visit in person (Upson II, Room 366).

The Center for Instructional & Learning Technologies (CILT/ITSS, cilt.und.edu) in Robertson Sayre provides faculty support in an environment where innovation is encouraged to discover and explore new ideas, acquire new skills and develop materials to enrich instruction. Services include: administration of the campus Blackboard learner management system; workshops, forums, and seminars; course development and redesign; graphics and photography; instructional design; project consultation and support; classroom design for discipline specific classrooms and design and support for large general purpose classrooms; and classroom related video and audio production services.
Telecommunications/ITSS (www.telecom.und.edu/) in Carnegie Hall provides telephone services, site licensed software distribution and support of the campus cable plant to the university community. Telephone services include: dial tone, telephone repair service, long distance, voicemail, cellular phones (faculty and staff), video and audio conferencing and campus emergency phones. Transitioning voice to use the Internet is being done in stages. Training and assistance with telephone etiquette and effective use of services is also provided.

UND also receives services through the North Dakota University System-System Information Technology Services (NDUS SITS). NDUS SITS provides UND with Campus Solutions, Finance and Human Resources (Oracle PeopleSoft) administrative systems, Wimba interactive video systems, wide area network resources, ODIN library services, and facilities and housing management systems.

INSTRUCTIONAL DEVELOPMENT, OFFICE OF
Room 300 O’Kelly Hall, 221 Centennial Drive Stop 7104
Phone (701) 777-3325, FAX (701) 777-2925
oid@und.nodak.edu
http://www.und.nodak.edu/dept/oid

The Office of Instructional Development (OID) is dedicated to enhancing the quality of teaching and learning at the University of North Dakota. Through its various activities, programs, and resources, OID promotes campus-wide conversations about teaching, fosters innovation in curriculum and instruction, recognizes excellence, and encourages the continued professional development of faculty as teachers.

In addition to providing grant support for teaching-related faculty travel and instructional projects, OID coordinates the Alice T. Clark/UND Foundation Mentoring Program for new faculty, sponsors faculty workshops and lunch discussion groups, offers consulting to individual faculty and departments, and provides other teaching-related services to UND faculty. OID also serves as the administrative home of the Writing Across the Curriculum program.

INTERCOLLEGIATE ATHLETICS
Room 120 Hyslop Sports Center
Phone (701) 777-2234

A program of men’s intercollegiate athletic competition is offered in football, baseball, basketball, hockey, track and field, golf, cross country, and swimming and diving. The women’s program includes competition in basketball, cross country, golf, track and field, swimming and diving, soccer, hockey, softball, tennis, and volleyball. Many club and intramural activities are also available.

General policies are determined by the president and the faculty and students of the university. In establishing athletic policies, the administration is mindful of the contributions that athletic participation, at an advanced level, can make toward achievement of the fundamental goal of a liberal education. Every effort is made to keep the athletic program compatible with that goal.

The program not only provides a powerful motivating force, encouraging the development of bodily strength, skill and agility, but also affords opportunity for invaluable experience in self discipline and cooperation. The competitive events themselves provide recreation and entertainment for the entire student body and contribute toward the development of student loyalty and morale.

INTERNATIONAL PROGRAMS, OFFICE OF
International Centre, 2908 University Avenue
Phone (701) 777-6438, FAX (701) 777-4773
internationalprograms@mail.und.nodak.edu
http://www.und.edu/dept/oip

The UND Office of International Programs (OIP) supports and develops academic programs on campus and abroad. Our goal is to help prepare students to deal effectively with the growing interdependence of the world, as well as provide UND’s international population with a variety of immigration and student services. The OIP works to encourage global understanding through education abroad, cultural programming, and support of international students and scholars.

To achieve its goal, the OIP provides the following services:
- Advising international students, faculty, and staff on immigration, personal, and acculturation needs;
- Sponsoring intercultural events and promoting International Organization activities;
- Advising students, faculty and staff on international exchange opportunities;
- Coordinating UND education abroad programs with more than 45 universities in 20 countries, as well as a number of affiliated program providers;
- Providing information on Fulbright grants and other international faculty exchanges and development programs.

The Office of International Programs is composed of a director, an associate director, two education abroad advisors, two international student advisors, an international recruiting assistant, an office manager and an administrative assistant.

The Office of International Programs is located in the International Centre. Office staff is available from 8 a.m. to 4:30 p.m. The International Centre is open daily from 8 a.m. to 10 p.m. Weekend and holiday hours may vary. Computers, comfortable study space, coffee, and tea are always available. All are welcome.

LEGAL COUNSEL
(see General Counsel)

LIBRARIES

The University of North Dakota supports the largest and oldest library system in the state of North Dakota. With holdings numbering over 3 million items, the UND libraries are a major resource for students and researchers on campus, in the State, and through the University’s distance education network. The University’s library system includes the Chester Fritz Library and branch libraries (Energy & Environmental Resource Center, Geology, and Music), and the Thormodsgard Law Library and Harley E. French Library of the Health Sciences, which serve the graduate professional schools of law and medicine.

The University libraries provide scholarly information and publications in print, microform, audio-visual, and digital formats. Many of the digital resources are available through computer networks allowing access from campus and off-campus locations. The Chester Fritz Library’s holdings include significant collections in the humanities, social sciences, science and technology, education, business, and the fine arts. It is also a major depository for state and federal documents. The Chester Fritz Library administers the only U.S. Patent
and Trademark collection in the state. The Library’s Elwyn B. Robinson Special Collections include published works and manuscripts documenting state and regional history and the history of the University of North Dakota.

The UND libraries are major contributors to the Online Dakota Information Network (ODIN), a statewide online catalog of library collections and resources. Through ODIN, students and researchers may conduct computer-assisted searches for information about materials held in the University of North Dakota libraries and in other libraries throughout the state.

The University’s libraries are members of many national and regional library consortia. Through these cooperative arrangements, the UND libraries are able to acquire informational resources not held locally. The libraries’ Interlibrary Loan departments will help students obtain materials from other libraries for their use at UND.

The libraries provide educational services including reference assistance and instructional sessions. Librarians are available for individual consultation in the libraries as well as presentations in the classrooms.

Access to additional information about the libraries is available through the University of North Dakota homepage at: http://www.und.edu.

MEMORIAL UNION
Phone (701) 777-3926
Info Center (701) 777-4321
TTY (701) 777-4482

The Memorial Union’s mission can be stated in two words: “Serve Students.” As the “Heart” of UND, the Memorial Union is the gathering place of campus and provides services and conveniences that members of the campus community need in their daily lives. As an integral part of the educational mission of the University, the Union complements the academic experience by providing students a wide range of opportunities to balance coursework and free time as cooperative factors in their personal development and college experience. Overall, the Memorial Union is a source for programs, activities, events, services, and facilities that, when taken together, represent a well-considered plan for the community life of the university.

The Memorial Union is one of the busiest buildings on campus, open over 5,000 hours each year and serving a campus population of over 15,000 students, faculty, staff, alumni and guests. Over 4,000 meetings and events are held in the Union each year, serving over 200,000 participants. As a result, the Union is a vibrant center for campus life. As a “one stop shop” for a number of essential services, the Union accommodates about 30 institutional and commercial activities that employ over 300 full-time staff and student employees.

The Administrative Office, 777-3928, located on the third level, offers Notary Public services and is the focal point for scheduling and reserving meeting rooms, AV equipment, display cases, and main floor table space.

Food services throughout the Union include Old Main Marketplace food court, Stomping Grounds coffee shop, Terrace Dining Center, U-Snack convenience store, and a variety of vending machines.

The Union also has a Computer Lab for student use; it is the University’s largest and busiest computer lab that is open seven days a week during the school year. The Memorial Union also provides students access to technology via a wireless network and network ports on all levels.

The INFO Center, 777-4321, is located on the main level and provides answers to questions such as library hours, campus/ community events and services, bus schedules, telephone directory information for students, faculty and staff, visitor information, and lost and found services. TTY services for the hearing impaired are available by calling 777-4482.

Union Services, 777-3643, located on the main level, offers check cashing, newspapers, a Kodak Picture Kiosk, discounted movie tickets, and local theater listings. Services also include black and white and/or color copy services, various colored paper, resume paper, transparencies, laminations, send and receive FAX services, promotional buttons, and binding services. The Sign & Design Studio, 777-3810, located on the main level, offers full-color, large-format printing of posters, canvas, signs, and banners. Lamination, mounting, magnets, clings, and graphic design services are also available.

Lifetime Sports Center located on the lower level, offers a game room, pool tables, and outdoor recreation equipment rentals. There is also a TV lounge and an Athletic Ticket window that provides student tickets to UND sporting events.

The Center for Student Involvement and Leadership, 777-4200, located on the main level, connects students with opportunities that engage them in the campus community and provides students with the support and challenges necessary to enhance their university learning experience. The Center supports over 250 student organizations, 18 fraternity and sorority chapters, volunteer and service opportunities, and leadership development programs.

The Memorial Union is also home to Student Government located on the main level, which offers many ways students can become involved in decision-making processes and have an impact on campus. Students can run for elected office or serve on a variety of committees. Committees include the Student Activities Committee, the Board of Student Publications, the Multicultural Awareness Committee, and the University Program Council. There are also over 40 other committees campus-wide that are always seeking student participation.

The Memorial Union has entertainment opportunities through the Loading Dock and the Internet Café, both located on the main level. Students can study, socialize and relax in the Café’s coffee shop atmosphere, or they can enjoy music and dances in the Loading Dock. The Loading Dock is also a great place to watch televised sporting events.

The Memorial Union offers many more services, including an Instant Cash Machine, a Barber Shop and Hair Salon, the University Federal Credit Union, Student Success Center, Student Health Promotions Office, and more.

MULTICULTURAL STUDENT SERVICES
2800 University Avenue
Phone (701) 777-4259

Multicultural Student Services (MSS) provides quality support services (academic, financial aid, personal, and social) which will enhance African American, Asian American, and Hispanic American student success at the University of North Dakota. MSS serves as a general institutional contact and advocate for students, individually and collectively, and works with UND departments and offices to address the unique needs of students. The director provides advice and counsel regarding broad campus issues and promotes diversity throughout the campus while enhancing diversity in the Grand Forks and Grand Forks Air Force Base communities as well as on the UND campus.

MUSEUM OF ART, NORTH DAKOTA
261 Centennial Drive
Phone (701) 777-4195

The North Dakota Museum of Art, founded in 1972, is the official art gallery of the State of North Dakota and serves as the University of North Dakota’s art museum, with a primary focus on contemporary art by regional, national, and international artists. Ex-
hibitions, featuring an array of traditional and contemporary art forms, change every two months. There is a Museum Shop and the Museum Cafe. Lectures and concerts are scheduled in the Museum on a regular basis. Located on Centennial Drive, south of Twamley Hall, the Museum’s hours are Monday through Friday, 9 a.m. to 5 p.m., and Saturday and Sunday, 1 to 5 p.m. There is no admission charge.

**RADIO, UND**

**314 Cambridge**

Phone (701) 777-2577

The University owns two FM radio frequencies, KUND 89.3 and KFJM 90.7. KFJM was first licensed in 1923 as a “landless wireless” station.

Classical and contemporary music is broadcast on KUND, along with syndicated programming from National Public Radio. KFJM offers a mix of contemporary music, including jazz, pop, blues, folk and world music. Its emphasis is on locally produced and hosted shows.

Both stations are operated and managed for UND by Prairie Public, North Dakota’s public broadcasting network. KUND is part of a state-wide network. KFJM is broadcast in the Greater Grand Forks Community.

KFJM offers opportunities for UND students to get involved in local radio. For more information, contact KFJM at 777-2577.

**RECSPORTS**

Student Wellness Center

801 Princeton St.

Phone (701) 777-3256

More than a game, Wellness Center RecSports lets you build friendships, strengthen your mind and body, develop character, and nurture skills. From badminton to basketball, RecSports offers organized play in over 70 team, individual or dual events each year in men’s, women’s, open, and coed divisions.

Sports and activities include: badminton, basketball, volleyball, sand volleyball, broomball, golf, ice hockey, in-line hockey, racquetball, indoor soccer, softball, tennis, and many more. The RecSports program is both administered and officiated by students of the University. Facilities used for RecSports programs are the Student Wellness Center, Ralph Engelstad Arena, Ray Richards Golf Course, Hyslop Sports Center, Aviation Foundation Property, Ulland Park, and other Grand Forks Park District properties throughout the city.

In addition to competitive organized play, RecSports provides opportunities for students, as well as faculty and staff to take a break from their schedules and participate in healthy informal recreational opportunities such as open swim at the Hyslop and drop-in basketball, volleyball and indoor soccer. RecSports also offers students opportunities for employment and professional development as game officials, sports supervisors, and program managers.

RecSports fosters a spirit of competition and sportsmanship with activities to enhance both physical and mental health. The RecSports program supports the mission of the Wellness Center… “Our mission as the UND Wellness Center is to enhance the campus climate and enrich the quality of life for the University of North Dakota community by embracing all dimensions of Wellness.” For more information, check us out on the web at: www.wellness.und.edu/recsports, call (701) 777-3256, or come by Office 234 in the Student Wellness Center.

**REGISTRAR, OFFICE OF THE**

201 Twamley Hall

Phone (701) 777-2711

registrar@mail.und.nodak.edu

The Office of the Registrar maintains the academic record of each student enrolling for courses through UND’s instructional delivery systems. The University Registrar is Secretary to the University Senate. The Office is responsible for monitoring all academic policies and procedures relative to curriculum, registration, and grade processing. The transfer area evaluates transcripts and maintains transfer articulation agreements.

**RELIGIOUS ACTIVITIES**

Campus Ministry Association includes Christus Rex Lutheran Campus Ministry (the Evangelical Lutheran Church in America), Wittenberg Lutheran Chapel (the Lutheran Church Missouri Synod), and St. Thomas Aquinas Newman Center (Catholic Campus Ministry). Each ministry has a chapel on campus which holds regular worship services and has at least one full-time staff person. United Campus Ministry, representing the American Baptist, Episcopal, Presbyterian (U.S.A.), United Church of Christ and United Methodist churches is also a member of this association, but worship is offered in area congregations. The programs that all of the ministries offer include worship, fellowship, Bible study, Christian education, service to the community and UND student organizations: LSM (Lutheran Student Movement); LSF (Lutheran Student Fellowship); and FOCUS (Fellowship of Catholic University Students.)

**RESEARCH DEVELOPMENT AND COMPLIANCE**

105 Twamley Hall

Phone (701) 777-4278

Research Development and Compliance (RD&C) provides various services to the institution in the research arena and to faculty and staff pursuing funding from external sponsors. Services to the faculty include the following: assisting faculty in locating funding opportunities; preparing grant proposals; negotiating terms and conditions of awards; providing training in grant-related activities; and serving as liaison between the University and sponsors. RD&C is also responsible for reviewing proposals for compliance with sponsor and institutional policies.

The Associate Vice President for Research in RD&C is the official authorized by the University to sign all proposals submitted to external agencies. Before proposals are submitted to RD&C for administrative review, the proposed budgets are checked and approved for compliance with the financial policies of funding agencies by Grants and Contracts Administration (GCA). The signing official is responsible for providing requested certifications and assuring compliance with policies and regulations required by the Federal government and other funding agencies. These policies and regulations involve human subjects, animal care and use, copyrights, intellectual property, radioactive materials and recombinant DNA. The negotiation of contracts, grants, subcontracts, and subgrants is a joint process involving GCA, RD&C, and the Principal Investigator.

RD&C also provides administrative support to the Senate Scholarly Activities Committee, the Faculty Research Seed Money Committee, the Associate Deans for Research Committee, and committees required by Federal regulations, particularly the Institutional Review Board, which approves research projects involving human subjects; the Institutional Biosafety Committee, which approves research projects involving DNA and hazardous materials; and the Senate Conflict of Interest/Scientific Misconduct Committee.
RESIDENCE SERVICES  
(Dining Services, Housing) 

Dining Services  
3625 Campus Road, Stop 9033  
(701) 777-3823  
www.dining.und.edu/  

UND’s Dining Services proudly serves the campus community with retail and residential dining options throughout campus. Three dining centers are open to students, faculty, and staff and are located in Wilkerson Hall, Squires Hall, and the Memorial Union (Terrace). The wide variety of daily meals include two or more main entrées, vegetarian entrée, soups, salad bars, and specialty food bars such as Mexican, Asian, Deli and Pasta. Residence hall students are required to choose a 10, 14, or 19 meal-per-week plan, or unlimited access meal plan. Off-campus students, faculty and staff may pay cash or purchase special meal plans. Nutritional analysis of the daily menu served in the dining centers is available online at: www.nutrition.und.edu.

Many retail locations across campus offer a wide selection of affordable dining options. Old Main Marketplace in the Memorial Union features A&W Express, Sharro Pizzeria, Dakota Deli (soups, sandwiches and wraps featuring North Dakota products), and Rio Rojo Mexicana. Stompings Grounds Coffee Shop in the Memorial Union and University Place serves Seattle’s Best coffee, espresso, specialty coffee drinks and features fresh baked items from the UND Bakery. Find hot entrees and grab n’ go breakfast and lunch items at University Place Apartment Style Housing.

Convenience stores are located in Wilkerson Hall, Walsh Hall, and the Memorial Union, and snack and juice vending machines are available at several locations on campus.

Campus Catering provides full-service catering for students, faculty, and staff and for University-affiliated or sponsored functions on campus. Contact Campus Catering whether your event is a breakfast meeting for six or a buffet for 700. For more information call (701) 777-2567.

Complete information regarding Dining Services may be found on the website at: http://www.dining.und.edu or by calling the administration office at (701) 777-3823.

Housing  
525 Stanford Road, Stop 9029  
Phone (701) 777-4251  
www.housing.und.edu  

The Housing Department supports the academic mission of the University by providing comfortable, affordable and well-maintained accommodations to meet the changing needs of students. Student living facilities at the University of North Dakota include residence halls, apartment style housing, and apartments for single students and families.

University Residence Halls  
Residence halls are designed to provide a comfortable, diverse living environment for students while they are enrolled in the University. A solid network of nationally recognized residence hall staff works to enhance the personal and social development that complements the out-of-classroom experience. UND has 15 residence halls which are conveniently located throughout campus. All halls have laundry facilities, kitchenettes, study areas and access to the residence hall fitness center. Individual rooms have cable TV service and direct connection to the Internet. Students must be enrolled at UND with a minimum of 12 credits to live in the residence halls. Complete information may be obtained by visiting the website at: www.housing.und.edu, or by contacting the Housing Office, University of North Dakota, 525 Stanford Road, Stop 9029, Grand Forks, ND 58202-9029, (701) 777-4251.

Applications  
Applications are available from the Enrollment Services Office, the Housing Office, or on-line at: www.housing.und.edu. Room assignments are made in accordance with the established priority system which is determined by the date of the receipt of the non-refundable application fee. Early application is encouraged.

Room and Board Contract  
Residence hall room and board contracts are for the entire academic year (fall and spring semester), fall semester only, spring semester only, or summer session. Students will receive a copy of the contract containing cancellation dates and refund policies for the year in which they are applying. The contract is revised annually. Rates will be sent to all students following approval by the UND President’s Office. The cost of a double room with a 19-meal (per week) board plan was $5,472 for the 2008-09 academic year. Room and board rates are revised annually and are subject to change. A student vacating his or her assigned room before the end of his or her contract term will be held responsible for the entire charges of the contracted period. Naturally, in case of illness, or other special reasons, consideration is given. A student whose registration is cancelled for any reason is required to vacate.

Facilities  
All residence halls include desks, single beds (mattresses are 36” x 80”), dressers, chairs, bookshelves, drapes, and wastebaskets. Students will need to bring bed linen, blankets, study lamps, towels, bedspreads, and pillows. Mail service is provided. By Fall of 2009, all residence halls will have wireless access.

University Place Apartment Style Housing  
University Place is a contemporary living environment designed to cater to single students’ independent lifestyle and need for more personal space and amenities. The apartment units are designed with two unique floor plans for four students, including both single and double occupancy bedroom options. Each unit is furnished and includes a shared living room and kitchen area complete with a dishwasher, stove, refrigerator, and microwave. All units have air conditioning, security, and UND computer network access, including wireless.

The building accommodates 270 residents and features a first floor coffee shop for the campus community. The cost is an access fee. Residents must have 30 credits to be eligible for occupancy. Students must remain enrolled at UND with a minimum of 12 credits/semester to live in this building. Contract length options include academic year or full term. Residents are not required to have a meal plan. Complete information and rates may be obtained by visiting the website at: www.housing.und.edu or by contacting the Housing Office, University of North Dakota, 525 Stanford Road, Stop 9029, Grand Forks, ND 58202-9029 (701) 777-4251.

University Apartments  
The University manages more than 850 apartments for families and single students. Residents have access to the University Children’s Center (childcare) and enjoy a variety of social and cultural events at the University Apartment Community Center. Applications and information about the specific types of apartments and current rates are available on the web at: www.housing.und.edu or contact the Housing Office, University of North Dakota, 525 Stanford Road, Stop 9029, Grand Forks, ND 58202-9029, (701) 777-4251. Early application is encouraged. Assignments are made in accordance with
the established priority system which is determined by the date of receipt of the application fee.

Each college is allocated a limited number of assignments for GTAs/GRAs/GSAs. To qualify, eligible graduate students must be recommended for an assignment by the dean of their respective college. Assignments will be made subject to availability.

**Single Student Apartment Housing**

The University maintains furnished and unfurnished apartments and sleeping rooms for single students. Leaseholders must be senior, graduate level, or 23 years of age or older. Rental rates on these units ranged from $366-$709 for the 2008-09 academic year. In most cases, the rent includes heat, water, garbage removal, and basic cable TV (electricity and telephone not included). DSL (Digital Subscriber Line) which gives residents access to the University computer network, is available for a fee.

**Family Student Apartment Housing**

The University maintains several hundred apartments for families. These apartments are located on the west side of the campus and include one, two, and three bedroom units. Rental on these units ranged from $355-$688 for the 2008-09 academic year. In most cases, the rent includes heat, water, garbage removal, and basic cable TV (electricity and phone not included). DSL (Digital Subscriber Line) which gives residents access to the University computer network, is available for a fee.

**Faculty Housing**

Faculty/staff housing is a service provided by the University of North Dakota to ease the transition for new employees to the University and the Grand Forks community. To qualify for a faculty assignment, individuals must have a commitment from the Dean of their college for one of that college’s annual faculty housing allocations.

**Off-Campus Housing**

Students who wish to live off campus must contract for such facilities themselves.

**U Card**

Room 3, Lower Level, Memorial Union
Phone (701) 777-2071
www.ucard.und.edu/

The U Card is the official University ID card and can be used at any campus service requiring identification. A government issued photo ID (driver’s license or passport) is needed at the time of requesting an ID. The U Card also allows access to, or service from, the bookstore, library, complex service centers, dining centers, and athletic events.

Students may also use their U Card as a debit card by depositing funds in $25 increments into their debit account. The U Card debit account is accepted at a number of campus locations. Family members may deposit funds into the debit account. Students can also use the Valueport machines to deposit cash into their debit account. Complete information about the U Card is available at the website: www.ucard.und.edu.

**SPEECH, LANGUAGE AND HEARING CLINIC**

Montgomery Hall
Phone (701) 777-3232

The Department of Communication Sciences and Disorders offers clinical evaluations and treatment for individuals with speech, language, and hearing disorders. These services are provided by faculty or by graduate students under the supervision of certified speech-language pathologists and audiologists. The program in Speech-Language Pathology is accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association.

The Speech, Language and Hearing Clinic provides evaluation, treatment and consultation services for adults and children with speech and language disorders, as well as hearing evaluations and evaluations for hearing aid candidacy. Moderate fees, based on a sliding scale, are charged for these services. The Clinic also offers tutoring services to assist individuals learning English as a second language. Please call the Clinic for additional information or to make an appointment.

**STUDENT AND OUTREACH SERVICES, DIVISION OF**

307 Twamley Hall
Phone (701) 777-2724

Under the direction of the Vice President for Student and Outreach Services, a number of services, programs, and activities are available to assist students. Students needing assistance or information should contact the appropriate office as described in the various items in this section of this catalog, or may contact the office of the Vice President for Student and Outreach Services, 307 Twamley Hall, phone 777-2724.

The University of North Dakota Division of Student and Outreach Services provides leadership through comprehensive and inclusive student support services and educational opportunities designed to enhance the overall development of lifelong learners, and by extending University resources to all constituents.

**STUDENT FINANCIAL AID OFFICE**

216 Twamley Hall
Phone (701) 777-3121
sfa@mail.und.nodak.edu
www.financialaid.und.edu

The Student Financial Aid Office assists students and their families in meeting the costs of higher education by providing students with financial assistance and by providing families with access to options and information on financial planning to help students achieve their educational goals. The philosophy of the University of North Dakota is that the primary responsibility for financing a college education lies with the student and their family. The financial aid offered by the University is viewed only as a supplement to the family support. The amount of the student’s financial need is based on the difference between the cost of education for the school year and a contribution calculated from the family’s total financial resources.

Financial assistance is available to assist students with temporary emergencies as well as to provide long term funds for financing a college education. Students are offered financial assistance in various forms, including scholarships, grants, employment, and loan programs. The Student Financial Aid Office maintains a listing of both on- and off-campus part-time jobs. More information on programs and procedures are available from the Student Financial Aid Office and in the Student Financial Aid section.

**STUDENT HEALTH SERVICES**

100 McCanneal Hall
Phone (701) 777-4500

Student Health Services is a full-service medical clinic located in the heart of campus. It is staffed by licensed, board certified health care providers and other professional staff. Medical evaluations, treatment, laboratory, x-ray and pharmacy services, and health education/promotion programs are provided. It is designed to meet the health needs of all enrolled students. Students are not charged for office calls for illness and injury, which are covered by the student fees paid each semester. The student will be charged for laboratory and x-ray services, medications, and for special examinations including, but not limited to, FAA medicals and pre-employment physicals. All charges are billed through Student Account Services; however, insurance claims
will be filed for those who present an insurance card. Pharmacy
claims will also be filed for participating insurance plans. Spouses of
enrolled students may also use the Health Service for a per-semester
fee.

Office hours are Monday through Friday, 8 a.m. to 4:30 p.m.
(Tuesday until 6 p.m. during spring and fall semesters). To make an
appointment call 777-2605.

**STUDENT SUCCESS CENTER**
Room 201, Memorial Union
Phone (701) 777-2117, FAX (701) 777-3397
ssc@mail.und.nodak.edu
http://ssc.und.edu

The Student Success Center provides programs and services to
students to aid in the development and implementation of their edu-
cational plans and goals. Through the Center’s programs and services,
students are empowered to develop the skills and abilities to make a
positive adjustment within the campus community. The Student Suc-
cess Center focuses on three areas: advising for the undisclosed stu-
dent population; learning services, which incorporate individual
study skills assistance and assessment, peer drop-in tutoring, and
study skills courses; and programming, such as Transfer and Fresh-
man Getting Started, Staying on Track, Keep Going, and adult re-
entry programs and services.

**SUBSTANCE ABUSE PREVENTION OFFICE**
Adapt Peer Education/Night Life @ UND
Lower Level of the Memorial Union
Phone (701) 777-4188

UND Peer Educators (701) 777-4165

The Office of Substance Abuse Prevention provides a frame-
work for campus prevention programming. The Office offers assis-
tance to individuals, groups, and UND organizations in researching
the affective and behavioral dimensions of alcohol and other drug
usage among students. The staff implements programming which
encourages students to make healthy decisions. The Office also co-
ordinates and collaborates with multiple local agencies and organiza-
tions for assessment, planning, and implementation of prevention
initiatives on UND Campus. The UND Peer Educators (Adapt Team)
provides a variety of wellness related presentations for UND stu-
dents, offers various alternative activities on campus locations and
serves as an educational resource for students and faculty.

UND Peer Educators coordinate the Night Life @ UND pro-
gram on campus. Events take place on Friday and Saturday evening
from 9 p.m. to 1 a.m. at the Memorial Union and the Student Wellness
Center.

**TELECOMMUNICATIONS/ITSS**
http://www.und.edu/dept/telecom/
Carnegie Building
Phone: (701) 777-4112
(See Information Technology Systems and Services/ITSS)

**TELEVISION CENTER**
Skalicky Tech Incubator, Room 110
Phone (701) 777-4346

Mission: The University of North Dakota Television Center is
a division of UND Continuing Education. The mission is to promote
student development, offer quality production services, and provide
programming that reflects the university’s mission and values. The
following vision statements support the mission:

- Provide a quality internship program through Studio One.
- Provide high quality, innovative, and cost-effective pro-
duction services to clients.

- Schedule and operate Grand Forks Cable Channel 3 and
UND Cable Channel 17, Residence Life Cinema.
- Develop partnerships that will enhance the university
through the use of television.

**Services:** The Television Center provides television production
services to campus departments and organizations. Hourly rates are
charged for services. To request services, contact the Television Cen-
ter at 777-4346. The following services are offered:

- Studio Production: four-camera production with computer
graphics and digital effects.
- Remote Production: two-camera production with special
lighting effects.
- Editing: post-production services with computer graphics
system, digital video effects, narration and music library.
- Script development: research and writing services for docu-
mentary, promotional and news projects.

Written estimates will be provided after clients submit a Project
Request form, which is available at: www.tvcenter.und.edu. The Tele-
vision Center does not rent or loan equipment to groups, organiza-
tions or individuals.

**Studio One:** Studio One is a live television show produced by
the University of North Dakota’s Television Center. The program,
which debuted in the spring of 1987, is a one-hour broadcast similar
to NBC’s Today or ABC’s Good Morning America. Students pro-
duce news, weather, sports and entertainment segments, and inter-
guests ranging from local people to national and international
celebrities.

More than 3.5 million people can watch Studio One. The pro-
gram is telecast live on Thursday afternoons during the fall and spring
semesters on Grand Forks Cable Channel 3 and UND Cable Channel
17, Residence Life Cinema. It is repeated several times during the
week in the following North Dakota cities: Grand Forks, Fargo, Minot,
Bismarck and Mandan. Minnesota viewers can also tune in. In addi-
tion to East Grand Forks, Studio One is distributed to more than 80
communities in the Twin Cities region by the Metro Cable Network.
Prairie Public Television, North Dakota’s Public Television Network,
also broadcasts the program across North Dakota, eastern Minnesota
and southern Manitoba, which includes the Winnipeg metro area.
Outside the region, viewers in Colorado can watch through the Den-
ver Community Television Network.

Studio One provides opportunities for students from the Uni-
versity of North Dakota to gain practical experience in the communi-
cation industry. Students deal with every facet of creating a live
television show by working in teams. Four teams create the show:
News, Programming, Production and Marketing.

To find out more about how you can become involved in Studio
One or to attend a live performance, visit our website
(www.studio1.und.edu) or call us at 777-4346.

**TRIO PROGRAMS**
Student Support Services
Ronald E. McNair Program
3rd Floor, McCannel

The UND components of TRIO programs are funded by the
United States Department of Education. Two are of interest to the
UND student.

**Student Support Services.** (701) 777-3426. The Student Sup-
port Services Program provides academic and personal support to
first generation (neither parent has a bachelor’s degree), economically
disadvantaged students, and/or students with disabilities. The pro-
gram provides academic assistance with individual and small group
tutoring; review classes in math and science; course selection and
registration; computer literacy; and career exploration. Students also
receive assistance securing appropriate financial resources. A variety
of resources are available for students as they develop self-reliance, independence, and academic success.

Ronald E. McNair Program. (701) 777-4931. This program is designed for undergraduates who have completed their sophomore year and who are first generation and low income, or who are from a group underrepresented at the doctoral level of the targeted departments. The McNair Program encourages graduate studies by providing opportunities to define goals, engage in research, and to develop the skills and student/faculty mentor relationships vital to success at the doctorate level.

UNIVERSITY RELATIONS, OFFICE OF
411 Twamley Hall
Phone (701) 777-2731

As the institution’s central communication and public relations department, the Office of University Relations (OUR) generates awareness, understanding and support among the University’s many constituencies. Reporting directly to the President, OUR also maintains liaison with other units performing communications-related tasks, including affiliated but legally independent organizations such as the UND Alumni Association. University Relations has been given responsibility for encouraging an integrated marketing communication approach across the campus. The office also manages UND’s main website, www.und.edu.

The work of the Office of University Relations falls within two broad areas: (1) Projects initiated, funded and carried out directly by OUR, and (2) projects involving partnerships with other UND departments or individuals in which University Relations serves as a central source of communications, creative and/or organizational expertise.

In conducting projects and campaigns, OUR utilizes a variety of communication and action tools to reach the general public and special constituencies such as faculty, staff, students, alumni, the local community, educators, government officials, and business leaders. Among these tools are mass media publicity, advertising, OUR-produced periodicals such as “UND Discovery,” brochures and other printed materials, speeches and presentations, special events, direct mail, and personal contact.

Faculty, staff and students are encouraged to contact University Relations on matters that appear to come within the OUR mission. When help cannot be provided for reasons of time, budget or policy, a referral is generally made to another source of assistance.

VETERAN SERVICES
211 Twamley Hall
Phone (701) 777-3363

The Veteran Services Office certifies eligible students and veterans for VA educational benefits and acts as a liaison between the student and the VA. Services also include providing students/veterans with information regarding VA policies and procedures, providing information about the University, and assisting students/veterans in the readjustment and adaptation to the university setting. The office also provides information on financial aid and tutorial assistance. Referrals to other service offices are made as appropriate. All veterans need to drop off copy #4 of DD-214 to verify veteran status.

UNIVERSITY WRITING PROGRAM/WRITING ACROSS THE CURRICULUM
12A Merrifield Hall
Phone (701) 777-3600
http://www.und.nodak.edu/dept/wac.htm

The University Writing Program is designed to encourage and support student and faculty involvement with writing, both as a means of communication and as a mode of learning across the curriculum. The program sponsors workshops and seminars for faculty in all disciplines, offers free consultation services to students and faculty, and serves as a clearinghouse for information and materials on teaching with writing. The University Writing Program also assists in the development and support of writing intensive courses designed to fulfill the general education Communication requirement.

WRITING CENTER
12 Merrifield Hall
Phone (701) 777-2795
writing.center@und.nodak.edu
http://www.und.edu/dept/wac/

The Writing Center offers free individualized help with writing to students and other members of the UND community. Trained consultants will work with writers at any stage in the writing process, including research, organization, revision, editing, and documentation. Handbooks and style manuals are available for those who have questions about grammar, punctuation, or format (APA, MLA, Chicago Manual of Style, Turabian, and others).

The Writing Center is open six days a week, including some weekend and evening times. Sessions are offered on a drop-in basis (as available) or by appointment. For further information, call 777-2795.
INFORMATION SOURCES

about the

University of North Dakota

Grand Forks, North Dakota

Freshman Student Applications and Undergraduate Transfer Student Applications

Visit and Tour Arrangements

Write: Office of Enrollment Services, University of North Dakota, Carnegie Hall, Room 100, 250 Centennial Dr., Stop 8135, Grand Forks, ND 58202-8135

ONLINE: www.go.und.edu

Telephone: (701) 777-4463
(800) CALL UND, ext. 4463
(701) 777-3367 TTY Service Only

Graduate Student Applications

Visit and Tour Arrangements

Write: Graduate School, University of North Dakota, Twamley Hall, Room 414, 264 Centennial Drive, Stop 8178, Grand Forks, ND 58202-8178

ONLINE: www.graduateschool.und.edu

Telephone: (701) 777-3858
(800) CALL UND, ext. 3858
(701) 777-2947 TTY Service Only

Internet Home Page

http://www.und.edu

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ENROLLMENT INFORMATION ABOUT UND

The following pages of the catalog contain information about admission policies, costs, student financial aid, and housing. The Office of Enrollment Services serves as the central contact point for enrollment information about the University. It provides information to prospective students through printed materials, visitations to schools and college fairs, tours of the UND campus, and personal contact over the telephone, by email or on a face-to-face basis. The application form for admission and housing may be obtained from the Enrollment Services Office. The mailing address is: Office of Enrollment Services, University of North Dakota, Carnegie Hall Room 100, 250 Centennial Drive, Stop 8135, Grand Forks, ND 58202-8135. The office telephone number is (701) 777-4463. The application form can also be obtained on the web at: go.und.edu. As a general rule, the sooner one makes application, the better, especially if the prospective student wishes to receive the highest priority for financial aid, scholarships and/or housing.

ADMISSION OF STUDENTS

Undergraduates may be admitted to the University in one of three categories: Regular Admission (full-time or part-time); Provisional Admission; or Non-Degree Seeking Admission. See below for definitions of these admission categories. For provisions governing admission to the Graduate School, Law School and the Medical School, applicants should consult the respective bulletins of those schools.

Types of Admission

Regular Admission is granted to a student who has satisfied the entrance requirements and is duly enrolled as a candidate for a degree. A student whose entrance units are satisfactory is classified as follows, provided he or she has the hours of credit indicated: a freshman, less than 24 hours; a sophomore, 24 hours; a junior, 60 hours; a senior, 90 hours.

Provisional Admission may be granted by the Student Academic Standards Committee to degree-seeking undergraduate applicants in cases where the student shows promise to succeed but does not meet regular admissions criteria. A student admitted on provisional status must: 1) enroll in a study skills or Introduction to University Life course (unless enrolled in the Integrated Studies program); 2) limit course load to no more than 15 credits in the first semester; and 3) seek advisement two times during their first semester with a Student Success Center professional staff.

Non-Degree Seeking Admission is a special admission status reserved for students who wish to enroll in a limited number of courses at UND. Students admitted with this status will be allowed to attempt up to a total of 15 credits at UND and are not eligible for financial aid. Enrollment in courses beyond 15 credits will be contingent upon meeting all admission criteria for degree-seeking admission. Students interested in this status should fill out the Application for Admission and submit the $35 application fee.

Admission of New Freshmen

Automatic Admission. In order to be admitted to the University of North Dakota, all freshmen students must meet the following minimum criteria:

- ACT composite score of 21 or SAT combined score of 990
- Minimum high school cumulative GPA of 2.50
- Completion of the high school core curriculum
- Completion of safety and security form

Students are encouraged to apply for admission even if their GPA, ACT and safety and security responses do not meet these admissions standards. All applications that do not meet automatic admission will be reviewed by the Student Academic Standards Committee (academic records) or the Admissions Safety and Security Committee (criminal history records) to consider all relevant information and extenuating circumstances to make an admission decision that is in the best interest of the student and institution.

Students older than 25 are not required to submit an ACT or SAT score and should contact the Office of Admissions for more specific details.

Students applying for admission to UND are required to take one of the standardized college entrance exams; however, students 25 years old or older are not required to have test scores. The American College Test (ACT) or SAT I: Reasoning Test is accepted. Standardized test scores at UND are used for scholarships and advisement, as well as admission criteria. It is recommended that students take the ACT late in their junior year or early in their senior year. Applicants to UND are exempt from the ACT writing essay component under UND campus procedure.

All students who graduate from high school, whether in North Dakota or in any other state, in 1993 or later are required to complete a core curriculum before entering any four-year North Dakota University System Institution.

Below is the list of courses at the secondary level which are required for admission:

- Four units of English, including the development of written and oral skills;
- Three units of mathematics, including Algebra I and above;
- Three units of laboratory science, including at least one unit each in two or more of the following courses: biology, chemistry, physics or physical science;
- Three units of social studies, excluding consumer education, cooperative marketing, orientation to social science and marriage and family.

Each university may admit some students who have not completed the required courses. The Student Academics Standards Committee will consider exemptions to the policy because of special circumstances.

The Student Academics Standards Committee may deny applicants who meet the core curriculum requirements but are evaluated to be high risk candidates for success at UND due to a low ACT composite score or a low SAT combined score, and/or a low high school grade point average.

Students who have not had the required courses are encouraged to enroll in any of North Dakota’s two-year colleges, which include Bismarck State College, North Dakota State College of Science, Minot State University–Bottineau, Lake Region State College, and Williston State College. Upon successful completion of 24 transferable semester credits at these campuses, students are eligible for transfer to a four-year campus. These transfer students are exempt from the high school course requirements.

A student who has not graduated from high school may be admitted to the University by completing the test of General Educational Development (GED) with a minimum score of 410 or above on each exam and an overall average of 500 on the entire test. For more information regarding GED test content and registration, contact UND Testing Services at (701) 777-4157.
The University is approved under Federal law to admit non-immigrant alien students. Students whose education has been outside the United States should make early contact with the Office of Admissions to acquire the international student application form.

International students applying for undergraduate admission and all students whose first language is not English are required to earn a score of at least 195 computer-based, 525 written-based, or 71 internet-based on the Test of English as a Foreign Language and/or 6.0 on the International Language Testing System to be considered for admission. The International Programs Office provides assistance and counseling to students from countries other than the United States.

Canadian students are required to complete Grade XII and to meet high school core curriculum admission requirements. They must also complete the ACT or SAT and request that the official results be sent to UND to be eligible to enter the University as freshmen.

High school special students who are currently attending high school may be allowed to enroll in University courses as special students with permission of the Director of Admissions and the student’s high school principal and counselor. A high school transcript is required along with a letter of recommendation from the high school principal or guidance counselor. Students may receive credit for courses taken at an accredited university/college while in high school if those courses are acceptable for credit at the University of North Dakota. Courses which would apply toward College requirements must be approved by the Dean of the College. Courses to be applied to meet major requirements must be approved by the Departmental Chair. Dual credit applications are available at the high school or NDUS.

Admission Tests: It is required that each applicant for admission who completes the American College Test (ACT) request that official scores be sent directly from ACT in Iowa City to the University. Students who complete the SAT I: Reasoning Test (SAT) may request official test scores be mailed to the Office of Admissions from SAT in Princeton, NJ. The University prefers the ACT report since it provides information, in addition to test results, which is helpful in counseling students. It is to the student’s advantage to take the test at the earliest possible test date during the senior year or the latter part of the junior year.

Information on test dates may be secured from the high school principal, counselor, or the Counseling Center at UND or any of the colleges in the state.

Advanced Placement. A student from a high school which offers college-level courses through the College Entrance Examination Board Advanced Placement Program may be given University credit and/or advanced standing in individual subjects. This may be especially desirable if he or she wishes to proceed to the next higher level. Under this plan the student takes an advanced placement examination given at his or her school by the College Board. These examinations are scored by the College Board and are forwarded to the college of the student’s choice. The amount of credit given will then be determined by the department best qualified to evaluate the material. Students with special preparation in academic areas (foreign language, etc.) are urged to take advantage of the Special Examinations for credit available in selected disciplines. See the Special Examinations for Credit section.

International Baccalaureate Diploma. The International Baccalaureate Diploma is recognized for the purpose of admission to the University of North Dakota. Specific course credit for advanced standing will be evaluated and determined by the department and college in which the course is offered.

Note to students intending to enroll in mathematics courses: Students planning to take entry-level mathematics courses at UND (Math 102*, 103, 104, 105, 146, 165, 208) shall be enrolled in their beginning mathematics courses only after taking a math placement test or receiving a sufficiently high score on the ACT Mathematics test. Students who have received college mathematics credit need not take the placement exam. UND’s Mathematics Department strongly advises all transfer students who plan to take courses in or major in math, to take UND’s Math Placement Exam and to consult with their adviser at UND to help determine the best starting point in UND’s math curriculum.

The mathematics placement tests are used for placement purposes only. Passing these tests does NOT grant credit. Credit for Math 103 and/or Math 105 without taking the course(s) is available only through CLEP examinations. Two placement exams are used. Students planning to take Calculus I (Math 165) should take the Trigonometry and Elementary Functions Exam. All other students should take the Algebra Exam. Placement test results will determine beginning placement in Intermediate Algebra (Math 102*), College Algebra (Math 103), Finite Math (Math 104), Trigonometry (Math 105), Applied Calculus I (Math 146), Discrete Mathematics (Math 208), Calculus I (Math 165) or Math for Elementary School Teachers (Math 277). Ask your adviser, or contact the mathematics department, concerning time and place of these tests. *Math 102 credit does not count toward graduation.

Credit by Examination Through CLEP. CLEP stands for College-Level Examination Program of the College Board. It is a national program that offers the opportunity for a student to obtain recognition for college-level achievement based on intensive reading in a particular field, adult school courses, correspondence courses, television or radio courses, courses on tape, or other means of formal or informal preparation. UND accepts credit on CLEP subject examinations only. See the section on CLEP for additional information.

Enrollment in the University. All students will be enrolled, based on their declared major, in one of UND’s academic colleges. Students who have an “undecided” major will receive assistance from the Office of Student Academic Services. Once a student declares a major, he/she will be enrolled in the appropriate academic college. Enrollment in an academic college does not guarantee admission to the college or specific academic programs. (For more information regarding additional requirements for admission to colleges and programs, see the listings for individual colleges).

How to Apply: 1. The Application for Admission form may be obtained from The Office of Enrollment Services, 250 Centennial Drive, Stop 8135, University of North Dakota, Grand Forks, ND 58202 or on the web at: go.und.edu.

2. All applicants are required to complete and return the application for admission to the Office of Admissions with the $35 non-refundable application fee. In addition, beginning freshmen must request of their high school to send an official transcript of their records directly to the Office of Admissions.

3. The freshman applicant is required to take the ACT or SAT early in the senior year or the latter part of the junior year and request that the official scores be sent to the University of North Dakota, Grand Forks, ND 58202.

4. All applicants are required to complete and return the safety and security form.

5. Each applicant must have the Measles/Rubella Form completed by his or her family physician or mailed from his/her high school. This form is mailed to each accepted student and should be returned to the Student Health Service before enrollment.

When to Apply: An applicant currently enrolled in high school may apply at any time during his or her senior year. If the student’s high school record to that time is satisfactory, the applicant will be granted admission. It is the student’s responsibility to make certain that a transcript verifying completion of the core curriculum and his or her date of high school graduation is sent to the Office of Admissions.
ADMISSION OF TRANSFER STUDENTS

Transfer students from other colleges and universities who have earned fewer than 60 semester hours of credit that are acceptable for full credit toward a bachelor’s degree must request that their high school records verifying high school graduation as well as official transcripts of their records at each institution attended be sent directly from the schools and colleges to the Office of Admissions.

Official ACT or SAT results are required for students who will not have 24 acceptable transfer credits and are under the age of 25.

Students who have declared a major will enroll in one of UND’s undergraduate degree-granting colleges. These are the College of Arts and Sciences, the College of Business and Public Administration, the College of Education and Human Development, the School of Engineering and Mines, the John D. Odgaard School of Aerospace Sciences, the College of Nursing, and the School of Medicine and Health Sciences. For information on admission requirements and grade point average requirements of UND’s colleges and schools, see the specific college section. Transfer students who have an “undecided” major will receive assistance from the Office of Student Academic Services.

Applicants who have been enrolled in a college or university other than the University of North Dakota and who are applying for admission must submit complete credentials to the Office of Admissions before any information regarding their status will be given. All claims for transfer credit must be made within the semester in which the student matriculates. The Office of the University Registrar evaluates and records transfer credit. Students with unsatisfactory records, as well as students who have been asked to withdraw from other institutions due to unsatisfactory scholarship or behavior, ordinarily will not be allowed to enter the University. If special permission for admission is granted, the student is placed on academic probation.

International Student Transfer Admission. International students applying for transfer admission must submit an application for admission, a certification of finances form, and official transcripts/academic records from all post-secondary schools attended. In addition, the Test of English as a Foreign Language (TOEFL), with a score of 195 computer-based, 525 written-based, 71 internet-based, and/or 6.0 on the International Language Testing System (IELTS) for undergraduate students, is required for all students whose native language is not English.

If transferring from a college or university outside of the United States, a course-by-course evaluation of non-U.S. post-secondary credentials is required. Most Canadian universities do not require evaluations. The student will be notified if a course-by-course evaluation is needed from a Canadian university. The evaluation form may be obtained from the International Programs Office, or at: http://www.wes.org. The WES evaluation must be submitted in addition to all official transcripts/academic records from all post-secondary schools attended, along with word-for-word English translations.

If transferring from a college or university within the United States, a foreign student adviser reference form is required.

Eligibility. A transfer student must be in good academic standing and be eligible to return to any college or university attended. The transfer student is not at liberty to disregard any part of his or her previous college record. Former students of other institutions may not enter as new freshmen on the basis of secondary school records. Violation of this regulation will be regarded as a serious offense and may result in the student’s dismissal from the University.

Students transferring to the University must have maintained at least a “C” average at the colleges or universities which they previously attended. Some colleges in the University require higher averages in selected major programs. These requirements are described in the specific college listing in this catalog.

Transfer Credit. An official transcript from each of the student’s former institutions must be submitted for review. Upon receipt of the student’s transcripts, the Office of the Registrar will determine which credits will transfer as well as how those credits will be applied toward the University of North Dakota’s General Education Requirements and/or essential studies requirements. How the accepted courses may be used toward the student’s major is determined by the individual college or department from which the student plans to receive his/her degree. Students should read specific information about their school or college requirements in this catalog and should contact an adviser in their major to determine course applicability.

A credit summary, indicating only the number of credits transferred, institution of origin, and the student’s transfer GPA, will be posted to the student’s University of North Dakota transcript after the student has been admitted to the University. A detailed listing of transferred courses will be available to both student and adviser. All of the student’s previous undergraduate work becomes part of the student’s permanent UND record. All transfer work shown on the student’s official transcript will be summarized in semester credits. Work transferred from institutions that use quarter or other systems, will be converted to semester credits.

The University of North Dakota participates in the General Education Requirements Transfer Agreement (GERTA) with other North Dakota institutions. Students who have completed their general education requirements at another North Dakota institution recognized by GERTA should request proof of this completion be sent to the UND Office of the Registrar. Students who have completed an Associates of Arts degree or who have completed their general education requirements at another North Dakota University System (NDUS) institution will be deemed to have completed the general education requirements at UND.

In general, all college-level credit attempted, excluding withdrawals, at a regionally accredited institution of higher education will be posted in transfer by UND. There are certain exceptions to this rule, and those exceptions include, but may not be limited to, the following:

1. Remedial or preparatory courses
2. Credit granted for life experience by other institutions
3. Institution-based credit by examination
4. Non-degree continuing education courses

Credit for military courses and training may be granted, but students requesting this credit must produce an official training record. Students should consult the military branch under which they served to have an official copy of this record sent to UND. The American Council on Education’s (ACE) Guide to the Evaluation of Educational Experiences in the Armed Forces will be used to determine whether or not credit is granted and only credit listed as either lower division baccalaureate or upper division baccalaureate credit will be considered.

Students transferring college credit from all institutions outside the United States, with the exception of Canadian institutions, must have the transcripts evaluated by an international transcript evaluation company prior to being admitted to UND. Students who need more information about how this evaluation is performed may go online at: http://www.wes.org. Canadian students’ work will be evaluated on-site in the Office of the Registrar.

Credits not successfully completed (grades of F) that would transfer if successfully completed will also transfer to the University and will affect the students’ cumulative grade point average. Transfer students from two-year colleges (junior or community colleges) are required to complete a minimum of 60 semester hours at a four-year college. The last 30 credits toward the degree must be institutional credit at the University of North Dakota.
To qualify for a degree a student must achieve a minimum 2.00 (C) average on all University work. For transfer students, it is required that the overall average (including transfer work) be 2.00 (C) and that the average of work taken at the University of North Dakota be 2.00 (C). Some colleges require a higher grade point average for graduation and this requirement is indicated in the specific college description in this catalog.

**How To Apply:**

1. Transfer students should request an Application for Admission from the Enrollment Services Office, Box 8135, University of North Dakota, Grand Forks, ND 58202, or on the web at: go.und.edu.

2. Students must complete the application and return it to the Office of Admissions together with a $35 non-refundable fee.

3. Students must request that an official transcript from each college attended be forwarded directly to the Office of Admissions, 264 Centennial Drive, Stop 8357, University of North Dakota, Grand Forks, ND 58202. Although an applicant’s records from several institutions may be summarized on one transcript, an application will not be considered until official transcripts from each college attended are received. These are required even though no credit may have been earned at an institution. An official high school transcript mailed to the Office of Admissions directly from the high school is required for all students who have earned fewer than 60 semester credits accepted toward a baccalaureate degree and official ACT or SAT results are required for students allowed less than 24 semester credits in transfer to a degree program.

**When to Apply:**

A transfer applicant may submit an application as soon as he or she has registered for the last term which he or she intends to complete at his or her former school. Students from other colleges who are accepted to transfer to the University will receive information about early registration during which time they may come to the University for advice about their schedule and may enroll for the first semester courses.

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**READMISSION OF FORMER UNDERGRADUATE STUDENTS**

Undergraduate students who leave the University for at least one complete semester (excluding summer terms) are required to submit an application for readmission to the Office of the Registrar. (Returning graduate students should refer to the Graduate section of this catalog.) Readmission to the University does not guarantee readmission to a particular degree program at UND. The Request for Readmission form is available from the UND Office of the Registrar website or upon request from the Office of the Registrar. Students who were previously suspended from the University must be reinstated by the dean of the school or college to which they wish to be admitted before applying for readmission. Students who were previously dismissed from the University must petition for reinstatement to the Student Academic Standards Committee. Submit the petition to the Office of the Registrar, 201 Twamley Hall.

Students who have enrolled in courses from other institutions during their time away from UND must have official transcripts sent from each institution attended. Failure to declare attendance at another institution is cause for dismissal and may result in cancellation of registration or any earned degrees to be revoked. Students whose institutional and cumulative GPA’s are below 2.00 based on all post-secondary work accepted by the University may be denied readmission or may be readmitted on probation. Students whose GPA is under 2.00 will be allowed readmission to UND only upon the approval of the dean of their prospective school or college. 

**ORIENTATION PROGRAMS FOR NEW STUDENTS**

The University of North Dakota holds orientation programs for new students (freshman and transfer students) each semester. The emphasis is on acquainting students with people, programs and resources at UND and the surrounding community. New students will be informed of the dates, times and specific details.
INTRODUCTION AND BACKGROUND

This section of the catalog summarizes many of the academic policies and procedures which will apply to the student during his or her undergraduate years at UND. Particularly important are the passages describing the University’s general education program. Since institutional policies may change between catalog publication dates, students are encouraged to consult with their academic adviser whenever appropriate. Students with questions also should request information from their academic department, the dean’s office of their college, and the various administrative offices on campus.

Before utilizing the information found in this catalog, it may be useful to review the following basic patterns of undergraduate education at the University of North Dakota.

The student's place in the University organization. New students are admitted, according to the major they wish to pursue, to one of UND’s undergraduate degree granting colleges (e.g., Arts and Sciences). All students who have an “undecided” major will receive assistance from the Office of Student Academic Services. Once a student declares a major they will be enrolled in one of the undergraduate degree granting colleges. Each college is made up of a group of academic departments and/or program areas (e.g., history). Courses in the student’s major will normally be taken in a specific department, although UND offers many interdisciplinary majors as well. It should be noted that course work in one’s major field normally makes up only a fraction of the total credits required for graduation (typically about one-fourth). Thus, throughout their undergraduate days, students have the opportunity to take courses in many departments outside their home college. Indeed, this diversity is one of the advantages of attending a multipurpose university such as UND.

As an institution of higher education, the university is committed to ongoing assessment of student learning at all levels and in all programs. Assessment of student learning is essential in order for the university to improve educational programs and the experiences of students. Students are urged to respond positively when asked to participate in assessment activities. Students are also encouraged to collaborate in the planning and development of assessment activities and to make suggestions for improvements.

University, college and departmental requirements. Undergraduate students must meet three sets of requirements to graduate from the University of North Dakota: (1) University graduation requirements, (2) requirements of the UND college or school granting the student’s degree, and (3) the requirements of the student’s major department or program area.

Which catalog to use. The graduation requirements of the University and its colleges, schools, and departments, as published in the catalog in effect at the beginning of the first semester the student is enrolled at the University, are those which must be met for completion of an undergraduate degree program. Subsequent changes in policies and requirements, as published in the catalog or amended by the University Senate and the Board of Higher Education, may be substituted. The faculty reserves the right to make changes in curricula at any time when in its judgment such changes are for the best interests of the students. Courses listed in this catalog are subject to change through normal academic channels. New courses and changes in existing course work are initiated by the responsible departments or programs and are approved by the appropriate dean and college or school curriculum committee, the University Curriculum Committee, the University Senate, the Vice President for Academic Affairs, and the Board of Higher Education.

Advisement. The University encourages continuing communication between faculty and students to enhance the advisement process. The student has final responsibility to meet the stated requirements for the degree sought, as listed in the appropriate catalog or bulletin. Every student is held accountable for complying with the information contained in this catalog and the Schedule of Courses for each term. Registration is the student’s personal responsibility.

Advisement Philosophy Statement. Academic Advising is an integral component of undergraduate education at the University of North Dakota. The focus of all academic advising is to assist students in taking responsibility for developing meaningful educational plans which are compatible with their potential and with their career and life goals. It is a decision-making process by both student and academic advisor. The sharing of information occurs in a caring and comfortable environment which promotes responsible and appropriate academic choices. Through a quality advising process, academic advisors strive to facilitate a successful academic experience for students. See the UND website at: www.und.edu for more information.

DEGREES GRANTED

The University of North Dakota offers both undergraduate and graduate courses of study leading to degrees in many academic disciplines. See the section of undergraduate majors and minors for specific listings. Curricula for specific majors will be found in the Courses of Instruction section of this catalog.

See the section about the Graduate School in this catalog for a description of graduate degrees and a listing of the fields of study open to graduate students. Sections of the graduate professional Schools of Law and Medicine also are included. The two professional schools publish separate bulletins, which are available upon request.

THE PURPOSES OF A UNIVERSITY EDUCATION

UND’s Philosophy of Essential Studies

As a Liberal Arts institution, UND believes that the Essential Studies program is the foundation of a student’s degree, regardless of their specific major. While completing their Essential Studies courses, students are encouraged to explore a range of content areas and to develop broad learning abilities. Students’ Essential Studies courses should anchor their future university work and provide a model for life-long learning. Students are encouraged to consult with their academic advisor when choosing Essential Studies courses and to be particularly mindful of the ES program’s special emphasis on specific learning skills. (These courses are designated in the catalog.) Finally, all UND Students will complete an Essential Studies Capstone course, to be taken no earlier than the second semester of their junior year. By choosing courses that complement each other, students can reinforce and enhance the knowledge and abilities acquired in each course, as well as develop the ability to recognize relationships.

Oversight of the Essential Studies Program is the responsibility of the Senate Essential Studies Committee, a committee of the University Senate comprising student, faculty, and administrative representatives from across campus. UND’s full philosophy of Essential Studies, the specific requirements of the program, as well as the current and archival lists of courses that satisfy the requirements, can be found at the ES committee website, http://www.und.edu/dept/registrar/EssentialStudies/esindex.html.

THE NORTH DAKOTA UNIVERSITY SYSTEM

TRANSFER AGREEMENT

The University of North Dakota participates in the General Education Requirements Transfer Agreement (GERTA) with other North Dakota institutions, the NDUS transfer agreements with Wash-
ingon, the South Dakota system and MnSCU institutions. Students who have completed their general education requirements at another North Dakota, Washington, South Dakota System or MnSCU institution recognized by the agreement should request proof of this completion be sent to the UND Office of the Registrar. Students who have completed an Associates of Arts degree or who have completed their general education requirements at another North Dakota University System (NDUS), Washington, South Dakota system, or MnSCU institution will be deemed to have completed the general education requirements at UND.

UND coursework generally acceptable at other NDUS schools as general education courses are designated on the list of approved general education courses at: www.und.edu/dept/registrar/GERcommittee/gerindex.htm. Please direct questions about the NDUS, Washington, South Dakota System or MnSCU Transfer Agreement to the UND Registrar’s Office or the Registrar at another NDUS institution.

UNIVERSITY GRADUATION REQUIREMENTS

A minimum of 125 semester hours of credit is required for a baccalaureate degree. Transfer students are required to complete a minimum of 60 credits at four-year institutions. The last 30 credits must be UND institutional credit. Institutional credit is academic credit awarded by the University. The following pages describe the requirements which must be met by all students seeking the baccalaureate degree. These include regulations concerning majors, minors, grade point average, upper division courses, and residence.

I. Essential Studies Program Requirements

An overview of the philosophy guiding the Essential Studies portion of the University’s graduation requirements is provided in the immediately preceding section of the catalog. The complete philosophy statement, the specific goals of the Essential Studies program and the courses that can be used to satisfy the Essential Studies graduation requirements can be found at: www.und.edu/dept/registrar/GERcommittee/gerindex.htm.

II. Upper Division Courses Required

A minimum of 36 semester credit hours must be completed in upper division courses by all undergraduate degree recipients. All courses numbered 300 and above and taken at a four-year institution are defined as upper division.

III. Majors

The specific requirements of a major or related fields concentration are determined by the department or program responsible for the major or concentration subject to approval by the University Curriculum Committee.

Students desiring to have more than one major listed on the transcript must have the written approval of the dean(s) of the college(s) offering the majors.

IV. Minors

Minors shall consist of a minimum of 20 semester hours of course work with the course distribution established by the appropriate department or departments with the approval of the University Curriculum Committee. Minors may consist of courses associated with a department or discipline (e.g. chemistry); a specialty within a department (office administration, etc.) or a collection of courses which cross disciplines (e.g. international studies). A minor is not required by the University but may be required in some programs for an undergraduate degree. A student may declare a minor in the office of the dean of the college in which the minor is offered.

V. Double Use of Courses

1. Courses within a major or required by a program may, at the same time, fulfill Essential Studies Requirements for the University. (There are a few exceptions to this general rule. These exceptions are stated under departmental requirements, for example under the Communication program.)

2. Courses may NOT generally be used, however, to count at the same time toward the total credits needed for 2 majors, 2 minors, or a major and a minor.

3. In certain cases courses may count toward a major (or minor) and, at the same time, fulfill “Extradepartmental Requirements” for another major or program. Consult college or departmental offices for more specific information.

VI. Grade Point Average

To qualify for a degree a student must achieve a minimum 2.00 (C) average on all University work. For students with transfer work, it is required that the overall average (including transfer work) be 2.00 (C) and that the average work taken at the University of North Dakota be 2.00 (C). Some undergraduate colleges require higher averages. (See requirements under specific college information.)

All UND coursework applied to the major or minor must average 2.0 or above; all coursework applied to the major or minor including transfer work must also average 2.0 or above. Certain colleges or majors/minors may require a higher GPA.

VII. Residence Requirements

A candidate for the bachelor’s degree who enters with transfer credit must obtain from the University a minimum of 30 semester hours of institutional credit and 60 semester credits from a four-year college. Fifteen semester credits in the student’s major and four semester credits in the minor, if a minor is declared, must be institutional credit. Some colleges of the University may require more than 15 hours of institutional credit in the major. The last 30 credits for the bachelor’s degree ordinarily must be institutional credit.

Institutional Credit includes degree credit courses: a) taken in residence; b) taken through Continuing Education. Credits earned by examination, e.g., Foreign Language Placement and Special Examination for Credit, do not count as Institutional Credit.

Exceptions to General Graduation Requirements. Any exception to the above general degree requirements must be requested by the student at least six weeks prior to his or her expected graduation date. Petitions must be initiated in the office of the student’s dean.

Formal Application for the Degree Sought. Candidates for degrees must make written application to the Registrar or to the dean of the college of the degree within the first four weeks of the semester in which the student expects to receive the degree. Application forms may be obtained from the Registrar. Students applying for two or more degrees to be awarded simultaneously must receive approval from each college granting the degrees.

Conferring of Additional Baccalaureate Degrees. Students who have majors falling under different degrees may be eligible for a second degree. Candidates for a second UND baccalaureate degree must complete a minimum of 155 hours (30 additional hours beyond the University minimum for a first baccalaureate degree). Each successive baccalaureate degree beyond that will add 30 hours to the minimum requirement. All college and major requirements for the second degree must also be fulfilled. At least one-half of the additional 30 hours must be institutional credit. A minimum of 15 semester
credits of the major and a minimum of four semester credits of the minor, if declared, must be institutional credit.

**COMMON COURSE NUMBERS**

All universities and colleges in the North Dakota University System (NDUS) have agreed on Common Course Numbers (CCNs) for many of the courses they have in common. When students transfer from one NDUS institution to another, the CCN transfer courses will fulfill all the same requirements* as would the CCN course at the new school (*transfer CCN courses will not fulfill the last 30 hours in residence requirements nor will 100-level and 200-level courses fulfill upper division requirements.) A list of the common courses can be found on the North Dakota University System website at: www.ndus.nodak.edu.

**SPECIAL EXAMINATIONS FOR CREDIT**

A regularly enrolled student may apply to take “special” (challenge or validating) examinations to establish credit for approved University courses. Requests to take special examinations must be submitted to the chair of the department offering the course. Approval of the department chair, the instructor of the course and the dean of the college offering the course(s) are required. A petition with the appropriate signatures must be submitted to the Office of the Registrar prior to examinations. A committee of three appointed by the chair of the department offering the course will administer and evaluate the examinations, a majority being necessary to award a grade. Special examinations must be searching and comprehensive. Grades of “Satisfactory” or “Unsatisfactory” will be recorded on the student’s permanent record upon recommendation of the committee, but will not be used to compute scholastic average.

The fee per credit hour for a validating or challenge examination is one-half the regular credit hour fee for the course to be challenged. Receipt of payment must be presented to the instructor prior to examination.

Students may apply to take challenge or validating examinations to establish credit in University of North Dakota courses that correspond to work taken at institutions that are not regionally accredited, or for courses in which they have superior preparation or knowledge gained through independent study. These exams are offered for courses which have no equivalent CLEP subject exams. Students who have audited a course, or who have previously enrolled in a course and then dropped it, will not ordinarily be permitted to take a special examination in that course.

**College-Level Examination Program:** The University of North Dakota offers the opportunity to submit the results of CLEP for credit in most of the Subject Examinations.

CLEP Subject Examinations currently accepted by UND for transfer credits are listed below with minimum acceptable standard score. Credit earned through CLEP Subject Exams may be used to fulfill University General Education requirements, or to test out of elective credits. As soon as they become available, new examinations will be reviewed by University departments to determine their suitability for credit at UND.

The following guidelines have been established for utilization of the Subject Examinations:

1. A CLEP Subject Examination may not be taken to establish credit for a course in which a student has earned credit in a higher level sequential course.
2. Regarding CLEP Subject Examinations which offer a maximum of six to eight credits, a student with previously earned credit in one semester of a two-semester sequence must petition the CLEP Advanced Placement Committee for exception to this policy prior to taking the CLEP Subject Examination for the balance of the credit.

3. A Subject Examination may be repeated no sooner than six months after date of the last testing. Students should submit a petition to the UND CLEP Committee for permission to repeat an examination.
4. A Subject Examination may not be taken to establish credit in a subject in which the student has been enrolled, but which he or she has withdrawn after the last day to add a course, until six months from the last class day of the term in which he/she was enrolled for the course.
5. A Subject Examination may not be used to establish credit in a subject which the student has previously failed.
6. A student wishing to have CLEP credit included within the last 30 hours toward a bachelor’s degree must have appropriate petitions approved by the CLEP Committee and the Administration Procedures Committee, since the last 30 credits must be earned in residence at the University, and CLEP credit is considered as equivalent to credit earned at another institution. All CLEP testing is now computer based. UND uses the ACE Recommended Credit-Granting Score as a guide to determine whether credit is granted.

<table>
<thead>
<tr>
<th>SUBJECT EXAMINATION</th>
<th>STANDARD SCORE</th>
<th>UND COURSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebra-Trigonometry</td>
<td>50</td>
<td>Math 107 (5 cr.)</td>
</tr>
<tr>
<td>American Government</td>
<td>50</td>
<td>Pol 115 (3 cr.)</td>
</tr>
<tr>
<td>Analyzing &amp; Interpreting Literature</td>
<td>50</td>
<td>English 271 &amp; 272 (6 cr.)</td>
</tr>
<tr>
<td>Biology (General)</td>
<td>50</td>
<td>Biol 150, 150L (4 cr.)</td>
</tr>
<tr>
<td>Business Law (Introductory)</td>
<td>50</td>
<td>Acc 315 (3 cr.)</td>
</tr>
<tr>
<td>Calculus with Elementary Functions</td>
<td>50</td>
<td>Math 146 (3 cr.)</td>
</tr>
<tr>
<td>Chemistry (General)</td>
<td>50</td>
<td>Chem 121, 121L (4 cr.)</td>
</tr>
<tr>
<td>College Algebra</td>
<td>50</td>
<td>Math 103 (3 cr.)</td>
</tr>
<tr>
<td>Composition, Freshman</td>
<td>50</td>
<td>English 110 (3 cr.)</td>
</tr>
<tr>
<td>Educational Psychology (Intro. to)</td>
<td>50</td>
<td>Psy 213 (3 cr.)</td>
</tr>
<tr>
<td>History of U.S. I</td>
<td>50</td>
<td>Hist 103 (3 cr.)</td>
</tr>
<tr>
<td>History of U.S. II</td>
<td>50</td>
<td>Hist 104 (3 cr.)</td>
</tr>
<tr>
<td>Human Growth and Development</td>
<td>50</td>
<td>Psy 250 (4 cr.)</td>
</tr>
<tr>
<td>Psychology (Introductory)</td>
<td>50</td>
<td>Psy 111 (3 cr.)</td>
</tr>
<tr>
<td>Languages (French, German, Spanish)</td>
<td>50</td>
<td>Fren, Germ, Span 101 (4 cr.)</td>
</tr>
<tr>
<td>Macroeconomics (Principles of)</td>
<td>50</td>
<td>Econ 202 (3 cr.)</td>
</tr>
<tr>
<td>Microeconomics (Principles of)</td>
<td>50</td>
<td>Econ 201 (3 cr.)</td>
</tr>
<tr>
<td>Sociology (Introductory)</td>
<td>50</td>
<td>Soc 110 (3 cr.)</td>
</tr>
<tr>
<td>Trigonometry</td>
<td>50</td>
<td>Math 105 (2 cr.)</td>
</tr>
<tr>
<td>Western Civilization I</td>
<td>50</td>
<td>Hist 101 (3 cr.)</td>
</tr>
<tr>
<td>Western Civilization II</td>
<td>50</td>
<td>Hist 102 (3 cr.)</td>
</tr>
</tbody>
</table>

**FOREIGN LANGUAGE PLACEMENT & CREDIT TEST**

Students with a background in a foreign language which is currently taught in the Languages Department at UND may receive credit by taking a test in that language through the Languages Department. Students may receive advanced standing and from 4 to 16 credits in each language (12 in Latin). It is strongly recommended that students take this test during pre-registration or registration. Students who take it later than the end of their first semester in residence will need to see the Language Lab Director for the appropriate petition form, and will need to petition to establish eligibility. Students enrolled in a language who wish to take the Foreign Language Placement & Credit Test must take it during the first two weeks of the semester.

Native speakers of a language other than English who wish to take classes in that language may enroll without special permission in any 400-level course, or in any 300-level course which emphasizes literary or cultural topics. Native speakers must obtain the permission of the department, however, to enroll in any 300-level course which emphasizes language instruction, or in any lower-division course. Incoming students whose native language (as indicated on their TOEFL exam) is one offered at UND should consult the Director of the Language Laboratory (M-306) about automatic waiver of the language placement examination.
Students, therefore, are strongly advised not to assume that they dropped from a course in this manner.

The Registrar will delete from the class rolls the names of students received and will send a notice to each student of university instruction. The Registrar will delete from the class rolls the names of students who have neither attended class nor notified the instructor of withdrawal within the first five days from commencement of University instruction. The Registrar will delete from the class rolls the names of students received and will send a notice to each student dropped from a course in this manner.

Students spend from 3-9 months on Cooperative Education assignment. Academic credit is granted by the participating academic department through the student’s enrollment in the department’s course titled, Cooperative Education 397. Students enrolled in Cooperative Education 397, irrespective of the number of actual credit hours, are granted full time equivalent student status by the University.

The Cooperative Education Program, a part of Career Services, is located in McCannel Hall, Room 204. For information, call 777-4105.

CHANGE OF REGISTRATION

After a student has registered, he or she should consult with his or her adviser before changing the registration. Students should be aware that all drops after the first day of class could affect their ability to have financial aid in future term. The last day to drop a full-term course for all students is on the Friday four weeks preceding the last day of each term. (See also Summer Sessions deadlines.) Thereafter, a student may not cancel from individual courses but must carry them to completion.

The last day to drop a class of less than the full semester in length (a mini-class) is a day two-thirds of the duration of the class.

If a course is dropped within the first 10 calendar days of the semester, no indication of enrollment is made on the student’s permanent academic record. If a course is dropped after the first 10 calendar days of the semester, the enrollment is recorded on the student’s permanent academic record and a “W” is entered in the grade column. However, all courses in which the student was enrolled on the first day of the term will be considered when assessing satisfactory progress for financial aid purposes.

A student who leaves the University without obtaining an official withdrawal is given an “F” in all courses.

STUDENT LOAD

Full time status is accorded to an undergraduate student enrolled in 12 semester hours in a Fall or Spring semester. A part-time student is enrolled in less than 12 semester hours.

For a member of the freshman class, 16 hours a semester is considered a normal schedule. Outside work or activities may necessitate a reduction of the student’s academic schedule. The class load of any freshman who ranks in the lower half of his or her high school class may be restricted to 12 semester credits. The minimum amount of work in which a student shall be enrolled is left to the discretion of the academic adviser.

For most undergraduate colleges from 15 to 17 hours of class work a week is the normal load. A student wishing to enroll in more than 21 semester hours must obtain approval from his/her adviser and the dean of the college in which the student is enrolled.

WITHDRAWAL FROM UNIVERSITY

A student wishing to withdraw from the University before the end of a semester must complete a Withdrawal Form in the Office of the Registrar where personnel will direct the student through the withdrawal process.

The last day a student may withdraw registration without grades, but with a “W” is the Friday four weeks preceding the last class day of the term. (See also Summer Sessions deadlines). After that time a student should continue classes to completion. An exception to this rule is that a student may have his or her registration withdrawn without grades, but with a “W,” for cause (major mental or physical illness or other significant incapacity) providing both the student’s Academic Dean and the Associate Vice President for Student Services agree to this course of action. Please note: Any withdrawal within the first ten calendar days of the semester reflects on the transcript as “withdraw” and the date. Anytime a student withdraws after the first ten calendar days of the semester, a “W” grade for each course, indicating the withdrawal, will appear on the student’s transcript. All courses in which the student was enrolled on the first day of the term will be considered when assessing satisfactory progress for financial aid purposes.

The Cooperative Education Program, a part of Career Services, is located in McCannel Hall, Room 204. For information, call 777-4105.

NOT ALL INSTRUCTORS FOLLOW THIS POLICY

An instructor may submit a list of students to be deleted from class roles who have neither attended class nor notified the instructor of withdrawal within the first five days from commencement of University instruction. The Registrar will delete from the class rolls the names of students received and will send a notice to each student dropped from a course in this manner.

Some courses in which a student shall be enrolled is left to the discretion of the academic adviser.

The Cooperative Education Program, a part of Career Services, is located in McCannel Hall, Room 204. For information, call 777-4105.

INSTRUCTOR’S DROP POLICY

An instructor may submit a list of students to be deleted from class roles who have neither attended class nor notified the instructor of withdrawal within the first five days from commencement of University instruction. The Registrar will delete from the class rolls the names of students received and will send a notice to each student dropped from a course in this manner.

Not all instructors follow this policy since it is not mandatory. Students, therefore, are strongly advised not to assume that they have been dropped from a course. Students should review their registration status in a course in question through Campus Connection.

THE GRADING SYSTEM

At the close of a session or upon the completion of a course, each instructor reports a letter grade indicating the quality of a student’s work in the course. Grade points are assigned for each semester hour of credit earned, according to the following grading system:

<table>
<thead>
<tr>
<th>LETTER GRADE</th>
<th>EXPLANATION</th>
<th>GRADE PTS. PER SEM. HR.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Marked Excellence</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Superior</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Passing but low</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>Failure</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
<td>—</td>
</tr>
<tr>
<td>S</td>
<td>Satisfactory</td>
<td>—</td>
</tr>
<tr>
<td>U</td>
<td>Unsatisfactory</td>
<td>—</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawn</td>
<td>—</td>
</tr>
<tr>
<td>NR</td>
<td>Not Reported</td>
<td>—</td>
</tr>
<tr>
<td>AU</td>
<td>Audit</td>
<td>—</td>
</tr>
<tr>
<td>WAU</td>
<td>Withdrawn from Audit</td>
<td>—</td>
</tr>
<tr>
<td>WV</td>
<td>Course Waived</td>
<td>—</td>
</tr>
<tr>
<td>SP</td>
<td>Satisfactory Progress</td>
<td>—</td>
</tr>
<tr>
<td>UP</td>
<td>Unsatisfactory Progress</td>
<td>—</td>
</tr>
</tbody>
</table>
Auditors

Students wishing to enroll in University classes as auditors must seek and receive the prior written consent of the instructor. They must also, at that time, learn from the instructor what will be expected of them or allowed as an auditor. The earliest date to add an audit is the first day of class. The regular deadline for adding a class will also be the deadline for all of the following: 1) adding a class as an audit; 2) changing from grade to audit; and 3) changing from audit to grade.

Auditors have no claim on the time or service of the instructor. Normally, auditors will be expected to attend, but not required to participate in the oral or written work of the class. If they are allowed to take examinations, the exams would normally not be graded. It is up to the instructor, however, to determine the appropriate requirements or restrictions for auditors for any given course. If students fulfill the expected requirements, their transcript will show no credit for the class, but a designation of “AU.” If they do not meet expectations, a grade of “WAU” will be entered on their transcript. Auditors are identified to the instructor on the official class list. An auditor may not later establish credit in that course by taking a special examination. The course must be repeated to earn credit. Audited courses do not count toward class load for financial aid or other purposes.

Incomplete Grades

It is expected that students will complete all requirements for a course during the time frame of the course. For reasons beyond a student’s control, and upon request by the student or on behalf of the student, an incomplete grade may be assigned by the instructor when there is reasonable certainty the student will successfully complete the course without retaking it. The mark “I,” Incomplete, will be assigned only to the student who has been in attendance and has done satisfactory work up to a time within four weeks of the close of the semester, including the examination period, and whose work is incomplete for reasons satisfactory to his or her instructor.

Incompletes are entered on the final grade roster, and instructors must submit by email a “Report of Incomplete Grade” form to the Office of the Registrar. The instructor may choose any one of the following options for the deadline to complete the course:

1. The default date as stated in the “UND Schedule of Courses.”
2. Extend to 12 calendar months after the end of the course.
3. A date of the instructor’s choosing no later than 12 months after the end of the course.

Incomplete grades will convert to a grade of “F” if a grade or incomplete extension is not submitted by the instructor to the Office of the Registrar on or before the deadline written on the “Report of Incomplete Grade” form.

The instructor of the course and the dean of the college offering the course for undergraduates or the dean of the Graduate School for graduate students must approve and sign the “Report of Incomplete Grade” form for any extension of incomplete beyond the default date listed in the “UND Schedule of Courses.” An incomplete grade must be changed by 12 calendar months from the ending date of the class. It is the student’s responsibility to contact their instructor about an incomplete grade posted on the final grade report.

An “I” may be converted as indicated above but cannot be expunged from the record. Students may not register in courses in which they currently hold grades of incomplete, except for courses that allow repeated enrollment. A student will not be allowed to graduate with an unconverted incomplete grade on the academic record.

In Progress Grades

The Graduate School or the Honors Program may assign a grade of “SP,” Satisfactory Progress or “UP,” Unsatisfactory Progress to Honors Thesis (489), Thesis (998), Dissertation (999), Independent Study (997), Research Design (Engineering 595), English 591, Professional Exhibition (VA 599), or Research (leading to the thesis or dissertation). The “SP” or “UP” grade for these activities, which usually span several sessions, need not be replaced until the conclusion of the activity, usually a student’s final semester. Grades of “SP” or “UP” are not calculated into term or cumulative GPA values and may be expunged from the record upon submission of final grades for the course.

Grade Changes

Submitted grades, except for grades of incomplete, are final and may only be changed to correct an error. Grades may not be changed by additional work or submitting additional materials. Students should report any error to their instructor within 90 days of receipt of the grade. The instructor must file a change of grade form to the Registrar signed by the instructor, the department chair, and the dean of the course. Reasons for the change must be fully explained and justified. Grade changes must be submitted to the Registrar’s Office no later than 12 calendar months from the ending date of the class.

S-U Grades

Grades of S or U rather than the traditional grades of A through F are used by the University under regulations specified. A grade of S grants credit toward graduation but does not affect a student’s grade point average except as outlined below in item number 4. A grade of U also does not affect the grade point average and does not grant credit toward graduation.

Elective S-U Enrollment. A student of sophomore, junior or senior standing (as determined by the Registrar) may elect to enroll in one or more courses per semester for S-U grading subject to the following regulations. Students with fewer than 24 completed credits may elect S-U grading only with the permission of their adviser and dean.

1. A maximum of 30 semester hours of credit of elected S-U grades may be counted toward his or her baccalaureate degree.
2. Students may not elect S-U grading for courses in their major. (This restriction does not apply to those courses that have only S-U grading.) In the event a student wishes to major in a field in which he/she has taken a required course for an S-U grade, the department, with the approval of the Academic Dean, may (a) accept the S-U grade, (b) select an additional class to substitute or (c) request the Registrar’s Office to change the S or U to the letter grade submitted by the instructor.
3. A student may take extra-departmental major requirements for an S-U grade with the approval of the major department chair and his/her Academic Dean.
4. Repeating a course by S-U registration will eliminate the effects of the earlier grade from a student’s grade point average if the achieved result is an S. Repetition, which results in a U, will leave the effects of the earlier grade intact.

Class rolls and grade sheets will not identify students who are enrolled for S-U grading. Grades of A, B, and C will be converted by the Office of the Registrar to a grade of S. Grades of D and F will be converted to U. Changes in registration to or from S-U grading may, with the approval of the adviser, be made up to the last day to drop the course.

Students who utilize the S-U grading system are cautioned that they may encounter difficulty in having such credit accepted or evaluated, should they attempt to transfer credit to another university, change majors, or make application for graduate or professional study.
**Required S-U Courses.** Some courses, as approved by the University Curriculum Committee, will be offered by S-U grading only. The restrictions on Elective S-U courses do not apply to these Required S-U courses. These courses may be taken in excess of the 30 hour limitation.

**REPETITION OF COURSES**

Students generally may repeat courses to attempt to receive a better grade, but restrictions may apply. Individual colleges may limit the number of times that a course may be taken, and may not allow repeats of C or better grades.

If a course repetition is taken for traditional A through F letter grading, the last grade achieved in the course will be used in calculating the student’s grade point average. Repeating an approved course with S-U grading will eliminate the effects of previous credits from the student’s GPA if the achieved result is an S, but repetition which results in a U will leave the effects of the earlier grade intact.

While courses may be taken again after a student has graduated, these will not serve to repeat older grades: the older grades will still be counted in the Grade Point Average.

**RAISING A “D” GRADE**

To raise a D grade, a student may have the alternative of retaking a final examination at the time of the first regularly scheduled final examination in the subject if it meets with the approval of the department and dean of the course and the student’s adviser, except in the School of Law, the School of Medicine and Health Sciences, and the College of Nursing. If a student decides to retake the final examination, approval must be obtained from the instructor and department chair of the course and the dean of the college offering the course. No re-examination will be given except at the time of the regularly scheduled examinations at the end of each semester.

**GRADE FORGIVENESS**

Currently enrolled undergraduate students who have interrupted their college/university education for a period of seven years or more, may petition to exclude all previous grades from GPA calculations. The student may not select certain courses to be part of the seven-year rule, but must include all courses which are seven years or older. Such courses and their actual grades would appear on the student’s academic record, but letter grades would not be calculated for GPA purposes. Excluded courses could not be used to satisfy any academic requirement.

A student requesting this option must have a written petition approved by the student’s academic adviser, department chairperson, and Dean of the college from which the degree is sought. If the student changes degree college after approval of this petition, the student would be required to petition again.

**DEFICIENCY REPORTS**

Individual mid-term reports of unsatisfactory work (i.e., D, F, and U) of students are made by all instructors at the end of the first eight weeks of the semester. A grade of D is considered unsatisfactory although it is a passing grade. The Registrar sends deficiency reports to students who have been reported deficient. Reports of deficiency are also sent to the academic deans and advisers to be used for advisement purposes. Deficiency grades do not appear on the student’s permanent record. It is also the student’s responsibility to keep informed of his/her own performance in a class.

**SEMESTER GRADE REPORTS**

Grade reports are available to students by accessing their records after term grades are posted through UND CampusConnection at: www.und.nodak/dept/registrar. Grade reports are not mailed, but a printed copy is available upon written request.

**TRANSCRIPTS OF ACADEMIC RECORDS**

Official transcript requests must now be submitted via the web. The web service is available 24/7 and provides online tracking and messaging. All transcript ordering information, including a link to the website, is located at: www.und.nodak/dept/registrar/trans/requestonline. The cost per transcript is $5. There is an additional charge for services such as Federal Express delivery. Each transcript includes the student’s entire academic record to date and current academic status. Partial transcripts are not issued. Questions should be directed to the Office of the Registrar.

A request for a transcript of credits by a student who is in debt to the University will not be honored until the indebtedness has been paid.

A transcript covering a student’s previous secondary and postsecondary education that has been submitted to the University as a requirement for admission becomes part of the official file and cannot be returned to the student. Any student who desires transcripts of work earned elsewhere must order official transcripts from the institution at which the work was taken. The University of North Dakota does not issue nor certify copies of transcripts from other institutions.

**STUDENTS IN DEBT TO THE UNIVERSITY**

A student who is in debt to the University shall not be permitted to early register or register in the University and shall not be entitled to receive a transcript of credits or a diploma until the indebtedness has been paid in full.

**UNIVERSITY ATTENDANCE POLICY AND PROCEDURE**

Attendance and participation in class activities are considered integral parts of a university education. It is the University policy that attendance in classes is expected of all students. If attendance and/or participation are required and will impact grading, it is the responsibility of the instructor to communicate clearly that policy to students during the first week of class.

Even in situations where an instructor might excuse a class absence, e.g., severe medical situations, family emergencies, or authorized University activities, it is the responsibility of the student, whenever possible, to inform the instructor ahead of time.

**FINAL EXAMINATION POLICY**

An examination is held at the end of most courses according to the published examination schedule. Alternate evaluation methods and schedules may be used when recommended by the departmental faculty and approved by the dean of the college offering the course. Any change in time from the published schedule requires the recommendation of the chairperson of the department and approval of the dean of the college offering the course. Any student who would be disadvantaged by such a change should report this in advance to the dean of the college offering the course, who will ensure that satisfactory alternate arrangements will be made by the instructor.

A student who is absent from a regularly scheduled examination without an excuse considered valid by the instructor is normally given an F for the course. If the excuse is valid, the policy on incompletes will apply.

No undergraduate student should be obliged to write three or more finals on the same day. If the student has three or more finals scheduled the same day, the student wishing an accommodation regarding final exams should contact his/her instructors to establish a mutually acceptable time to reschedule one or more of the exams. Any student request for the rescheduled final exam must be presented to the instructor before the end of the tenth week of the
students is subject to civil law and civil authority. To further strengthen the sense of community at the University, it is taken for granted when a student enters the University that he/she has an earnest purpose. This presumption in the student’s favor continues until, by neglect of duty or by inappropriate behavior, he/she brings his/her status into question. Cases involving student violations of academic or non-academic regulations may be judged by student conduct committees, the Student Relations Committee, or by the Dean of Students and Housing Offices. Adjudication will incorporate both substantive due process, i.e., fair and equitable treatment, and appropriate procedural due process.

The Code of Student Life is available at: http://sos.und.edu/cssl or from the Vice President for Student and Outreach Services Office or the Dean of Students Office. It outlines the rights and responsibilities and expected levels of conduct of citizens in the University community. The purpose of the rules outlined is to prevent abuse of the rights of others and to maintain an atmosphere in the University community appropriate for an institution of higher education. Materials included will be helpful to student organizations and to members of the University community to gain a better understanding of responsibilities of various boards and committees, and to understand student rights and responsibilities. Section 3 in the Code covers academic concerns (grievances and standards) and section 2 covers student conduct regulations and procedures.

The Code of Student Life is published annually. Interpretation of sections within the Code may be requested by contacting the Dean of Students Office, the Vice President of Student and Outreach Services, or through direct consultation with the Student Policy Committee.

SCHOLASTIC HONESTY

Students are expected to maintain scholastic honesty. Scholastic dishonesty includes but is not limited to cheating on a test, plagiarism, and collusion.

A. Cheating on a test includes, but is not restricted to:
1. Copying from another student’s test.
2. Possessing or using material during a test not authorized by the person giving the test.
3. Collaborating with or seeking aid from another student during a test without authority.
4. Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or in part the contents of an unadministered test.
5. Substituting for another student or permitting another student to substitute for oneself to take a test.

B. Plagiarism means the appropriation, buying, receiving as a gift, or obtaining by any means another person’s work and the unacknowledged submission or incorporation of it in one’s own work. This includes appropriation of another person’s work by the use of computers or any other electronic means.

C. Collusion means the unauthorized collaboration with another person in preparing written work offered for credit.

For detailed policy statements and procedures dealing with scholastic dishonesty, see the Code of Student Life, section 3.

ACADEMIC HONORS

President’s Honor Roll. At the end of each semester, a list of undergraduate honor students is published and designated as the President’s Honor Roll. To qualify, a student must have a cumulative UND grade point average of 3.80 or higher. The student must also have earned a minimum of 24 semester hours at UND and have completed a minimum of 12 hours at the close of the semester, eight of which must be for traditional letter grades. The President’s Honor Roll is noted on the student’s official transcript.
Dean’s List. The Dean’s List, published at the end of each semester, contains the names of students who are ranked in the top 15 percent of their college. The students must have completed a minimum of 12 semester hours at the close of the semester, eight of which must be for traditional letter grades.

General Honors. Candidates for honors with their baccalaureate degree must have earned at least 50 graded hours at UND. Honors will be awarded on the basis of the student’s UND grade point average.

- Cum laude 3.5
- Magna cum laude 3.7
- Summa cum laude 3.9

Honors awards for the commencement ceremony and for publication purposes are made on the basis of UND GPA at the end of the previous semester. Actual honors will be based on the GPA of all completed work at the time the degree is granted.
MISSION AND HISTORY
The principal mission of the School of Aerospace Sciences is to preserve, create, and disseminate knowledge and to demonstrate the principle use of knowledge for and about aerospace, atmospheric sciences, space studies, earth system science and policy, and computer science. In concert with other units of the University of North Dakota, it is committed to providing a comprehensive, high quality, relevant education for students preparing for careers in these fields.

Always at the forefront of technology, the School has earned national and international acclaim for its achievements in collegiate education, particularly in aviation. The School has received a steady stream of multi-million dollar research contracts and attracted students from every state and more than 50 foreign countries.

The aviation program was founded in 1968 as an academic department within the College of Business and Public Administration. It offered the nation’s first four-year degree that combined an undergraduate business degree with an in-depth aviation education and professional flight training. Since then, new degree options and research programs have emerged at a rapid pace. In 1982, the Department of Aviation became the Center for Aerospace Sciences, now a degree-granting college within the University.

In 1992, the Center’s aviation degree programs became the first nationally accredited program recognized by the Council on Aviation Accreditation. In 1998, the Center was renamed the John D. Odegard School of Aerospace Sciences, in honor of its founder and first Dean, John D. Odegard.

SCOPE
The college is comprised of five academic departments and four major research and support organizations. The Department of Aviation offers undergraduate and graduate degrees in aerospace fields including flight, air traffic control, aviation business and management, and aviation education, as well as a master’s degree in aviation. With its roots in research, the Department of Atmospheric Sciences undergraduate, masters and doctoral programs offer students unique opportunities to participate in funded research and operational forecasting enterprises, including airborne measurements, numerical modeling, remote sensing and surface transportation meteorology, to name a few. The graduate program within the Department of Space Studies offers an interdisciplinary approach to space exploration, research, and development. The Department uses extra-terrestrial resources in its study of the broad area of activities beyond earth’s atmosphere. In addition to presenting the current and future technology needs, the program examines the social, political, economic, and legal issues of this new human experience. Computers are transforming almost every industry, especially the aerospace industry. To meet this challenge, the Department of Computer Science became a part of the School in 1982 offering undergraduate and graduate degrees. The doctoral degree is an interdisciplinary program and provides instruction in scientific computing that emphasizes the development of software, the science, and the technology required to support computational science. The newest academic department of the college, Earth System Science and Policy, provides an integrated and creative learning environment, fostering intellectual growth, critical thinking and practical engagement in research and management of the Earth system and resources. Two masters degrees and one doctoral program are offered through the department.

To facilitate its unique mix of activities, the School has formed five major support organizations. The Scientific Computing Center supports the high performance computing needs of the college for research, academic, and administrative functions. The college’s Regional Weather Information Center houses high performance computing systems and weather data acquisition and processing systems to support atmospheric research. The School for Aerospace Sciences is the home of a unique multimedia production facility called the AeroSpace Network. It supports distance learning activities via satellite and internet, develops state-of-the-art multimedia classroom presentation tools for faculty, and develops computer-based instructional materials to aid student learning. UND Flight Operations, located at the Grand Forks International Airport, supports the flight training component of the School’s aviation programs operating a fleet of more than 120 aircraft and simulators.

FACILITIES
The state-of-the-art aerospace facilities, built largely with grants from the Federal Aviation Administration, are located on the western edge of campus. The five-building complex houses some of the finest classrooms and specialized laboratories available on any college campus today. Among its many features are advanced flight simulators, cockpit procedure trainers, a high altitude chamber for aerospace physiology training, a unique air traffic control simulation lab, polarimetric Doppler weather radar, the AgCam Science Operations Center that remotely operates the UND built remote sensing sensor while it is onboard the International Space Station, sophisticated computing labs, and the Arthur C. Anderson Atmospherium — a computerized planetarium and multi-media instructional theater.

The School’s computer facilities have developed into one of the most advanced technical and scientific computer systems in the nation. It has achieved a national reputation for the processing and analysis of digital radar data and cloud physics data collected during research flights. Fully integrated systems, with advanced networking, provide a wide range of computer support activities for academic, research, government, and industry programs. The facilities are linked by fiber optics to 20,000 square feet of space dedicated to computer studies.

The School operates two atmospheric science field research installations. The Road Weather Field Research Facility, along Interstate 29 south of Grand Forks, is the nation’s only dedicated test bed for monitoring the interaction of pavement surfaces with varying weather conditions to support investigation of new concepts in transportation safety. The Glacial Ridge Atmospheric Observatory is an atmospheric and hydrologic research facility. The long-term goal of the facility is to deploy a highly instrumented monitoring network to better observe and understand atmospheric and hydrologic processes. The facility will provide necessary verification data for remote sensing (weather radar, satellite) and airborne measurements, and for improving atmospheric and hydrolagic modeling activities.

The School operates a modern flight training facility with a fleet of more than 120 aircraft including reciprocating and turbine powered airplanes and helicopters. A Canadair Regional Jet (CRJ) ASCENT® Full Flight Trainer™ is also available for those students taking upper division flight courses. Aviation students fly tens of thousands of flight hours each year as an integrated part of their undergraduate aviation degrees. The School also operates a Cessna Citation II jet for the purpose of atmospheric research. A five-story office building with deli/cafeteria and seven hangars are among the expansive airport facilities. A high-speed fiber optic link provides access to the School’s digital computer systems for dispatching, billing, student records, and weather data. A shuttle bus is available to transport students to and from the campus and flight operations.
The School manages the UND Observatory complex, which is located 10 miles west of Grand Forks and 2 miles southeast of Emerado. The observatory currently includes three remotely-controllable optical telescopes (two 16-inch and one 10-inch aperture, respectively) and one remotely-controllable radio telescope (2.1 meter aperture). The UND Observatory is the founding member of the Space Grant Internet Telescope Network, which is a geographically-distributed network of small, Internet-controllable observatories for research and education. UND Observatory telescopes support student thesis and non-thesis astrometric, broadband photometric, and stellar spectrographic research. The site also includes secure, wireless Internet access and an EarthCam, which is used to monitor observatory activities remotely.

Sophisticated geospatial laboratories are situated within the Space Studies and Earth System Science departments for carrying out land remote sensing and global change research. The laboratories contain extensive data archives from several satellite and aerial platforms.

**ADMISSION**

Students who are admitted to the University of North Dakota by the Office of Admissions are not necessarily accepted into the professional degree programs in aviation. Students must be admitted to the John D. Odegard School of Aerospace Sciences by completing a Change of Major form at the Student Services office located at Odegard Hall, room 259.

**Aviation:** A student pursuing a degree program in aviation will first be admitted to the program as a Pre-Commercial Aviation, Pre-Air Traffic Control, Pre-Aviation Technology Management, or Pre-Flight Education student. In order to be fully admitted to a program leading to the Bachelor of Science degree, a student must have:

1. Earned at least a 2.50 institutional and cumulative GPA in all courses taken.
2. Completed a minimum of 24 credits.
3. Completed all required aviation courses with no grade lower than that of “C.”

**Business:** A student pursuing a degree program in business must be admitted to the College of Business and Public Administration as a Pre-Aviation Management or Pre-Airport Management student. In order to be admitted to a program leading to the Bachelor of Business Administration degree with a major in Aviation Management or Airport Management, a student must have:

1. Satisfactorily completed the specified freshman/sophomore Pre-Business courses.
2. Earned at least a 2.50 overall GPA in all courses taken.
3. Completed the six Pre-Business Core courses (Acct 200 & 201; ISYS 117 & 317; Econ 201, 202 & 210) with no grade lower than “C.”
4. Completed all required aviation courses with no grade lower than “C.”

Further information can be obtained by contacting the Office of Academic Advisement located at Gamble Hall, room 127.

**Transfer Credits.** Undergraduate aviation programs, accredited through the Aviation Accreditation Board International, normally concentrate on essential studies courses during the first two years of a four-year program. Only a limited amount of aviation coursework is offered below the junior level. The objective of this policy is to permit the student to acquire a foundation of work in the basic arts and sciences, including a strong emphasis in mathematics and physics, as a prerequisite for professional coursework in aviation.

Students planning to take their first two years of work at a junior college should concentrate their efforts in completing the general education coursework. Students who already have received FAA pilot certification, but who have not received college credit will be required to retake the applicable aviation courses at UND in order to receive academic credit for graduation. If certain aviation courses are waived, the aviation credits are not waived, and a student must consult with his/her academic advisor as to the appropriate substitute aviation courses. Students who take aviation courses and receive credit at another academic institution may also be required to validate their aeronautical knowledge and skill before transfer credit will be granted. Questions regarding transfer credit should be directed to the Student Services office located at Odegard Hall, room 259.

The admission requirements for the other degree programs in the School are outlined under the specific departmental listing.

**DEGREES AND REQUIREMENTS FOR GRADUATION**

The **Department of Atmospheric Sciences**, through the John D. Odegard School of Aerospace Sciences, offers the degrees of Bachelor of Science, Master of Science, and Doctor of Philosophy in Atmospheric Sciences. The B.S. degree is conferred upon a student who successfully fulfills the graduation requirements. A student must:

1. Complete the University’s Essential Studies requirements.
2. Earn minimum cumulative and institutional Grade Point Averages of 2.50. (Note: transfer students must not only earn a minimum cumulative GPA of 2.50, but must also earn a minimum institutional GPA of 2.50 for studies completed at the University of North Dakota).
3. Complete the curriculum for the major as outlined in the departmental listings; and
4. Make formal application to the Registrar for the degree sought within four weeks of the beginning of the semester in which the student expects to graduate.

In addition, a student may earn a minor in Atmospheric Sciences. The curriculum for both the major and minor is outlined under the specific departmental listing.

The graduation requirements for the Master of Science and Doctor of Philosophy degrees are outlined in the graduate section of the catalog.

The **Department of Aviation**, through the John D. Odegard School of Aerospace Sciences, offers the degree of Bachelor of Science in Aeronautics and a Masters degree in Aviation. The B.S. degree is conferred upon a student who successfully fulfills the graduation requirements. A student must:

1. Complete the University’s Essential Studies requirements.
2. Earn minimum cumulative and institutional Grade Point Averages of 2.50. (Note: transfer students must not only earn a minimum cumulative GPA of 2.50, but must also earn a minimum institutional GPA of 2.50 for studies completed at the University of North Dakota).
3. Complete all required aviation courses with a grade no lower than a “C.”
4. Complete the curriculum for the major as outlined in the departmental listings, and
5. Make formal application to the Registrar for the degree sought within four weeks of the beginning of the semester in which the student expects to graduate.

In addition, the Department of Aviation, in conjunction with the College of Business and Public Administration, offers the degree of Bachelor of Business Administration with majors in Aviation Management or Airport Management. Non-aviation degree seeking students may also earn minors in Aviation Management and Professional Flight. The curriculum for each of these programs is outlined under the specific departmental listings.

The graduation requirements for the Master of Science degrees are outlined in the graduate section of the catalog.
The Department of Computer Science, through the John D. Odegard School of Aerospace Sciences, offers the degrees of Bachelor of Science, Bachelor of Arts, Master of Science in computer science, and Doctor of Philosophy in scientific computing. The B.S. degree is conferred upon a student who successfully fulfills the graduation requirements. A student must:

1. Complete the University's Essential Studies requirements.
2. Earn minimum cumulative and institutional Grade Point Averages of 2.00. (Note: computer science majors must earn a minimum cumulative GPA of 2.20 in all computer science courses).
3. Complete the curriculum for the major as outlined in the departmental listings, and
4. Make formal application to the Registrar for the degree sought within four weeks of the beginning of the semester in which the student expects to graduate.

In addition, the Department of Computer Sciences, in conjunction with the College of Arts and Sciences, awards the degree of Bachelor of Arts with a major in Computer Science. Students may also earn a minor in Computer Science. The curriculum for each of these programs is outlined under the specific departmental listings.

The graduation requirements for the Master of Science and Doctor of Philosophy degrees are outlined in the graduate section of the catalog. The Department of Space Studies, through the John D. Odegard School of Aerospace Sciences, offers an undergraduate program leading to a minor in Space Studies and a Master of Science degree through the distance and campus programs. The undergraduate minor introduces students to the variety of space related projects and issues that will affect their careers and lifestyles in the coming decades. It is rare to find courses at the undergraduate level dealing with such topics as space mission design, life support systems, space commercialization, and space law. The curriculum for this program is outlined under the specific departmental listing.

The graduation requirements for the Master of Science degree are outlined in the graduate section of the catalog. The Department of Earth System Science and Policy, through the John D. Odegard School of Aerospace Sciences, offers the degrees of Environmental Management, Master of Science, and Doctor of Philosophy in the field of Earth System Science and Environmental Sustainability. The curriculum and graduation requirements are outlined under the graduate section of the catalog.

OTHER PROGRAMS

Cooperative Education and Internships. The School encourages its students to gain practical on-the-job experience in their chosen field prior to graduation. Cooperative Education and Internship experiences allow students to secure salaried, career-related work experiences under the supervision of both a sponsoring employer and the appropriate academic department, while at the same time receiving academic credit.

Weather Modification Pilot Training. This one-of-a-kind cooperative education is offered in conjunction with the North Dakota Atmospheric Resource Board. Classes are offered in ground and air cloud seeding technology taught by nationally respected cloud physicists and meteorologists. Students selected to participate as weather modification pilots for the program must have a Commercial Pilot Certificate with instrument and multi-engine ratings.

Scholarships. An extensive scholarship program is available to recognize and reward high achievers in aviation, atmospheric science, and computer science. These scholarships are donated by numerous private individuals and companies who support the School’s tradition of excellence.

Youth Programs. The Aerospace Camp offers a ten-day summer program to introduce the excitement and challenge of aerospace to 16 and 17 year old prospective aviators.

Laptop Program. In 1998 the Aviation Department instituted a laptop computer program for all aviation majors. The laptop computer enables students to acquire those computer skills highly sought by employers in business and industry while they are becoming proficient in their career field. The Aviation Department provides students an exciting opportunity to advance their technical skills using the laptop computer. It is required for all students to participate in this program.

STUDENT ORGANIZATIONS

Alpha Eta Rho (AHP). The Delta Chapter of Alpha Eta Rho, an international aviation fraternity, stresses closer ties between students and the industry through education. The group annually sponsors Parents’ Day, an opportunity for parents to experience the excitement of aviation education.

American Association of Airport Executives (AAAE). Specifically geared towards students majoring in or interested in a career in airport management, this student chapter of AAAE promotes professional development and instills professional attitudes in students who are studying aviation industry related developments, administration, and operations.

American Meteorological Society. The North Dakota chapter of the American Meteorological Society seeks to promote advancement and understanding of meteorology. The organization helps students build valuable network ties and gives them an opportunity to learn more about the careers offered in Atmospheric Sciences.

Army Aviation Association of America (AAAAA). The UND Chapter of the Army Aviation Association of America is open to anyone with an interest in U.S. Army aviation. Emphasis is on exploring rotary wing flight and experiencing good fellowship. Each member receives the AAAA monthly publication “Army Aviation” magazine which keeps members abreast of the latest advances in Army aviation.

Association for Computing Machinery Computer Club. As the student branch of the National Association for Computing Machinery, this organization sponsors such events as computer programming contests, computer demonstrations, tutorial programs, and opportunities to visit and tour companies within the industry.

Aviation Safety Association (ASA). ASA examines safety and professionalism issues in the aviation industry. The organization brings students together with professionals in the aviation industry for candid discussions on aviation and related matters to become further educated about the concerns in the professional community. ASA is open to students of all disciplines.

Aviation Photographers and Enthusiasts (APE). The Aviation Photographers and Enthusiasts is a place to discuss the world of aviation. We discuss and participate in the commercial aviation industry. One way of doing this is through photographing airliners in Grand Forks and beyond. Our organization aims at increasing the aviation knowledge of our members, UND students and the community.

Dakota Space Society (DSS). The Dakota Space Society is a student organization which was established to educate and enlighten members and non-members about the benefits of space. DSS focuses on promoting space and establishing a relationship with the community of Grand Forks. DSS is open to all students from any field of study in both the undergraduate and graduate areas.

Experimental Aircraft Association (EAA). The purpose of this UND student chapter of the Experimental Aircraft Association is to bring together students and members of the community who are interested in recreational aviation, fly-ins, Oshkosh Air Show attendance, building airplanes, the EAA Young Eagles Program, and having fun with flying.

Flying Team. The UND Flying Team has won the National Championship title of the National Intercollegiate Flying Association (NIFA) numerous times. Students compete in regional and na-
tional events oriented toward increasing aviation safety, piloting skill, and aeronautical knowledge.

International Pilot's Association. The purpose of this student group is to help ease the transition of international students into the U.S. aviation community. While providing a network of contacts and moral support, the association actively collects facts regarding immigration and visa issues as well as information on both U.S. and international internships and sponsorships.

Skies Astronomical Society. The Northern Skies Astronomical Society is an amateur astronomy club established for UND students, but open to the public. The club enjoys making astronomy observations and educating others about astronomy. Equipment and extensive knowledge of astronomy are not required.

Student Air Traffic Control Association (SATCA). Students interested in Air Traffic Control get involved with this organization to have a voice in the policies and procedures affecting their program and to provide a forum for hiring information and job opportunities. In addition, the group seeks to further aviation safety, awareness, and education through air traffic control forums and meetings.

Student Aviation Advisory Council (SAAC). The six members of the Student Aviation Advisory Council are elected by their peers to collectively act as a liaison between students, aviation faculty, and administration. The council is a key player in the implementation of new student-oriented programs.

Student Aviation Management Association (SAMA). This student aviation organization promotes professionalism in the aviation industry at the college level, and is open to students from all of the aviation related majors. The group sponsors an annual conference featuring speakers from across the nation as well as aviation alumni. Trips to major aviation destinations are planned each year.

UND Aerospace R/C. This student-run organization is dedicated to the advancement of the arts, sciences, and technology of aviation and aerospace. The group stresses increased cooperative interdisciplinary opportunities for students in all disciplines, and is actively involved in radio-controlled aircraft design, construction, and development.

Upsilon Pi Epsilon Honor Society. The student group is the National Computer Science honorary organization. Members must be junior or senior Computer Science majors. Selection is based on high scholastic achievement and is by invitation only.

Wilderness Pilots Association (WPA). WPA was organized for aviation students who have a love of the outdoors, and for those who seek the challenge of conventional (tailwheel) airplanes, seaplanes, and skiplanes. The group promotes air safety as it relates to flying into remote areas.

Women in Aviation, International (WAI). This student organization was developed to encourage women who are seeking careers in aviation, however, all students are encouraged to participate. The group provides opportunities for women students to learn more about their chosen profession and to participate in a variety of aviation-related activities.

SERVICE

Service to the University, the community and the aerospace industry is a vital part of the School of Aerospace Science’s mission. This commitment is typified by such activities as hosting discipline specific workshops, seminars, and conferences.

The College of ARTS AND SCIENCES

Martha A. Potvin, Dean

The College of Arts and Sciences dates from the founding of the University in 1883, and has had organic continuity from that date, in spite of some temporary changes in name and structure. The “Act for Establishing a Territorial University at Grand Forks” provided for a College of Arts “co-existent with” a College of Letters. In 1901 the name “College of Liberal Arts” was adopted, and retained until 1943, when “College of Science, Literature and Arts” was substituted. The latter name was kept until 1967. The President of the University served in effect as dean of the College until 1901, to be followed by George S. Thomas (1901-1911), Melvin A. Brannon (1911-1914), Vernon P. Squires (1914-1930), William G. Bek (1930-1948), Robert Bonner Witmer (1948-1965), and interim associate dean Philip A. Rognlie (1965-66). Bernard O’Kelly was dean from 1966 until his retirement in 1995 when he was succeeded by John Etting (1995-1998). Albert Fivizzani served as interim dean of the College from 1998 until 2001 when Martha A. Potvin became dean. Bruce Dearden served as interim dean from 2004 to 2005.

The College includes 18 academic departments: Anthropology, Art and Design, Biology, Chemistry, Communication Sciences and Disorders, Criminal Justice, English, Mathematics and Language, Geography, History, Indian Studies, Languages, Modern and Classical Languages, Music, Philosophy and Religion, Physics and Astrophysics, Psychology, Sociology, and Theatre Arts. The coordinator of the Honors Program, the coordinator and faculty of the Humanities and Integrated Studies Program and the director of the Interdisciplinary Studies Program are also members of the College’s faculty. The faculty of departments structurally located in other colleges — Computer Science, Economics, Geology, and Political Science — are regularly consulted on an associate faculty basis, since the disciplines of those departments are historically associated with the liberal arts. Many of the liberal arts faculty are involved in various ways in the work of the College of Education and Human Development.

The College enrolls all undergraduates who wish to complete studies for the Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Music or Bachelor of Science degree with concentration in some substantive or applicable field of study within the traditionally broad spectrum of the liberal arts.

MISSION

By its nature and in accordance with its history, the College of Arts and Sciences concerns itself principally with higher education in the broadest or liberal sense. The Bachelor of Arts, Bachelor of Science, Bachelor of Fine Arts and Bachelor of Music are therefore the principal first degrees offered by the College; through subsequent enrollment in the Graduate School, students pursue master’s or doctoral degrees in the liberal arts fields. Many undergraduates in the College are preparing themselves for specific professions — e.g., conservation, writing and editing, scientific research, the performing arts, secondary-school teaching, programming, translation, speech therapy, the justice system and government service. However, the College’s overall goal for all students is intellectual growth through study in the liberal arts: the natural sciences and mathematics, the humanities, the
social sciences, and the fine arts. These fields of study concern themselves first with the nature of humanity and of the universe, rather than with specific vocational applications.

The College of Arts and Sciences therefore pursues these goals:

1. To provide programs leading to the B.S. or B.A. in liberal arts disciplines and the B.Mus. or B.F.A. in the Fine Arts;
2. To offer programs leading to career-ready baccalaureates in certain fields which have developed from liberal arts disciplines;
3. To offer, through most of its departments, programs leading to master’s degrees and doctorates;
4. To support scholarly and creative activity in the arts and sciences, so that both undergraduate and graduate students can be exposed to, and take an active part in, the creative and scholarly processes and the advancement of knowledge;
5. To foster in students those abilities which contribute to all learning—skills of communication; habits of independent thought, analysis and judgment; and powers of imagination and creativity;
6. To create an environment in the College, and throughout the University, which fosters the study and understanding of diverse cultures and international communities;
7. To provide the opportunity for all students at the University to take courses in liberal arts disciplines.

Students in the College of Arts and Sciences are prepared on graduation for a wide variety of careers, or to continue their studies in graduate schools, as well as medical or law schools and other professional programs. Whether or not they pursue further study, their liberal education as undergraduates will have helped them become flexible life-long learners, and thus have prepared them for a future characterized by rapid change.

ADMISSION TO THE COLLEGE

Freshman students who have decided on a major in Arts and Sciences may be admitted directly to the College. Students enrolled in other colleges at UND who decide on an Arts and Sciences major may transfer to Arts and Sciences provided they are in Academic Good Standing. Transfer students with a satisfactory academic record (generally a C or 2.00 Grade Point Average) may be admitted directly to the College. Please note that some programs, e.g., Communication, Communication Sciences and Disorders, and Criminal Justice Studies, have higher grade point average requirements.

DEGREES

The only difference between the B.A. and the B.S. is that the latter degree is conferred upon students completing a major or concentration in mathematics or a natural science (biology and related fields, chemistry, geography, and physics). In Psychology there are separate requirements for the B.A. and B.S. Students with both science and non-science majors (double majors) may choose either degree.

By following certain specified programs, students may also obtain one of the following special degrees: Bachelor of Fine Arts, Bachelor of Music, B.S. in Chemistry, B.S in Criminal Justice Studies, B.S. in Fisheries and Wildlife Biology, B.S. in Geology, and Bachelor of General Studies (See the appropriate departmental listing.)

DEGREE REQUIREMENTS

Basic requirements are the same for all students seeking a degree through the College of Arts and Sciences (except for those in the Four-Year Honors Program). These requirements fall into three main categories.

I. University Graduation Requirements (applicable to all undergraduates).
II. Transfer Credits. No more than 12 credits of transferred technical or vocational credit shall apply to the requirements for the degrees of the College of Arts and Sciences.
III. Language Requirements. Certain programs within the College require proficiency in another language, either two semesters of College level work (Level II) or 4 semesters (Level IV). Students are advised to consult the requirements for a given major under the heading “Required in Other Departments.” Students who are unsure about what their major will be are advised to establish language proficiency as early as possible.

IV. The Major or Concentration. Majors, basically a minimum of 33 credit hours in a single field, are offered in a variety of subjects. The requirements for these may be found in the departmental and interdepartmental listings. Students should note particularly the requirements not only of the majors and concentrations, but, where appropriate, the accompanying requirements in other departments. In the Major (or concentration) students must have a grade point average of at least 2.20 by graduation.

MAJORS AVAILABLE IN THE COLLEGE

Anthropology
Art
Biology
Chemistry
Classical Studies
Communication
Communication Sciences
and Disorders
Computer Science
Criminal Justice
Economics
English
Fisheries and Wildlife Biology
Forensic Science
French
General Studies
Geography
Geology
German
Graphic Design &
New Arts Media
History
Indian Studies
Interdisciplinary Studies
International Studies
Mathematics
Music
Music Education
Music Performance
Music Therapy
Norwegian
Philosophy
Physics
Political Science
Psychology
Religion
Social Science
Sociology
Spanish
Theatre Arts

MULTIDISCIPLINARY AND INTERDISCIPLINARY STUDIES

Students with interests in Peace Studies, Russian Studies, Scandinavian Studies, Canadian Studies or other fields that are interdisciplinary in nature should consult the faculty in related disciplines as well as the Director of Interdisciplinary Studies.

Certain students, e.g., those in the Honors Program, may graduate without a major or concentration.

Minors. A minor is not necessary for a degree from the College, but generally a student may declare a minor in any field in which a major is offered. Some minors, e.g., Intellectual History, Leadership, and Nonprofit Leadership, are available where there is no major. Where a minor is not specifically listed in the appropriate part of the catalog, a student may declare a minor only with the approval of his adviser, the Dean, and the department or departments concerned. A Grade Point Average (GPA) of 2.00 is required in a minor.

Nonprofit Leadership Certificate Program. As part of their bachelor’s degree program, students may earn the Nonprofit Leadership Certificate by completing the requirements listed in the Undergraduate Departmental listings in this catalog.
Teacher Licensure Preparation. To prepare to teach in secondary schools, students must meet requirements set by the College of Education and Human Development. In addition, the candidate must have a major or concentration in a “teaching field” as listed in the same section. Students wishing professional licensure should, as soon as possible, seek advisement from, and admission to, the College of Education and Human Development as well as A&S. To be accepted for Student Teaching, applicants must have a 2.75 Grade Point Average (GPA) in their major, a C or better in all Education coursework, and a 2.50 GPA in all work attempted up to the time of application.

Law School Preparation. The University of North Dakota School of Law, in common with others, strongly recommends as preparation for legal studies the B.A. or B.S. with a broad, liberal education rather than specialized or technical training. For more specific expectations and entrance requirements, students should consult the Bulletin of the School of Law. See also the Law School.

Medical School Preparation. Like law schools, medical schools generally require a baccalaureate degree. No particular major is preferred, but a broad, liberal education is expected. In addition, the candidate should fit into his or her program the following courses: Biology 150-151, Chemistry 121-122, Chemistry 341-342, and Physics 211-212. Biochemistry 301 is now strongly recommended by most medical schools and required by some. Math, English and Social/Behavioral Science requirements vary somewhat, but students should have the following at the very least: Math 103 and 146 (or 165 or Psychology 241); English 110 and 120 (or 125); Psychology 111 or Sociology 110. Other selected courses in the Biological Sciences are helpful. Because tomorrow’s physician not only must be accomplished in medicine, but also concerned with the social problems of people, he/she needs to have a broad-based education encompassing in some depth the natural sciences, the social and behavioral sciences, and the arts and the humanities. The student must therefore select a curriculum with these goals in mind. See also the School of Medicine listing.

Graduate Studies. Most departments in the College offer graduate work leading to the M.A., M.S., M.Mus, M.F.A. or M.Ed., and several have Ph.D. or D.A. programs. Students intending to continue their studies in graduate school should acquaint themselves early with the expectations and admission requirements of the various graduate programs as set out in the Bulletins of this university and other graduate schools.

PRE-PROFESSIONAL PROGRAMS

Students in pre-professional programs normally enroll in the College of Arts and Sciences. Following are recommended curricula for the various pre-professional programs. See also UND’s Pre-Health website at http://www.und.edu/dept/hpadvize/. Students should plan to meet with the Health Sciences advisor in the dean’s office in the College of Arts and Sciences sometime during their freshman year.

Pre-Dental

Most dental schools require a minimum of three years of college, however, the majority of admitted students have completed an undergraduate degree. All schools require successful completion of at least one year each of biology, physics, general chemistry, and organic chemistry. Some schools require additional specific courses. For information on dental schools and their requirements consult with the health sciences advisor in the Dean’s Office in the College of Arts and Sciences and the website above.

Freshman Year

Biol 150, 150L, 151, 151L .......................................................... (8)
Chem 121, 121L, 122, 122L ...................................................... (8)
Math 103, 146 ........................................................................... (6)
*Electives from Group 1 ........................................................... (10)

Sophomore Year

Chem 341, 341L, 342, 342L ...................................................... (10)
*Electives from Group 2 ........................................................... (22)

Junior Year

Physics 211, 211L, 212, 212L ................................................... (8)
*Electives from Groups 2 or 3 .................................................. (22)

Senior Year

*Electives from Groups 2 or 3 ................................................... (32)

*Electives Group 1: Engl 110, 120 or 125; Psych 111; Comm 110; Foreign Language 101 and 102 (if required by major)
*Electives Group 2: Art (120, 130, 151, 200, 204 or 220); Cell Biology (Bio 341); Genetics (Bio 315); Anatomy 204; Physiology 301; Microbiology 202 or 302; Accounting; Anthropology; Business; Economics; English Literature; History; Political Science; Psychology Statistics (Psych 241); Sociology
*Electives Group 3: Histology (Bio 369); Biochemistry 301; Analytical Chemistry

Pre-Medical

Most medical schools require the completion of an undergraduate degree. All schools require successful completion of basic science, social/behavioral sciences, math and English courses. Some schools require or strongly recommend additional specific courses. For information on specific medical schools and their requirements, consult with the Health Sciences Adviser in the Dean’s Office of the College of Arts and Sciences and the website above.

Freshman Year

Biol 150, 150L, 151, 151L .......................................................... (8)
Chem 121, 121L, 122, 122L ...................................................... (8)
Math 103, 146 or 165/166 ......................................................... (6-8)
*Electives from Group 1 ........................................................... (8-10)

Sophomore Year

Chem 341, 341L, 342, 342L ...................................................... (10)
*Electives from Group 2 ........................................................... (22)

Junior Year

Physics 211, 211L, 212, 212L ................................................... (8)
Biochemistry 301 ................................................................. (3)
*Electives from Groups 2 or 3 .................................................. (19)

*Electives from Groups 2, 3 or 4 .................................................. (32)

*Electives Group 1: Engl 110, 120 or 125; Psych 111; Comm 110; Foreign Language 101 and 102 (if required by major)
*Electives Group 2: Cell Biology (Bio 341); Genetics (Bio 315); Anatomy 204; Physiology 301; Microbiology 302; Anthropology; Business; English Literature; History; Political Science; Psychology Statistics (Psych 241); Sociology
*Electives Group 3: Biochemistry 301, Analytical Chemistry
*Electives Group 4: Histology (Bio 369); Neurosciences (Bio 420); Developmental Biology (Bio 378)

Pre-Mortuary Science

The following program is designed to meet the two-year requirement in pre-mortuary science. Ordinarily this program would be followed by one year in a school of mortuary science and one year of apprenticeship. The apprenticeship could come before or after the year of mortuary science study, depending on state requirements, such as those approved by the North Dakota Board of Embalmers. See also the website above.

Freshman Year

Biol 150, 150L, 151, 151L .......................................................... (8)
Chem 121, 121L, 122, 122L ...................................................... (8)
Math 103 ................................................................. (4)
Phys 241 ................................................................. (4)
*Pre-Mort Requirements ......................................................... (6)

Sophomore Year

Anat 204, 204L ................................................................. (5)
Phys 301, 301L ................................................................. (4)
*Pre-Mort Requirements ......................................................... (21)
Junior Year/Senior Year

Transfer to University of Minnesota

*Pre-Mort Requirements: Art (any 100 level); Acct 200; Eng 110 and 120; Comm 110; Comp Sci 101; History (any 100 level); Med 205; Nutr 240; Psych 111; Soc 110.

Please note: Students planning to transfer to the University of Minnesota Mortuary Science Program will need to take two semesters of a foreign language if they did not take two years of a foreign language in high school.

Pre-Optometry

Most optometry schools require a minimum of three years of college, however, the majority of admitted students have completed an undergraduate degree. All optometry schools require successful completion of at least one year of biology, physics, and chemistry; and all require at least one course in calculus. Additional specific courses are required by each school. Consult with the health sciences advisor in the office of the Dean of the College of Arts and Sciences for schools and requirements and the website above.

Freshman Year

Biol 150, 150L, 151, 151L ................................................................. (8)
Chem 121, 121L, 122, 122L .......................................................... (8)
Math 103, 146 or 165/166 ............................................................ (6)
*Electives from Group 1 ................................................................. (10)

Sophomore Year

Chem 341, 341L, 342, 342L or Chem 240/240L ................................. (5-10)
Psych 241 ..................................................................................... (4)
*Electives from Group 2 ................................................................. (18-23)

Junior Year

Physics 211, 211L, 212, 212L .......................................................... (8)
*Electives from Groups 2 or 3 ......................................................... (22)

Senior Year

*Electives from Groups 2, 3 or 4 ....................................................... (32)

*Electives Group 1: Eng 110, 120 or 125; Psych 111; Comm 110; Foreign Language 101 and 102 (if required by major)

*Electives Group 2: Cell Biology (Bio 341); Genetics (Bio 315); Anatomy 204; Physiology 301; Microbiology 302; Accounting; Anthropology; Business; Economics; English Literature; History; Political Science; Sociology

*Electives Group 3: Biochemistry 301, Analytical Chemistry

*Electives Group 4: Histology (Bio 369); Neurosciences (Bio 420)

Please note: Students may substitute Chem 240 for the Chem 341/342 sequence for some optometry schools. All optometry schools require some level of calculus—some require 1 semester (for those, Math 146 is sufficient), others require a full year (so Math 165, 166 is needed).

Pre-Veterinary Medicine

Most veterinary schools prefer or require the completion of an undergraduate degree. Although most require no specific major, the vast majority of students entering veterinary school complete degrees in Biology, Zoology or Agriculture. All veterinary schools require successful completion of courses in the basic sciences, advanced biological sciences, social/behavioral sciences, math and English. Some schools require or strongly recommend additional specific courses. For information on specific veterinary schools and their requirements, consult with the Health Sciences Adviser in the Dean’s Office of the College of Arts and Sciences and the website above.

Freshman Year

Biol 150, 150L, 151, 151L ................................................................. (8)
Chem 121, 121L, 122, 122L .......................................................... (8)
Math 103, 146 or 165/166 ............................................................ (6-8)
*Electives from Group 1 ................................................................. (8-10)

Sophomore Year

Chem 341, 341L, 342, 342L .......................................................... (10)
*Electives from Group 2 ................................................................. (22)

Junior Year

Physics 211, 211L, 212, 212L .......................................................... (8)
Biochemistry 301 ........................................................................... (3)
*Electives from Groups 2 or 3 ......................................................... (19)

Senior Year

*Electives from Groups 2, 3 or 4 ....................................................... (32)

*Electives Group 1: Eng 110, 120 or 125; Psych 111; Comm 110; Foreign Language 101 and 102 (if required by major)

*Electives Group 2: Cell Biology (Bio 341); Genetics (Bio 315); Ecology (Bio 332); Evolution (Bio 312); Microbiology 302; Anthropology; Business; Economics; English Literature; History; Political Science; Psychology Statistics (Psych 241); Sociology

*Electives Group 3: Biochemistry 301, Analytical Chemistry; Animal Behavior (Bio 338/338L); Mammalogy (Bio 428); Parasitology (Bio 364/364L); Physiology of Organs and Systems (Bio 442/442L); Vertebrate Zoology (Bio 370, 371)

*Electives Group 4: Histology (Bio 369); Developmental Biology (Bio 378); Ichthyology (Bio 425); Ornithology (Bio 427)

HONORS AND INDEPENDENT STUDY

Students in the College are encouraged to take advantage of the educational opportunities offered by the Four-Year Honors Program and the Senior Departmental Honors Program. In these programs the student bears a greater responsibility for his/her own education than in the more formal programs of the College. Therefore the honor student must develop at once intellectual initiative and intellectual self-discipline; and usually the rewards are correspondingly greater.

Without entering either of the Honors Programs, both of which require better than average academic attainment, students will find within the College many opportunities for independent study and research for which they can receive academic credit. Most departments have “readings” or “special topics” courses in which the student can work with a faculty member in some area not covered by regular courses. Overseas study, especially for Language Majors (several of whom receive scholarships to finance their travel through the Arneberg and Larsen awards each year), is another way in which students can profitably extend the scope of their education. In a variety of circumstances, study or research done off campus can also be offered for academic credit.

Students in the College are also encouraged to plan and to propose to the Dean or to appropriate faculty members interdisciplinary courses which they believe would be educationally sound and interesting. Arts and Sciences 299 is a non-departmental course listing, under which students may earn credit for special “on-demand” courses, seminars, etc. Students or faculty members who wish to propose a special course under this number should consult the Dean’s Office.

Students who have special preparation in the subject matter of a course offered at the university or who because of particular interest bring themselves to proficiency or depth in the subject through private study may, with permission of the department, challenge the course (or courses) for credit by special examination.

SPECIAL FACILITIES AND SERVICES

Three research institutes, the Institute for Ecological Studies, the Institute for Philosophy and Public Life, and the Social Science Research Institute, are lodged in the college. In addition, through its various departments, the College of Arts and Sciences provides special services through the Psychological Services Center (Psychology Department) and the Speech, Language, and Hearing Clinic (Department of Communication Sciences and Disorders). In addition, all departments of the College engage in general and specialized research.
The College of
BUSINESS AND PUBLIC ADMINISTRATION
Dennis Elbert, Dean

HISTORY
A course in Commerce was organized in 1917-1918 as a four-year curriculum within the College of Liberal Arts, with students granted the degree of B.A. (Course in Commerce). A School of Commerce was organized in 1924 as an independent two-year school on a distinctly professional basis. The name was changed in 1955 to the College of Business and Public Administration. The College’s undergraduate business programs have been accredited by the AACSB International — the Association to Advance Collegiate Schools of Business — since 1984, and the MBA program has had AACSB accreditation since 1990.

MISSION
The College of Business and Public Administration is committed to being the preeminent center of learning amongst regional universities, preparing and developing leaders of business, government, and society in a global setting. Challenging learning environments provide quality undergraduate and graduate education programs that are interdisciplinary and employ appropriate technological tools. Through the complementary activities of teaching, research, and service, the faculty strives to enhance its position in the scholarly community while fostering the dissemination of a diverse body of knowledge to stakeholders.

Elements of distinction include: Instilling practical knowledge and skills through experiences that integrate theory and practice; encouraging a balanced mix of instructional, applied, and basic research; engaging in innovative teaching, research, and outreach activities that accentuate the complementary and converging aspects of business and government; and nurturing partnerships with a diverse set of entities, both internal and external to the College.

CURRICULA IN THE COLLEGE OF BUSINESS
AND PUBLIC ADMINISTRATION
Ten groups of courses are offered in the College of Business and Public Administration which lead to the degree of Bachelor of Business Administration. They include: Airport Management, Aviation Management, Banking and Financial Economics, Business Economics, Entrepreneurship, Human Resource Management, Information Systems, Investments, Management, Managerial Finance and Accounting, Marketing and Operations and Supply Chain Management. Additionally, separate groups of courses lead to the degrees of Bachelor of Science in Public Administration, Bachelor of Accountancy, Bachelor of Science in Graphic Design Technology, Bachelor of Science in Industrial Technology, and Bachelor of Science in Occupational Safety and Environmental Health. Detailed information on all programs may be found in the departmental listings. In order to assist business students preparing for careers in the global economy, the College offers minors in International Business and Chinese Studies: Culture and Business (see Business Administration). The College also offers minors in Information Systems and Sport Business and a certificate in Entrepreneurship (see Entrepreneurship). For both business and non business students, we offer a track program in Entrepreneurship. Minor programs in Industrial Technology emphasizing Energy and Electronics, Graphic Communication, and Manufacturing are also available. Finally, the College of Arts and Sciences offers minor programs in languages, including some (e.g., French) that have an orientation in business.

The College of Business and Public Administration also offers degrees in cooperation with the College of Arts and Sciences. They include Economics and Political Science.

The College offers a course which provides an overview of the many areas of focus in business; the Introduction to Business course (BAdm 101) provides a study of business and its environment, organization, operation, and the interrelationships with government and society. Students will become familiar with the American enterprise system and issues facing society today. The Introduction to Business course is open to anyone enrolled at the University and will fulfill a portion of the Social Science Essential Studies requirement.

ADMISSION
Students apply for admission to the College of Business and Public Administration through the College’s Office of Academic Admissions, room 127, Gamble Hall.

Business: A student pursuing a degree program in business is admitted to the College as a Pre-major student. In order to be admitted to a program leading to the Bachelor of Business Administration or the Bachelor of Accountancy degrees, a student must have:
1. Successfully completed the specified freshman/sophomore Pre-Business courses.
2. Earned at least a 2.50 overall GPA in all courses taken.
3. Earned at least a 2.50 overall UND GPA in all courses taken.
4. Completed the six Pre-Business Core courses (Acct 200 & 201; ISys 117; Econ 201, 202 & 210) with no grade lower than that of “C.”

Public Administration: A student pursuing a degree in public administration is admitted to the College as a Pre-Public Administration student. In order to be admitted to a program leading to the Bachelor of Science in Public Administration degree a student must have:
1. Successfully completed at least 60 semester hours.
2. Earned at least a 2.50 GPA in the required Pre-Public Administration Core (refer to Public Administration section for core course listing).

Industrial Technology: A student pursuing a degree program in industrial technology is admitted to the College as a major in industrial technology.

Specified Pre-Business Courses. The freshman/sophomore Pre-Business courses, and special Pre-Business course requirements related to certain programs, are set forth below:

Freshman Year
Engl 110 .......... College Composition I .............................................. (3)
Engl 120 .......... College Composition II ................................................. (3)
or
Engl 125 .......... Technical & Business Writing ...................................... (3)
Math 103 .......... College Algebra .......................................................... (3)
Math 146 .......... Applied Calculus I ...................................................... (3)
Pols 115 .......... American Government I ................................................. (3)
Comm 110 .......... Fundamentals of Public Speaking ................................ (3)
Psy 111 .......... Introduction to Psychology (see notes) ............................. (3)
or
Soc 110 .......... Introduction to Sociology ................................................. (3)
or
Anth 171 .......... Introduction to Cultural Anthropology ........................... (3)
All candidates for degrees offered by the College of Business and Public Administration must complete the University’s General Graduation Requirements (see General Education Requirement section), and complete the curriculum for at least one major in the College.

All candidates for B.B.A. or B.Acc degrees must meet the following additional requirements:

1. Be admitted to a business major offered by the College of Business and Public Administration.
2. Earn a minimum 2.50 GPA in all courses that apply toward the degree. (Transfer students must also earn at least a 2.50 GPA in all work completed at the University of North Dakota that applies toward the degree.)
3. Earn a minimum 2.50 GPA in business administration courses that apply toward the degree and major.
4. Earn a minimum 2.50 GPA in all UND business administration courses that apply toward the degree and major.
5. Complete at least half of the business courses that apply toward the degree and major at the University of North Dakota.

All candidates for the B.S.I.T. and B.S.G.D.T. degrees must earn a minimum 2.50 overall UND GPA and 2.50 GPA in courses that apply toward the degree and major.

All candidates for the B.S.O.S.E.H. degree must earn a minimum 2.20 overall GPA and a minimum 2.50 GPA in the major program of study.

All candidates for the B.S.P.A. degree must meet the following requirements:

1. Be admitted to the public administration program.
2. Earn a minimum 2.50 GPA in all courses taken. (Transfer students must also earn at least a 2.50 GPA in all work completed at the University of North Dakota.)
3. Earn a minimum 2.50 GPA in public administration courses required for the major.
4. Earn a minimum 2.50 GPA in UND public administration courses required for the major.

PROGRAMS BEYOND THE CLASSROOM

Internships. The College of Business and Public Administration, through its internship programs, provides undergraduate students with the opportunity to explore the business world while enrolled at the University. Students desiring internships may apply for placement with a business firm that has a planned learning program of work approved by the College.

Cooperative Education. Cooperative Education opportunities are available to qualified BPA students in the following areas: Accounting, Airport Management, Aviation Management, Economics, Entrepreneurship, Finance, Industrial Technology, Information Systems, Management, Marketing, Sport Business and Public Administration. Cooperative Education allows students to both integrate and combine their courses with practical, professional work experience in their chosen field of study. Cooperative Education experiences allow BPA students to secure salaried, career-related work experiences under the supervision of both a sponsoring employer and the appropriate academic faculty, while at the same time receiving academic credit. Students desiring Cooperative Education positions should contact the cooperative education coordinator in their major field of study.

GRADUATE EDUCATION

Graduate education in the College of Business and Public Administration includes degrees of Master of Business Administration (M.B.A.), the Master of Public Administration (M.P.A.) and Master of science with majors in Industrial Technology and Applied Economics. The College also offers a new degree, the Master of Accoun-
University of North Dakota

FACILITIES

Gamble Hall, an attractive and well-equipped building completed in 1968, is the home for most students and faculty of the College of Business and Public Administration. Teaching is enhanced through the use of modern instructional equipment including six networked microcomputer laboratories that provide students access to the internet and popular spreadsheet, database, and word processing software, as well as a wide variety of specialty software; and video display equipment for in-class computer-aided instruction. As an example of the best of today’s learning technology, the Cargill Room on the third floor of Gamble Hall has a versatile design which makes it comparable to a corporate board room. The room has kidney-shaped tables that rotate to facilitate small group discussion, board room atmosphere, or a classroom environment. Equipped with video camera, projection devices, and a computer, this room allows both students and faculty to make professional presentations with ease. This classroom was built in 1998 with a grant from Cargill Inc. primarily for use by students enrolled in the capstone course. Our Lanterman Investment Center offers hands-on training and first-hand exposure to financial concepts such as portfolio construction, risk management, financial engineering, trading strategies, and corporate governance issues. This facility is used by graduate and undergraduate students in all business fields in addition to being used in outreach to the business community as well as to high school students.

The Page Family Marketing Center opened January 1, 2004 and features spaces to encourage student involvement in hands-on learning. Remodeled areas include a new reception area, secretarial work space, storage area, and a combined focus group/conference room. Cameras and microphones make it possible to project focus groups or presentations made in the room to other rooms in Gamble Hall. The technology-equipped conference table comfortably seats 16.

Teams of up to five students may work on projects and practice presentations in any of the two student breakout study/meeting rooms, each equipped with a computer. A marketing student computer lab is equipped with nine computer stations featuring dual monitors. Teams of up to four students may comfortably work at each station. The lab is also equipped with a presenter’s station and projection equipment.

In our Accounting area, the Eide Bailly Accounting Learning Center was completed in 2004. The Eide Bailly facility includes a computer for each group of four students equipped with dual monitors. The projection equipment and presenter’s station is also included. For over 48 years, Louis Kulas and Ludwig Koppenhaver dedicated their time and energy to the department of accountancy at UND. To honor these two great men, an accounting classroom was remodeled and named the Kulas Koppenhaver Memorial Accounting Learning Center. The Kulas and Koppenhaver facility includes computers at each seat with dual monitors. It is also equipped with a presenter’s station and projection equipment.

The Deloitte and Brady Martz Accounting Learning Centers feature updated classrooms with improved instructional design and technology. The new classrooms foster better faculty and student interaction. The classroom renovations allowed the space to be balanced in terms of size; each classroom was tiered and updated with instructional technology and professional furnishings. The exterior of the classrooms was refinishing with burnished block and new doors with side windows with etched glass bearing the names of the classroom’s corporate sponsors.

The newest facilities in the College were completed during the summer of 2007. The Gate City Bank room was completed in room 335, transforming the space into the appearance of a Gate City Bank location. Student seating is much improved over the original seating in the room. The tiers in the classroom have been preserved, retaining the teaching environment. The environment now includes two projectors to aid in displaying two sources of information at one time. The Ottertail Corporation Suite has provided a remodeled area for the MBA program, Entrepreneurship program, and Banking program. The new area includes a conference room available for meetings and presentations. A new and improved graduate student area has provided enhanced work spaces for students.

The John C. Berg Memorial Accountancy Suite has completely transformed the Accountancy outer office and greatly improved traffic flow through the area. The new area is much improved as compared to the old in providing an inviting environment for students and their families.

For students in the College using these facilities, class projects and exercises will be integrated into a wide variety of classes, providing a depth and breadth of topic coverage not previously possible. Pit style classrooms in Gamble Hall are designed in amphitheater format to facilitate case study instruction. A study room, remodeled in 2002, is available within the building so that students may make profitable use of their time between classes. Two classrooms have been refitted as interactive video studios and are among the several sites currently used by the North Dakota Interactive Video Network.

THE BUREAU OF BUSINESS AND ECONOMIC RESEARCH

The Bureau of Business and Economic Research (Gamble Hall, Room 290) serves as a coordinating agency for research in the fields of business, economics, and government. It initiates research directly or in cooperation with other private or public agencies and publishes the results of such research as well as that accomplished by staff members of the College of Business and Public Administration. The Bureau collects and processes basic data on business activity and serves as a repository of reference data.

BUREAU OF GOVERNMENTAL AFFAIRS

The Bureau of Governmental Affairs (Gamble Hall, Room 160) is the research and service arm of the Department of Political Science and Public Administration. It conducts research into various problems of state and local government in North Dakota either at the request of government agencies or on its own initiative. The Bureau also conducts workshops, seminars, and other conferences for the purpose of disseminating information to state and local government officials, and undertakes activities such as polling and public and nonprofit management consulting. It maintains a research library for faculty and student use in conducting research on governmental problems.

THE CENTER FOR INNOVATION

The Center for Innovation (Ina Mae Rude Center and Skalicky Center) helps entrepreneurs and small manufacturers launch new products and companies, expand existing operations, bring new products to market, develop business and marketing plans, and manages the Rural Technology Incubator. To date, over 300 new products and companies have been launched with assistance from the Center.

THE SMALL BUSINESS DEVELOPMENT CENTER

The North Dakota Small Business Development Center provides counseling and technical assistance to potential and existing small business owners. It serves as a link between the North Dakota University System and the private sector by providing one-to-one counseling, training and outreach assistance. In partnership with the University System and federal, state, and local agencies, it provides management and technical assistance to existing and aspiring entre-
DIVISION OF CONTINUING EDUCATION

HISTORY AND MISSION

An organized program of extension activities was first established at the University of North Dakota in 1910. Dr. Frank L. McVey, then President of the University, provided the initial support of the University of North Dakota providing life-long learning in his inaugural address in the spring of 1910 when he said, “Education neither begins nor ends with the four years of a college course.” To support the mission of life-long learning, the University has been a long-term member of the University Continuing Education Association. The Association promotes and upholds standards for extension services by imposing strict procedures for the admission of colleges and universities.

In 1968 UND’s General Extension Division was changed to the Division of Continuing Education. In order to more adequately describe the duties assigned to the Dean of Continuing Education, the title was changed to Dean of Outreach Programs in 1978, but the name of the Division remained unchanged. A restructuring in 1998 resulted in Continuing Education becoming a member of the newly formed Division of Student and Outreach Services.

The mission of the Division of Continuing Education is to promote life-long learning, economic development, and to offer quality educational opportunities, programming and services by extending the resources of the University. The Division attempts to determine the educational and informational needs of the citizenry of North Dakota that cannot be provided through the regular on-campus programs. Once determined, the goal is to serve those needs whenever and wherever possible, providing the activity is consistent with the policies and philosophy of the University. This is accomplished through a cooperative and coordinated effort with the various academic departments by utilizing their research capabilities and available instructional resources.

The manner in which “extension” is provided varies according to situation and need. The Division administers the following: credit online and correspondence courses, distance degree programs, professional development for educator courses, conferences, workshops, certificate programs, University within the University, Workforce Development, OSHER lifelong learning Institute and off-campus graduate degree programs at the UND Graduate Center at Bismarck, and UND Fargo Outreach Office as well as to a national and international audience.

CERTIFICATE PROGRAMS

Certificate Programs provides distance education for non-academic credit and certification programs. Courses are offered to individuals seeking career, professional or personal development. Enrollment is open, allowing students to enroll at any time and complete within a specified time frame. Course completion is flexible and self-
paced. Courses are available online or correspondence by mail. Certificate Programs is an Eligible Training Provider for Job Service, ND, SD, MN, and MT. Active duty members of the U.S. Air Force and U.S. Navy are eligible to receive tuition assistance for one certification course during their career.

Additional information can be obtained by calling (701) 777-3000 or toll-free 1-800-342-8230, e-mail to: courses@mail.und.edu, Web: www.distance.und.edu/certificates, or by mail: UND Certificate Programs, Gustafson Hall Room 103, 3264 Campus Rd Stop 9021, Grand Forks, ND 58202-9021.

Review Courses:
- Dietary Managers Exam Review
- GMAT Preparation
- GRE Preparation
- LSAT Preparation
- Math Refresher Course
- SAT/ACT Preparation

Real Estate/Construction Technology Programs:
- AutoCAD 2009
- Home Inspection
- HVAC Technician
- Nebraska Real Estate Pre-licensure Course
- North Dakota Real Estate Pre-licensure Course
- Agency
- Contracts
- Marketplace Ethics and Professionalism
- Risk Reduction

Business Programs:
- 7 Steps to Leading High Achieving Teams
- Administrative Professional with Microsoft Office Specialist
- Bookkeeping the Easy Way
- Certified Bookkeeper
- Certified Global Business Professional
- Certified Wedding Planner
- Corporate Governance & Business Ethics
- eBusiness
- Entrepreneurship: Start-Up & Business Owner Management
- Freight Broker/Agent Training
- Help Desk Analyst: Tier I Support Specialist
- Human Resources for Healthcare Professionals
- Lean Mastery
- Management Training
- Microsoft Office Specialist
- Pay Per Click Marketing
- Payroll Practice and Management
- Purchasing and Supply Chain Management
- Project Management
- Records Management
- Revenue Cycle Management
- Search Engine Marketing
- Search Engine Optimization
- Six Sigma Blackbelt
- Six Sigma Greenbelt
- Veterinary Assistant

Healthcare Programs:
- Administrative Dental Assistant
- Administrative Medical Specialist with Medical Billing and Coding
- Advanced Coding for the Physician’s Office
- Advanced Hospital Coding and CCS Preparation
- Certified National Pharmaceutical Representative
- Health Administration
- HIPPA Compliance
- ICD-10 Medical Coding
- Medical Billing & Coding
- Medical Terminology
- Medical Transcription
- Pharmacy Technician
- Records Management

Nutrition Programs:
- Dietary Managers Certification Course
- Diabetes Nutrition Therapy
- Foodservice Manager
- Medical Terminology
- Menu Planning
- Nutrition and Aging
- Nutrition Screening
- Nutrition Therapy
- Principles of Nutrition
- ServSafe
- ServSafe Recertification
- Sports Nutrition

Legal Programs:
- Forensic Computer Examiner
- Legal Nurse Consultant
- Paralegal Certificate

Internet, Design, and Technical Programs:
- .NET Training
- Forensic Computer Examiner
- Graphic Design
- Instructional Design & Technology
- Management for IT Professionals
- Web Database Developer
- Webmaster
- Website Design

Microsoft Certification Training:
- Microsoft Certified Applications Specialist (MCAS)
- Microsoft Certified Desktop Support Technician (MCDST)
- Microsoft Certified Systems Administrator 2003 (MCSA)
- Microsoft Certified Systems Administrator Plus 2003 (MCSA+)
- Microsoft Certified System Engineer 2003 (MCSE)

Network Training Programs:
- Cisco CCNA authorized Certification Training
- CompTIA A+ Certification Training
- CompTIA Linux+/LPI Level One Certification Training
- CompTIA Network+/Server+ Certification Training
- CompTIA Security+ Certification Training
- Digital Arts Certificate
- Multimedia Design Certificate

Video Game Design:
- 3ds max
- Video Game Art
- Video Game Design and Development

ADMISSION
Certificate Programs students are not required to apply for admission to the University. If a student later desires to be admitted to the University, a regular and separate application must be filed with the Admissions office. Upon satisfactory completion of a course, a transcript and certificate of completion will be issued to the student.
Dlstance Degree Programs and Courses

If you are looking for a degree program that can fit into your busy lifestyle, you can take advantage of distance degree programs from the University of North Dakota. With a variety of degrees designed for working adults, you can earn your degree without interrupting your career.

Distance Degree Programs coordinates courses and program offerings with the academic colleges and departments, with courses scheduled to fit adult learners’ schedules. Courses are semester-based and are offered in the evenings, on weekends, or online anytime. The delivery method varies with each program, but may include videoconferencing, online, and/or on-site in North Dakota.

Additional information can be obtained by calling UND Online & Distance Education: (701) 777-3000 or toll-free 1-800-342-8230, or by visiting our website at: http://distance.und.edu/degrees.

Online and Correspondence Courses

Online and Correspondence courses are available from many UND departments. A complete list of online and correspondence courses can be found at: http://distance.und.edu. All online and correspondence courses are taught by UND faculty, and appear on a student’s regular UND transcript.

Online semester-based courses allow students to take a class that may not fit into their schedule, or while they are place-bound for work or family reasons. Students looking for the flexibility of taking online classes have many options to choose from. The online semester-based courses are taught within the regular academic semesters, are eligible for financial aid, and may be taught either in a live synchronous environment with set class meeting times, or in an asynchronous environment where students can access course materials at the day and time of their choosing.

Correspondence open-enrollment courses allow students to enroll at anytime, work at their own pace, and study in a place of their choosing. Students have nine months from their enrollment date to complete a course. Correspondence open-enrollment courses allow the student to learn and grow while managing family and/or work responsibilities. Courses are offered online and by mail, although are not eligible for financial aid.

Additional information can be obtained by calling: (701) 777-3000 or toll-free 1-800-342-8230, or by visiting our website at: http://distance.und.edu/collegecourses.

OSher Lifelong Learning Institute (OLLi)

OLLi at the University of North Dakota (OLLi@UND) is a membership-based community of older adults who love learning and enjoy spending time with like-minded individuals. The mission of OLLi@UND is to foster accessible lifelong learning and individual growth for mature learners aged 50 and better by creating intellectually stimulating learning opportunities that will enrich their lives. Presently, over 300 members participate in the OLLi community based in Grand Forks, ND. Learners from all educational and socioeconomic levels and backgrounds are encouraged to enjoy the unique benefits of Institute membership. Individuals are able to choose from a collection of courses offered during three semesters a year. All the OLLi@UND short courses, study groups, and other educational experiences offered through the institute are non-credit, non-graded, and have no examinations.

OLLi@UND is funded in part by the Bernard Osher Foundation, which was founded in 1977 by Bernard Osher, a respected businessman and community leader in the San Francisco Bay area. The philanthropic organization seeks to improve the quality of life for mature residents through post-secondary student scholarships, as well as art, cultural, and educational grants. The Foundation supports more than 120 Osher Lifelong Learning Institutes on university and college campuses in 48 states.

Additional information can be obtained by calling: (701) 777-3000 or toll-free 1-800-342-8230, by writing: OLLi, Division of Continuing Education, University of North Dakota, 3264 Campus Road Stop 9021, Grand Forks, ND 58202-9021, or by visiting our website at: http://www.conted.und.edu/ollii.

Professional Development for Educators

Professional Development for Educators (PDE) provides continuing education opportunities for preK-12 professional staff to increase their knowledge and develop new skills. Professional development credit earned through these opportunities, which include courses, workshops, conferences and online studies, can count toward licensing renewal and school district salary lane changes. The appropriate academic departments and colleges approve all PDE continuing education offerings and instructors. These professional development opportunities are not designed for the purpose of being a part of a graduate program; therefore, the credit approved for these opportunities may not be applied toward a graduate degree.

Additional information can be obtained by calling (701) 777-3000, toll free 1-800-342-8230, by writing: Professional Development for Educators, Division of Continuing Education, University of North Dakota, 3264 Campus Road Stop 9021, Grand Forks, ND 58202-9021, or by visiting our website at: http://educators.und.edu.

Office of Professional Services

The Office of Professional Services uses the rich resources of the University of North Dakota to assists business, industry, and organizations, through professional services. Services available include strategic planning, focus group facilitation, grant writing, and conference management.

Additional information can be obtained by calling (701) 777-2663 or toll-free 1-866-579-2663, by writing: Office of Professional Services, Division of Continuing Education, University of North Dakota, 4300 James Ray Drive Stop 7131, Grand Forks ND 58202-7131 or by visiting our website at: http://www.conted.und.edu.

UND Outreach Offices

UND Bismarck Center

The University of North Dakota offers graduate degree programs through the Bismarck Higher Education Center. UND has served the Bismarck-Mandan area by providing educational programs since 1976. Hundreds of students have taken courses and received degrees through off-campus programs.

Flexibility is built into our courses and degree programs, giving working and place-bound adults the opportunity to earn bachelors, masters and doctoral degrees. The Center in Bismarck is located on the Bismarck State College campus. For a complete, updated list of programs and courses offered through the Center, visit www.undbismarck.und.edu.

The higher education courses and degree programs are delivered to Bismarck via on-site instruction, the North Dakota Interactive Video Network (ND-IVN), or Online. Each of these delivery systems provides students with an opportunity to take coursework without leaving the Bismarck area, and provides opportunities for the close contact with faculty that is necessary for academic success.

For more information, call 701-224-5403 or toll-free 1-800-342-8230 or visit our website at: www.undbismarck.und.edu. We are located at 1815 Schaefer Street, Bismarck, ND, 58506-5587.
UND Fargo Outreach

The purpose of UND Fargo Outreach is to promote lifelong learning, economic development and offer quality educational opportunities, programming and services by extending the resources of the University to the Fargo/Moorhead area. UND Fargo Outreach strives to identify unmet needs and work through the Division of Continuing Education to develop new programming designed to address the needs.

The existing array of educational offerings and services are designed to meet the educational needs not currently being addressed by other providers. The programs are designed in flexible formats for working adults who find it necessary to earn an undergraduate or graduate degree during the evening, weekends, or online. Students in the Fargo area taking online courses and degrees offered at a distance by the University are supported in terms of proctoring and referral at UND Fargo Outreach.

UND Fargo Outreach serves as the focal point for the University’s response to the Higher Education Roundtable call for NDU institutions to become more responsive, flexible, accessible, entrepreneurial, and accountable. It is anticipated that expanded programming in the Fargo/Moorhead market will help UND achieve its strategic mission to serve the entire State of North Dakota.

UND Fargo Outreach is located on the School of Medicine’s Southeast Campus at 1919 N Elm Street, Fargo, ND 58102. UND staff located at UND Fargo Outreach can be reached from an on campus extension at 2-4186 and from off campus at 701-293-4186. Our website at: http://distance.und.edu provides information on the variety of undergraduate, graduate, certificate and other outreach programs available to students and businesses in the Fargo/Moorhead region.

The College of
EDUCATION AND HUMAN DEVELOPMENT

Dan Rice, Dean

ORGANIZATION OF THE COLLEGE

The College of Education and Human Development was formed in 1996 through a merger of the Center for Teaching and Learning with three of the departments from the College for Human Resources Development. The College includes six academic departments: Counseling Psychology and Community Services (which also includes Recreation & Tourism Studies and Rehabilitation & Human Services); Educational Foundations and Research; Educational Leadership; Physical Education, Exercise Science and Wellness; Social Work; and Teaching and Learning. Also affiliated with the College are the Bureau for Educational Services and Applied Research, the University Children’s Center; and bureaus of the Department of Social Work: Child Welfare Research Bureau; and the Children and Family Services Training Center.

MISSION

The College of Education and Human Development has the unique mission within the University of fostering healthy human development and learning across the lifespan, beginning in early childhood. In support of this mission, the College actively embraces human and cultural diversity as an asset and seeks to weave it throughout all of our activities. At both the graduate and undergraduate level, students in EHD develop the skills and self-awareness to become effective professionals and leaders in schools, higher education, human service and wellness organizations. In these roles, graduates of EHD empower individuals, families, groups, organizations, and communities to make healthy decisions and lead full and productive lives. Through these efforts, graduates serve a vital function in recreating and maintaining a healthy economy and enhanced quality of life.

The six departments of EHD employ a multi-faceted approach to education, relying on research, teaching and service in the education of students. The continuing development of effective and innovative instruction methods provides excellent service and education to diverse groups of students, including those both on and off the UND campus. The constellation of disciplines within the college emphasizes basic and applied research with implications for individual development and social change. This emphasis is reinforced by the professional service provided by faculty throughout the college, many of whom are involved in service to members of the community in mental health, wellness, and teaching roles. Within all three domains—teaching, research, and service—we attempt to form partnerships with community, state, tribal, and national organizations and government, as well as schools and human service agencies, to provide a more comprehensive effort to foster human development and learning. We especially seek to develop mutually supportive partnerships with historically under-served populations.

UNIVERSITY WITHIN THE UNIVERSITY

The University Within the University is designed to coordinate the planning and delivery of campus professional development and training activities for UND employees through an integrated approach to planning, marketing and program delivery.

Additional information can be obtained by calling (701) 777-0720 or toll-free 1-800-342-8230, by writing: University Within the University, Division of Continuing Education, University of North Dakota, 4300 James Ray Drive, Stop 7131, Grand Forks ND 58202-7131 or by visiting our website at: http://www.conted.und.edu/U2.

WORKFORCE DEVELOPMENT

The Office of Workforce Development is the “gateway” for business and industry, to the talents, expertise and technologies that are available through the University Of North Dakota. UND’s workforce development professionals work closely with business and industry to diagnose the workforce needs of their organization and, when appropriate, recommend innovative, practical solutions for the recruitment, development, retention and advancement of their employees. In addition, workforce development offers strategic services such as: employee satisfaction research, and human resources consulting.

Additional information can be obtained by calling (701) 777-2313 or toll-free 1-866-579-2663, by writing: Workforce Development, Division of Continuing Education, University of North Dakota, 4300 James Ray Drive Stop 7131, Grand Forks ND 58202-7131, or by visiting our website at: http://www.conted.und.edu/workforce/.


**HISTORY**

The disciplines in the College of Education and Human Development have a long history at the University of North Dakota.

The University of North Dakota has offered teacher education programs since its founding in 1883. The preparation of teachers at UND was coordinated by the Normal Department from 1883 to 1900; by the Normal College from 1900 to 1905; by Teachers College from 1905 to 1911; by the School of Education from 1911 to 1953; and by the College of Education until 1972, when programs of that college merged with the New School for Behavioral Studies to form the Center for Teaching and Learning. The present education faculty continue the UND traditions of leadership to the schools, colleges, and communities of North Dakota and the Upper Midwest; of promoting a broader view of education; and of providing teachers, administrators, and other educational personnel with intensive, intellectually challenging, integrated programs of study. The department of Educational Leadership offers graduate programs for leaders in K-12 schools, higher education and other education organizations.

Physical activity has been important to students since the early days of UND, whose history shows interesting differences in the development of programs for men and women. The Department of Physical Education, Exercise Science and Wellness was formed in 1963 from a merger of the women’s department of physical education, founded in 1893, and the men’s department, established by 1906. In addition to developing the physical potential of all participating UND students, programs of the department prepare professional leaders for careers in physical education, and exercise science in many settings.

Although courses in Counseling were offered by UND faculty as early as 1924, development of a formal program was spurred in the 1950’s by the National Defense Education Act, which sponsored preparation of school guidance counselors. With leadership from the Department of Psychology and the College of Education, the Department of Counseling was established in 1963. As part of the College for Human Resources Development, the Department broadened and deepened its programs, which focus on counseling in a wide variety of settings. In 2004 programs in Recreation and Tourism Studies and Rehabilitation and Human Services joined the Counseling department.

The first social work courses were offered at UND by Dr. John Gillette, a member of the Department of Sociology. A social work program was started in 1911. By 1967, when the Department of Social Work was founded, UND students and faculty had invested much effort and creativity in the promotion of social welfare. In 1972, the department moved from the College of Arts and Sciences to the College of Human Resources Development. The Master of Social Work degree is one of the few offered in the region.

**ACCRREDITATION**

UND’s basic (undergraduate) and advanced (graduate) programs for the preparation and continuing education of teachers and other school professionals are accredited by the National Council for the Accreditation of Teacher Education and approved by the state of North Dakota. Programs in social work are accredited by the Council on Social Work Education. The Doctoral Program in counseling is accredited by the American Psychological Association.

**DEGREE PROGRAMS, MAJORS, AND MINORS**

Bachelor’s degrees are conferred on students in the College of Education and Human Development who satisfactorily complete the prescribed programs of study in their majors and who satisfy the degree requirements of the University and the College. The following undergraduate degrees are offered by departments of the College.

**Physical Education, Exercise Science and Wellness**

B.S. in Physical Education

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**Counseling Psychology and Community Services**

B.S. in Recreation and Tourism Studies

B.S. in Rehabilitation and Human Services

**Social Work**

B.S. in Social Work

**Teaching and Learning**

B.S.Ed. with major in Early Childhood Education

B.S.Ed. with major in Elementary Education

B.S.Ed. with double major in Elementary/Early Childhood Education

B.S.Ed. with double major in Elementary/Middle Level Education

B.S.Ed. with major in Science Education (secondary)

B.S.Ed. with major in Social Studies Education (secondary)

Students preparing to teach in the secondary schools may fulfill teacher education requirements by completing the following degree programs and the professional education program in the Department of Teaching and Learning.

B.A. with major in English

B.A. with major in French

B.A. with major in German

B.A. with major in Spanish

B.A. with major in History

B.S. with major in Industrial Technology

B.S. with major in Biology

B.S. with major in Chemistry

B.S. with major in Geology

B.S. with major in Geography

B.S. with major in Mathematics

B.S. with major in Physics

Candidates preparing to teach music, art or physical education in the schools may fulfill requirements to teach grades K through 12 by completing the following degree programs and the professional education program in the Department of Teaching and Learning.

B.S. in Physical Education

Bachelor of Music

B.F.A. with major in Visual Arts

Minors may be taken in a wide variety of fields including athletic coaching, chemical use/abuse awareness, gerontology, health education, recreation and leisure services, rehabilitation services, special education, middle level education, and early childhood education.

The appropriate sequences and experiences for these degree programs and minors are described in the department sections of this catalog appropriate to them.

**ADMISSION REQUIREMENTS**

Admission to the College of Education and Human Development may occur at the time a student is admitted to the University and has declared a major or pre-major in the college. Students considering a major in one of the departments of the college are encouraged to seek information from the College Office of Advising and Admissions located in room 105 of the Education Building.

All students must satisfy any special program admission requirements established by the department in which the student plans to major or for admission to Teacher Education. Students should contact the chairperson of the department or the College Office of Advising and Admissions for details about policies, procedures, and timelines.

**Admission to Undergraduate Teacher Education**

Formal admission to Teacher Education is required of all students before enrollment in the core courses of each program. Application forms are available in the Office of Advising and Admissions, Education Building, Room 105 at the start of each semester and also through the College of Education and Human Development’s web page. **Applications must be submitted before the deadline.** Late applications will not be considered. Incomplete applications will be returned. Notification of admission decisions takes approximately 30 working/school days.
Admission to Teacher Education is competitive and the numbers admitted each semester may be limited due to resources. Admission into a teacher education program requires a cumulative 2.75 GPA and completion of 30 hours that apply to graduation. Other factors that are taken into consideration are:

- Completion of prerequisite courses
- Strength of academic record
- PPST scores – must meet the minimum of 172 Math; 173 Reading; 173 Writing or composite score of 518 with two of three scores passing and a third score not more than 2 points below the cut score
- Quality of letter of application – consider clarity of expression and seriousness about becoming a teacher
- Professional Dispositions Report
- Available openings in your anticipated area of study

Factors to consider when making application to the Teacher Education Program:

- Travel to off-campus locations will be required as part of the program at your expense.
- Full-time, daytime attendance will be required at various times of your program.
- Graduation from the program does not guarantee licensure to teach.

In order to student teach, you will be required to submit to a full background check and FBI fingerprint check. Also, each state to which you apply for certification/licensure is likely to require a separate background check. Individual school districts may require background checks before you can be placed for field experiences. Misdemeanor or felony convictions, other than minor traffic offenses, may prevent you from obtaining state teaching certification/licensure, even if you successfully complete the program.

Keys to successful completion of the Teacher Education Program:

- Meeting of all academic requirements.
- Satisfactory performance in field experiences completed prior to student teaching.
- Satisfactory performance of Essential Functions.
- No illegal drug or alcohol use.
- Effective interactions with people.
- No convictions of an offense that would authorize or require the Education Standards and Practices Board to refuse to grant a teaching license.
- Adherence to the UND Code of Student Life, evidence of competence, morality, temperance and kindness on your part.
- Healthy body and mind to perform all the responsibilities associated with teaching.

**DESIGN OF THE CURRICULUM OF THE TEACHER EDUCATION PROGRAM**

**Undergraduate Programs.** Programs for the preparation of teachers at UND reflect the tradition of progressive education. The progressive vision includes individualized, developmentally-appropriate, and constructivist curriculum; student-centered learning; interdisciplinary approaches to solving real problems; use of primary resources and direct experiences of learners; commitment to community involvement and to the school as a model of democracy; valuing of diversity; and commitment to humane and holistic understandings of learning, teaching, and evaluation.

Programs are designed to enable development of teachers who are committed to life-long learning about many things, but especially about the process of teaching; who are able to take an active role in promoting the learning of students; and who can envision resolution to the dilemmas of teaching which contribute to a democratic, humane, and just society. Connections between the experiences of teacher education candidates as learners and their preparation as teachers are nurtured in the programs through such practices as field experiences, structured writing, group learning, and portfolio assessment.

The goals of the basic programs in teacher education are to support the development of teachers who are learners, active agents of learners and articulate visionaries. These goals are supported by the licensing standards of our state and the guiding principles of our learned societies.

**GRADUATION AND TEACHER LICENSURE REQUIREMENTS**

All students graduating from the College of Education and Human Development will complete all requirements of the department of the student’s major and all graduation requirements of the University. In addition, the College requires that students earn a minimum GPA of 2.20 in all work taken and, in the case of transfer students, a minimum of 2.20 in all UND work. This minimum GPA requirement is superseded, however, by the higher GPA requirements of some programs.

Candidates who are formally admitted to and complete a teacher education program approved by the state of North Dakota, receive a bachelor’s degree with an overall GPA of at least 2.5; meet or exceed the minimum scores on any licensure exams required by the state; and meet the legal requirements which include a satisfactory criminal background check, are eligible for licensure to teach in North Dakota. Candidates apply to the North Dakota Education Standards and Practices Board for licensure. Application should be initiated prior to graduation. Students interested in teacher licensure in states other than North Dakota should seek information in the College Office of Advising and Admissions.

**OTHER REQUIREMENTS OF TEACHER EDUCATION CANDIDATES**

**Continuous assessment.** Candidate progress in teacher education programs is evaluated through regular review of candidate’s work and disposition, as well as portfolios assembled by candidates. Candidates are asked to save and file all work completed in courses of their teacher education programs. At several points in each program, candidates review their work with faculty and other candidates. Portfolio assessment offers opportunities to discuss individual growth as a teacher and learner and to assess progress in addressing program themes. Effective use of writing in many situations is essential for completion of teacher education programs and is considered in the portfolio assessment process.

**Admission to student teaching.** Student teaching is required in all teacher education programs. Each student teaching placement requires work and planning on the part of the student, the Director of Student Teaching and Field Experiences, the cooperating faculty in the schools, and the faculty from the department of the student’s major. Deadlines for applying for student teaching are established each semester. Check in the College Office of Advising and Admissions for exact dates. Late applicants cannot be guaranteed placement in the preferred semester.

Acceptance for student teaching requires that candidates in all majors which include Early Childhood, Elementary Education and in Middle Level Education complete coursework in Teacher Education with a minimum GPA of 3.0, satisfactorily complete a field experience, present a minimum overall GPA of 2.75 based on at least 76 hours of work, and are recommended by the faculty in their area(s) of student teaching. Admission to student teaching in a secondary education program requires that the candidate has completed or is enrolled in all courses of the major and the professional education programs, has an overall GPA of at least 2.75, has a minimum GPA of
2.75 in the major coursework completed at the time of application, and is recommended by the Teaching and Learning faculty and the student’s adviser(s).

All candidates will also be required to submit to a full background check and BFI fingerprint check. Opportunities are available to student teach abroad through the Global Student Teaching program.

The College of Education and Human Development also offers undergraduate majors in the following fields:

- Physical Education, Exercise Science and Wellness
- Recreational and Tourism Studies
- Rehabilitation and Human Services
- Social Work

For information about these academic programs, turn to the appropriate sections in this catalog.

Graduate studies. At the graduate level, the College offers advanced programs of preparation for counselors, counseling psychologists, social workers, physical education professionals, teachers, school administrators, and other educational personnel for schools and institutions of higher education.

The Department of Social Work offers a graduate program leading to the Master of Social Work (MSW) degree. The M.S. with a major in Physical Education is offered by the faculty in the Department of Kinesiology, and Exercise Science. The Department of Counseling Psychology and Community Services offers graduate programs leading to the M.A. with a major in Counseling and to the Ph.D. with a major in Counseling Psychology.

The Department of Educational Leadership offers programs leading to the M.Ed. and M.S., the Educational Specialist (Ed.S.), and the Ed.D. and Ph.D. with a major in Educational Leadership. The Department of Teaching and Learning offers programs leading to the M.S. with majors in Early Childhood Education, and to the M.Ed. and M.S. with majors in Elementary Education, Reading Education, Special Education, Instructional Design and Technology and, with faculty in the Department of Educational Foundations and Research, programs leading to the M.S. in General Studies in Education and to the Ed.D. and Ph.D. with major in Teaching and Learning.

## The School of ENGINEERING AND MINES

**Hesham El-Rewini, Dean**

### HISTORY AND ORGANIZATION

The University charter, in compliance with the Federal Enabling Act of February 22, 1889, which provided a land grant of 40,000 acres for the School of Mines in harmony with the Constitution of North Dakota, located the School of Mines at Grand Forks and made the School of Mines the Engineering College of the University of North Dakota.

The School of Engineering and Mines offers programs in Chemical Engineering, Civil Engineering, Electrical Engineering, Environmental Engineering, Environmental Geosciences, Geological Engineering, Geology, and Mechanical Engineering. All programs are housed in a central campus location with lecture rooms and laboratories in Upson I and II, Harrington Hall, and Leonard Hall.

### MISSION

The primary mission of SEM is to provide students a broad general education coupled with strong fundamentals that prepare graduates to successfully fill important positions in professional practice in industry and government. Program graduates will have a solid background in technical subjects, i.e., mathematics, science, engineering science and design, the ability to think and work accurately, breadth and clearness of vision, and high ideals and purposes. SEM’s further mission is to engage in research and scholarly activity that contributes basic and applied discovery to enhance knowledge and student learning while being of benefit to the state, region and nation.

The School of Engineering and Mines further provides engineering programs of equal quality, via distance education, to industry and individuals through the Distance Engineering Degree Program (DEDP). Continuous and on-going assessment of student learning in accordance with specific program outcomes, including input from program constituents such as students, alumni, employers and industry advisory groups, provides opportunity to measure success and effect program improvement in meeting the mission of the School of Engineering and Mines. The mission of the School includes engineering programs being accredited by the Accreditation Board for Engineering and Technology (ABET).

### ACCREDITATION OF ENGINEERING PROGRAMS

The Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) has accredited the following University of North Dakota curricula: Chemical Engineering, Civil Engineering, Electrical Engineering, Geological Engineering, and Mechanical Engineering. Accreditation identifies professional engineering curricula that provide a solid education upon which to base engineering practice. ABET serves the public through the promotion and advancement of engineering, technology and applied science education.

ABET represents 19 engineering societies, including the American Institute of Chemical Engineers, the American Institute of Mining, Metallurgical & Petroleum Engineers, the American Society of Civil Engineers, the American Society of Mechanical Engineers, the Institute of Electrical and Electronics Engineers, Inc., and the National Society of Professional Engineers.

State Boards of Registration governing the practice of professional engineering allow a student who is completing an ABET-accredited engineering curriculum to take the Fundamentals of Engineering (FE) examination. Engineer-In-Training certification is granted only after graduation from an accredited curriculum and passing the FE examination. Graduates who have earned Engineer-In-Training certification may complete the professional practice examination after four years of engineering experience acceptable to the state board of registration in the state in which they seek registration as professional engineers.

### DEGREES

The following baccalaureate degrees are conferred upon engineering students who have successfully completed the prescribed
courses of study and who have complied with all the other requirements established by the University, including the General Education Requirements for engineering students as listed later in this section: Bachelor of Science in Chemical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Geological Engineering, and Bachelor of Science in Mechanical Engineering. The School of Engineering and Mines also offers a Bachelor of Science in Environmental Geosciences. Bachelor of Science and Bachelor of Arts degrees in Geology are taught in the School, but the degrees are awarded through the College of Arts and Sciences.

An aerospace option/emphasis is offered through both the electrical engineering and the mechanical engineering programs. The objective of these programs is to prepare graduates for professional engineering practice while simultaneously preparing licensed pilots with an aerospace background.

Graduate Study. Graduate work, offered by departments in the School of Engineering and Mines lead to the degrees of Master of Engineering with majors in chemical engineering, civil engineering, electrical engineering, environmental engineering and mechanical engineering; Master of Science with majors in chemical engineering, electrical engineering, environmental engineering, geological engineering, geology, and mechanical engineering; and Doctor of Philosophy with majors in engineering and geology. Admission to graduate work in the various departments may be granted to a student upon the recommendation of the Dean of the Graduate School and the chair of the department in which the study will be undertaken. For admission to the Doctor of Philosophy with a major in engineering, the recommendation of the Director of the Engineering Graduate Program Committee is required. Prospective graduate students should familiarize themselves with the material listed in the Graduate School section.

MINOR IN ENGINEERING SCIENCES

A minor in engineering sciences is available to non-engineering students, and has a requirement of 20 credit hours as detailed below:

<table>
<thead>
<tr>
<th>Required Courses - 12 credits</th>
<th>Semester Hours</th>
<th>UND Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engr 201 Statics</td>
<td>3</td>
<td>Chem 121 and 121L</td>
</tr>
<tr>
<td>EE 206 Circuit Analysis</td>
<td>3</td>
<td>Engl 110 and 125 or 120</td>
</tr>
<tr>
<td>Engr 202 Dynamics</td>
<td>3</td>
<td>Math 165 and 166 and 265</td>
</tr>
<tr>
<td>Engr 203 Mechanics of Materials</td>
<td>3</td>
<td>Phys 251 and 252</td>
</tr>
<tr>
<td>CE 306 Fluid Mechanics</td>
<td>3</td>
<td>(calculus-based)</td>
</tr>
<tr>
<td>ME 306 Fluid Mechanics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ME 341 Thermodynamics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Any regularly offered course at the 200 or higher level with the prefix Engr, ChE, CE, EE, GE or ME may be used as an elective.

Additional students may be admitted to an engineering degree program at other times if positions become available and interim admissions are allowed. Except under special circumstances, these additional students must be enrolled at the University of North Da-
kota. Only those students who have received final or conditional admission status will be allowed to preregister for upper division engineering courses. Final admission status must be granted for actual enrollment in upper division engineering courses to occur.

Reappplication Procedure. Non-admission to any degree program may be appealed through the School of Engineering and Mines Program Appeals Committee. Reappplication may be made during the next application session.

ACADEMIC AND ENROLLMENT POLICY

General. Students will not be allowed to re-enroll in an engineering course which they have unsuccessfully completed until the second course the course is offered following their first enrollment, unless space is available. Unsuccessful completion is defined as either withdrawal after the last day to add (typically the tenth day of classes) or failure to achieve an acceptable grade.

A minimum 2.00 overall GPA and 2.00 UND GPA in each degree program is required of all students in engineering. If either of these GPAs drop below 2.00, the student is placed on probation for one semester. Upon completion of the probation semester the minimum GPA requirements must be satisfied.

Dismissal. Dismissal from the School of Engineering and Mines will result if the conditions of probation are not met. For a student wishing to return to the School of Engineering and Mines following dismissal, an Application for Reinstatement must be submitted to the appropriate department. A denial of reinstatement may be appealed to the School of Engineering and Mines Program Appeals Committee.

Appeals. Appeals of the Dean’s decisions, and all appeals regarding admission and reinstatement, are heard by the School’s Program Appeals Committee, which is composed of one faculty member from each department and three student representatives.

GRADUATION REQUIREMENT

A student in Engineering must obtain a 2.0 overall Grade Point Average and a 2.0 GPA for engineering courses required in the School of Engineering and Mines to satisfy graduation requirements for a degree from the School of Engineering and Mines. A student who transfers to the University of North Dakota from another college or university must also attain a 2.0 GPA for at least 30 credit hours of approved coursework taken at the University of North Dakota. Some programs have additional course requirements for transfer students.

COOPERATIVE EDUCATION

The programs offered by the School of Engineering and Mines prepare students for entry-level professional practice. Since career-related work experience is a valuable adjunct to the academic programs, students are encouraged to participate in the cooperative education program offered through Career Services. Students who participate in the cooperative education program are usually placed in para-professional positions in industry or government, gaining valuable working experience while seeing practical applications of the subjects in their academic studies. In addition, students can increase their understanding of career choices available in their professional fields while gaining valuable experience. Students may be able to earn academic credit for their co-op experience.

GENERAL CURRICULUM IN ENGINEERING

FIRST AND SECOND YEARS

The first year of the general curriculum permits a student to continue in any engineering degree program with little modification to his/her departmental program. Students who complete the third or the fourth semester of the general curriculum are required to modify their programs from those listed by their department but can, by proper scheduling, complete their degree requirements at the end of eight full semesters. Students who have not decided upon an engineering department should take the course of studies outlined in the general curriculum until they have made a departmental choice, at which time they should obtain departmental counseling on their academic program.

FRESHMAN YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 121, 122</td>
<td>General Chemistry I, II</td>
<td>(4)</td>
<td>(4)</td>
</tr>
<tr>
<td>Engl 110</td>
<td>College Composition I</td>
<td>(3)</td>
<td>(3)</td>
</tr>
<tr>
<td>Engr 101</td>
<td>Graphical Communications</td>
<td>(3)</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 165, 166</td>
<td>Calculus I, II</td>
<td>(4)</td>
<td>(4)</td>
</tr>
<tr>
<td>Phys 251, 251L</td>
<td>University Physics I</td>
<td>(4)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

Outlines for all four-year curricula are found in the Courses of Instruction section of the catalog. Students interested in ROTC programs should consult with their department chair and the Department of Military Science on curriculum options.

GENERAL EDUCATION REQUIREMENTS

The University requires completion of 39 credits of General Education Requirements (see General Education Requirements listing). Students enrolled in all Engineering programs must complete Philosophy 370, Ethics in Engineering and Sciences, or an approved alternative, and Economics 201, Microeconomics. All Engineering students should plan carefully the fulfillment of their university GER’s so they are inclusive of these Engineering Program Requirements.

COMBINED DEGREE PROGRAM

To encourage undergraduate engineering students to extend their studies to include a graduate degree, the School of Engineering and Mines has combined programs in Chemical, Civil, Electrical and Mechanical Engineering which permit students to earn both B.S. and M.S./M.Engr. degrees in an engineering discipline. This program allows students to designate two three-credit hour courses to count for both degrees.

- Students may be admitted to the Engineering Combined Degree Program after the completion of 95 credit hours towards the B.S. degree with a GPA of at least 3.0, and before completion of the B.S. degree.
- Completed applications must be received at the Graduate School by the deadline. One week after the start of classes. A complete application includes:
  - Graduate School application and application fee
  - 3 letters of reference
  - Statement of Purpose
  - Program of Study - Engineering Combined Degree

The two three-credit hour courses designated for both degrees must not have been completed at the time of application and they must have graduate course standing.

- The student is admitted to the Graduate School on completion of 125 credit hours towards the B.S. degree with a GPA of 3.0 or higher.
- Students in the program may opt to be awarded their B.S. and M.S. degrees sequentially or at the same time.
STUDENT ORGANIZATIONS AND PROJECTS

Student Societies. There are student chapters of each of the following professional and technical societies: American Institute of Aeronautics and Astronautics, American Institute of Chemical Engineers (AIChE), Sigma Gamma Epsilon, Tau Beta Pi are engineering or geology honor societies whose purpose is to recognize excellence in the scholarship.

Electrical and Computer Engineers (IEEE), the Institute of Electrical and Electronics Engineers (IEEE), IEEE Computer Society, the Society of Women Engineers (SWE).

Honor Societies. Eta Kappa Nu, Sigma Gamma Epsilon, and Tau Beta Pi are engineering or geology honor societies whose purpose is to recognize excellence in the scholarship.

Engineers’ Student Council. The Engineers’ Council of the University of North Dakota, founded in 1920, is a student organization representing all departments of the School of Engineering and Mines. The Engineers’ Council, as a student chapter of the National Society of Professional Engineers (NSPE), is open to all engineering students. Its membership includes the vice president and one member of the student chapters of AIChE, ASCE, ASME, IEEE and SWE; the vice presidents of Eta Kappa Nu, Sigma Gamma Epsilon, and Tau Beta Pi; and the engineering student senator.

DISTANCE ENGINEERING DEGREE PROGRAM

The Distance Engineering Degree Program (DEDP) offers baccalaureate degrees in chemical, civil, electrical and mechanical engineering via the Internet and on-campus laboratories. This program is offered in cooperation with the Division of Continuing Education at the University of North Dakota.

On-campus courses are recorded and the files are available shortly thereafter through the Internet to each student enrolled in DEDP. Through this program, students are able to complete their degree programs while taking the majority of their courses at their “home site.” Students are required to travel sometime during the summer months to the UND campus to complete the laboratory portions of their programs. Students have opportunities to interact with faculty through phone, fax and email. For further information please contact the Division of Continuing Education at 1-800-342-8230.

Projects. The School actively encourages students to participate in engineering projects to gain experience in team activities involving students from other disciplines. Examples of typical projects include the concrete canoe, AgCAM - remote sensing from the International Space Station, steel bridge, fuel cell car, remote sensing, and UAVs.

THE GRADUATE SCHOOL

The Graduate School provides qualified post-baccalaureate students with the opportunity for advanced study toward a graduate degree. The Graduate School promotes excellence in scholarship and creativity, and encourages original research and competency in technical and professional fields. It is responsible for general supervision of all graduate activity in the departments, schools, and colleges of the University.

The majority of the graduate courses are offered on the Grand Forks campus; however, each semester some graduate courses are offered off campus through cooperative agreements between the Graduate School and the UND Division of Continuing Education. A number of distance degree programs are offered throughout the state of North Dakota. Students wishing to enroll in distance courses and programs must follow all graduate school policies and procedures.

The Graduate School is a member of the Midwest Association of Graduate Schools, the Western Association of Graduate Schools, the American Indian Professional Association, the National Association of Graduate Admissions Professionals, and the Center for Academic Integrity. The Graduate School is one of the one hundred charter members of the Council of Graduate Schools in the United States.

The Dean is the chief administrative officer of the Graduate School. Graduate School policy is set by the Graduate Faculty which is made up of the President, the Vice President for Academic Affairs, the Dean of the Graduate School, and members of the University faculty who have been approved for membership on the Graduate Faculty. Approximately 525 faculty are members of the Graduate Faculty.

The Graduate Committee is the executive body of the Graduate Faculty. It is composed of the Graduate Dean, the Associate Dean, thirteen faculty members, that are elected by the Graduate Faculty to represent each of the academic areas, and one student member. The Committee formulates Graduate School policy, monitors program development on behalf of the Graduate Faculty, and serves as an appeal board for student petitions. Only members of the Graduate Faculty normally may serve on Faculty Advisory Committees and serve as advisors for graduate students.

GRADUATE SCHOOL ACADEMIC AREAS

The Graduate School is organized into thirteen academic areas. These areas and the programs or departments that comprise them are listed below.
Aerospace Sciences: Atmospheric Sciences, Aviation, Earth Systems Science & Policy, Space Studies
Basic Medical Sciences: Anatomy & Cell Biology, Biochemistry & Molecular Biology, Microbiology & Immunology, Pharmacology, Physiology & Therapeutics
Education: Educational Foundations & Research, Educational Leadership, Instructional Design & Technology, Teaching & Learning
Engineering: Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering.
Fine Arts: Art, Music, Theatre Arts
Health Professions: Clinical Laboratory Science, Occupational Therapy, Physical Therapy, Physician Assistant
Human Development: Communication Sciences & Disorders, Counseling, Physical Education, Exercise Science & Wellness, Social Work
Humanities: History, Indian Studies, Philosophy & Religion
Mathematics and Natural Sciences: Biology, Chemistry, Computer Science, Geology & Geological Engineering, Mathematics, Physics
Nursing: Family & Community Nursing, Nutrition & Dietetics, Practice & Role Development (Nursing)
Social Sciences: Anthropology, Criminal Justice, Geography, Political Science, Public Administration, Psychology, Sociology
Speech and Language: Communication, English, Languages, Linguistics

THE GRADUATE COMMITTEE

The Graduate Committee is the executive council of the Graduate Faculty. In this capacity it is advisory to the Dean of the Graduate School and serves as the Graduate School Curriculum Committee. The Graduate Committee is responsible for hearing appeals of decisions on student academic matters rendered by the Dean of the Graduate School. The voting membership of the Graduate Committee consists of thirteen full members of the Graduate Faculty. These thirteen members of the Graduate Committee are elected by those members of the Graduate Faculty from each of thirteen academic areas, with each person elected to serve a three-year term. Non-voting ex officio members of the Graduate Committee include the Dean of the Graduate School, any Associate Dean(s), and the appointed graduate student member. The graduate student member must be enrolled in the Graduate School and will serve a one-year term. The membership roster of the Graduate Committee is available from the Graduate School and is posted on the Graduate School website.

RESEARCH AND SCHOLARSHIP AT UND

The faculty at the University of North Dakota are committed to the advancement of knowledge through research, and creative scholarship. High quality creative efforts are evidenced by a number of indicators including, but not limited to, publications, presentations, books, performances, exhibitions, and peer reviewed grants and contracts.

The Graduate School supports research with Summer Research Professorships, which allow faculty to work with their students on research, and Summer Doctoral Fellowships, which allow Ph.D. candidates to spend full-time on their research during the summer. The University operates a variety of research centers and also works closely with the North Dakota State Geological Survey and with the U.S. Department of Agriculture Human Nutrition Research Center, located adjacent to the campus.

ASSESSMENT

As an institution of higher education, the university is committed to ongoing assessment of student learning at all levels and in all programs. The Associate Dean of the Graduate School reports directly to the Dean and is primarily responsible for all aspects of Graduate School Assessment. Assessment of student learning is essential in order for the University to improve educational programs and the experiences of students. Students and faculty are encouraged to respond when asked to participate in surveys and other assessment activities. Students are also encouraged to collaborate in the planning and development of assessment activities and to make suggestions for improvements.

DEGREES GRANTED

The degrees conferred for graduate work are the Master of Arts (M.A.), Master of Accountancy (M.Acc.), Master of Physician Assistant Studies (M.P.A.S.), Master of Science (M.S.), Master of Education (M.Ed.), Master of Business Administration (M.B.A.), Master of Engineering (M.Engr.), Master of Environmental Management (M.E.M.), Master of Fine Arts (M.F.A.), Master of Music (M.M.), Master of Occupational Therapy (M.O.T.), Master of Public Administration (M.P.A.), Master of Science in Applied Economics (M.S.A.E.), Master of Social Work (M.S.W.), Doctor of Arts (D.A.), Doctor of Education (Ed.D.), Doctor of Philosophy (Ph.D.) and Doctor of Physical Therapy (D.P.T.). The Specialist Diploma is offered in Educational Leadership.

GRADUATE PROGRAMS

The University offers programs of study leading to the doctorate in 25 fields. Fifty-seven fields offer work leading to the master's degree. Many combinations of major and minor or cognate work are available for the degrees mentioned above. Thesis and non-thesis programs are available. Graduate certificate programs are also available in several areas.

For information on graduate courses, prospective students should refer to the departmental statements in other parts of this Catalog, the Graduate School Section of this Catalog. Updates may also be available on the Graduate School WEB site. Courses with 500 series numbers are graduate courses and are normally open only to graduate students. Only courses listed in the Graduate School Section of this Catalog carry graduate credit. Courses numbered over 300 in the Undergraduate section of this Catalog may, in certain instances, be included in a cognate area. Exceptions may apply to language courses where lower level courses may be allowed for a cognate.

ADDITIONAL INFORMATION

For detailed information students should consult the Graduate School Section of this Catalog or go to the Graduate School website at: http://graduateschool.und.edu. Address inquiries to the Dean of the Graduate School, 264 Centennial Drive, Mail Stop 8178, University of North Dakota, Grand Forks, ND 58202; Telephone (701) 777-2784; or 1-800-CALL-UND; or email at: gradschool@mail.und.nodak.edu.
**GRADUATE PROGRAMS AND DEGREES**

The following degree and certificate programs are offered through the UND Graduate School. Updates to this list may be found on the UND Graduate School website.

<table>
<thead>
<tr>
<th>Program</th>
<th>Degrees Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountancy</td>
<td>M.Acc.</td>
</tr>
<tr>
<td>Anatomy and Cell Biology</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Applied Economics</td>
<td>M.S.A.E.</td>
</tr>
<tr>
<td>Art (See Visual Arts)</td>
<td></td>
</tr>
<tr>
<td>Atmospheric Sciences</td>
<td>M.S.</td>
</tr>
<tr>
<td>Aviation</td>
<td>M.S.</td>
</tr>
<tr>
<td>Biochemistry and Molecular Biology</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Biology</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Business Administration</td>
<td>M.B.A.</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>M.S., M.Engr.</td>
</tr>
<tr>
<td>Chemistry</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>M.Engr., M.S.</td>
</tr>
<tr>
<td>Clinical Laboratory Science</td>
<td>M.A.</td>
</tr>
<tr>
<td>Communication</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Communication and Public Discourse</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Communication Sciences and Disorders</td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td>M.S.</td>
</tr>
<tr>
<td>Counseling</td>
<td>M.A.</td>
</tr>
<tr>
<td>Counseling Psychology</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Criminal Justice</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Early Childhood Education</td>
<td>M.S.</td>
</tr>
<tr>
<td>Early Childhood/Special Education</td>
<td>M.S., M.Ed.</td>
</tr>
<tr>
<td>Earth System Science and Policy</td>
<td>M.S., M.E.M.,</td>
</tr>
<tr>
<td>Educational-General Studies</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Educational Leadership</td>
<td>M.S.</td>
</tr>
<tr>
<td>Educational Leadership</td>
<td>M.S., M.Ed.</td>
</tr>
<tr>
<td>Education-General Studies</td>
<td>Spec. Dip., Ed.D., Ph.D.</td>
</tr>
<tr>
<td>Engineering</td>
<td>M.S., M.Engr.</td>
</tr>
<tr>
<td>Engineering</td>
<td>M.S., M.Ed.</td>
</tr>
<tr>
<td>Engineering</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>English Language and Literature</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td>M.S., M.Engr.</td>
</tr>
<tr>
<td>Geography</td>
<td>M.A., M.S.</td>
</tr>
<tr>
<td>Geological Engineering</td>
<td>M.S.</td>
</tr>
<tr>
<td>Geology</td>
<td>M.A., M.S.</td>
</tr>
<tr>
<td>Geology</td>
<td>M.S.</td>
</tr>
<tr>
<td>History</td>
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<tr>
<td>Geology</td>
<td></td>
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<tr>
<td>History</td>
<td></td>
</tr>
<tr>
<td>Industrial Technology</td>
<td>M.S.</td>
</tr>
<tr>
<td>Instructional Design and Technology</td>
<td>M.S., M.Ed.</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>M.S.</td>
</tr>
<tr>
<td>Linguistics</td>
<td>M.A.</td>
</tr>
<tr>
<td>Mathematics</td>
<td>M.S., M.Ed.</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>M.S., M.Engr.</td>
</tr>
<tr>
<td>Microbiology and Immunology</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Music</td>
<td></td>
</tr>
<tr>
<td>Music Education</td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td></td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td></td>
</tr>
<tr>
<td>Pharmacology, Physiology and Therapeutics</td>
<td></td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Physician Assistant Studies</td>
<td>M.P.A.S.</td>
</tr>
<tr>
<td>Physics</td>
<td>M.S., Ph.D.</td>
</tr>
<tr>
<td>Psychology</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Public Administration</td>
<td>M.P.A.</td>
</tr>
<tr>
<td>Reading Education</td>
<td>M.S., M.Ed.</td>
</tr>
<tr>
<td>Secondary Education</td>
<td></td>
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<tr>
<td>Secondary Education</td>
<td></td>
</tr>
<tr>
<td>Secondary Education (see Education-General Studies)</td>
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</tr>
<tr>
<td>Social Work</td>
<td>M.S.W.</td>
</tr>
<tr>
<td>Sociology</td>
<td>M.A.</td>
</tr>
<tr>
<td>Space Studies</td>
<td>M.S.</td>
</tr>
<tr>
<td>Special Education</td>
<td>M.S., M.Ed.</td>
</tr>
<tr>
<td>Special Education/Cognitive/Developmental Disabilities</td>
<td>M.S., M.Ed.</td>
</tr>
<tr>
<td>Special Education/Emotional Disturbance</td>
<td>M.S., M.Ed.</td>
</tr>
<tr>
<td>Special Education/Learning Disabilities</td>
<td>M.S., M.Ed.</td>
</tr>
<tr>
<td>Special Education Strategist</td>
<td>M.S., M.Ed.</td>
</tr>
<tr>
<td>Special Education/Visual Impairment</td>
<td>M.S., M.Ed.</td>
</tr>
<tr>
<td>Speech-Language Pathology</td>
<td>M.S.</td>
</tr>
<tr>
<td>Teaching and Learning</td>
<td>Ed.D., Ph.D.</td>
</tr>
<tr>
<td>Technology Education</td>
<td>M.S.T.E.</td>
</tr>
<tr>
<td>Theatre Arts</td>
<td>M.A.</td>
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<tr>
<td>Visual Arts</td>
<td>M.F.A.</td>
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**The School of LAW**

**Kathryn R.L. Rand, Dean and Floyd B. Sperry Professor**

**HISTORY AND MISSION**

The School of Law, established in 1899, is a graduate professional school of the University which awards the Juris Doctor degree. The curriculum is designed for the full-time student and covers a period of three academic years. The School of Law is a member of the Association of American Law Schools and is accredited by the American Bar Association’s Section of Legal Education and Admissions to the Bar. The mission of the School of Law is: 1) to educate students for professional service in the law and law related professions; 2) to explore legal issues of special significance to North Dakota and the region; 3) to attract a well-qualified and diverse student body and to assist students in making career decisions; 4) to promote improvements in the law and legal system, the legal profession, and the administration of justice; and 5) to further the overall goals and objectives of the University of North Dakota. Graduates are entitled to admission to the bar in the jurisdiction of their choice upon successful completion of that jurisdiction’s bar examination.

**PRE-LAW STUDIES**

There is no prescribed pre-law curriculum. The law school student body typically includes representatives of nearly every undergraduate field of study. The faculty of the School of Law strongly recommends a broad and liberal undergraduate program which combines rigorous and creative thinking, careful and thorough analysis and substantial oral and written communication opportunities. The major should be a subject area which interests and stimulates the student.

**ADMISSION**

Applicants for admission to the School of Law must be candidates for or have received a bachelor’s degree from an accredited
The School of Medicine and Health Sciences
Joshua Wynne, M.D., M.B.A., M.P.H., Senior Executive Vice President for Health Affairs and Executive Dean

HISTORY AND MISSION
The School of Medicine and Health Sciences consists of medical, biomedical research and other health-related academic components which work together to address our mission of educating and preparing North Dakota residents as physicians, medical scientists and other health professionals for service to the people of this region and the nation, and to advance medical and biomedical knowledge through research. These components include:

1. A statewide, four-year curriculum for medical students leading to the M.D. degree
2. Postgraduate medical education (residency) programs of three to five years in duration leading to eligibility for board certification in family medicine, internal medicine, general surgery and psychiatry; a one-year transitional program is also offered
3. A continuing medical education program to address the career-long need of physicians and other health care personnel for continued learning
4. Graduate programs in the biomedical sciences leading to the M.S. degree, Ph.D. degree, and the combined M.D./Ph.D. degree in anatomy and cell biology; biochemistry and molecular biology; microbiology and immunology; and pharmacology, physiology and therapeutics
5. Postdoctoral research training programs in the disciplines noted above
6. Graduate programs leading to master’s degrees in clinical laboratory science, occupational therapy and physician assistant programs
7. Undergraduate programs leading to the following degrees: B.S. in athletic training, B.S. in cytotechnology, and B.S. in clinical laboratory science
8. Undergraduate and graduate coursework in anatomy and cell biology; biochemistry and molecular biology; microbiology and immunology; and pharmacology, physiology and therapeutics

Each program noted above is fully accredited by its accreditation agency.

The School of Medicine was established in 1905 and offered, until 1973, the first two years of medical education. Students transferred to other medical schools for the last two years of medical education to earn the M.D. (Doctor of Medicine) degree. During that time, the school established a strong reputation across the nation for the quality and professional attitude of its students, who were welcomed enthusiastically by other medical schools. In 1973, state legislative action approved a four-year curriculum and authorized the granting of the M.D. degree. This was accomplished in stages using a 2:1:1 plan by which students transferred to medical schools in Minnesota for their third year and returned to North Dakota to complete their final year before receiving the M.D. degree. In 1981 the third year was established in North Dakota, providing for a complete in-state medical education program.
The University of North Dakota School of Medicine and Health Sciences recommends that students take elective courses that include subjects of liberal arts value such as humanities, economics, geography, history and philosophy so that the student’s educational experience will be broad and well-rounded. Computer literacy also is highly recommended. Students are urged to see their advisers regularly.

Application for admission to the School of Medicine and Health Sciences is available on July 1 and must be received no later than November 1 of the year preceding desired admission.

UNDERGRADUATE PROGRAMS

The following undergraduate degree programs in health sciences are administered by the School of Medicine and Health Sciences. See also the departmental listings.

Athletic Training

Students can pursue a Bachelor of Science degree in Athletic Training through the Division of Sports Medicine, Department of Family Medicine. This four-year degree is designed to prepare entry-level athletic training professionals. The academic program is accredited by CAATE. Graduates are eligible to take the national certification test administered by the Board of Certification, Inc. Successful completion of this test allows the graduate to be called a “certified athletic trainer.” Application information and requirements are available from the Division of Sports Medicine.

Clinical Laboratory Science (CLS)

The Department of Pathology offers a four-year academic program leading to the degree of Bachelor of Science in Clinical Laboratory Science (formerly medical technology). The degree includes two years of pre-clinical laboratory science education followed by two years of professional coursework. Students who have previously earned a B.S or B.A. degree may earn an additional degree in clinical laboratory science by completing a 4 + 1 curriculum option. Students may take much of the professional curriculum on-line through distance learning. Advancement from pre-clinical laboratory science to the clinical laboratory professional curriculum is based on a competitive application process. Application for advancement to the professional education component can be found online at http://www.med.und.nodak.edu/cls. The CLS program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Graduates of the program will be eligible to sit for a national board certification examination.

Clinical Laboratory Science Categorical Certificate

The Department of Pathology offers a CLS Categorical Training Certificate which provides advanced skills to baccalaureate-prepared students to become eligible to work in a highly complex clinical laboratory and meet the requirements to take a national certification examination in a specific categorical area. The requirements for entrance include a baccalaureate degree from an accredited college or university and completion of 20 semester hours in biology, chemistry and/or medical sciences (in addition to or part of the baccalaureate degree). The categorical certificate program includes four “category” choices: Immunohematology, Chemistry/Urinalysis, Microbiology, or Hematology/Coagulation. The curriculum consists of both lecture courses delivered over the Internet and laboratory experience-based courses. All coursework, whether lecture courses over the Internet or laboratory experience-based courses, are located at a clinical affiliation site.

Cytotechnology

The Department of Pathology offers a four-year, degree-granting program leading to the Bachelor of Science in Cytotechnology. A Certificate in Cytology is available to students who possess a baccalaureate degree with at least 20 semester hours of biosciences and 8

SUGGESTED UNDERGRADUATE COURSES FOR STUDENTS PLANNING TO STUDY MEDICINE

Four years of college preparation are recommended for students wishing to enter the medical education program of the University of North Dakota School of Medicine and Health Sciences, although a degree is not a requirement. The student is free to select a major in any area of interest, but must include the following mandatory credits:

<table>
<thead>
<tr>
<th>Minimum</th>
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<tbody>
<tr>
<td>Semester Hours</td>
</tr>
<tr>
<td>Chemistry, including laboratory .................................................</td>
</tr>
<tr>
<td>Inorganic and Qualitative ..................................................................</td>
</tr>
<tr>
<td>Organic* .......................................................................................</td>
</tr>
<tr>
<td>Biology, including laboratory ......................................................</td>
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<tr>
<td>Physics, including laboratory .....................................................</td>
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<tr>
<td>Psychology/Sociology ......................................................................</td>
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<tr>
<td>Language Arts (English, Speech, etc.) ..........................................</td>
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<tr>
<td>College Algebra or higher math ...................................................</td>
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* A student may substitute a semester or quarter of biochemistry for the final semester/quarter of organic chemistry.
hours of chemistry prior to admission. The program is accredited by the Commission on Accreditation of Allied Health Education Programs. Information about the program is available from the cytotechnology program director in the Department of Pathology (or online at: http://www.medicine.nodak.edu/cytotech/). Applications must be submitted by January 1 for the senior-year program beginning the following Fall semester.

**Histotechnician Certificate Program**

The Department of Pathology offers a Histotechnician Certificate Program. The certificate requires completion of prerequisite coursework before applications will be accepted. The curriculum consists of both lecture courses delivered over the Internet and laboratory experience-based courses. All coursework, whether lecture courses over the Internet or laboratory experience-based courses, are located at the clinical affiliation site. The Histotechnician Certificate Program is actively seeking accreditation from the National Accrediting Agency for Clinical Laboratory Science (NAACLS). The program has achieved “serious applicant status,” which gives eligibility for the students to complete the national certification exam.

**GRADUATE PROGRAMS**

The Ph.D., M.S. and joint M.D./Ph.D. programs are offered in the basic science departments (anatomy and cell biology, biochemistry and molecular biology, microbiology and immunology, and pharmacology, physiology and therapeutics). Professional graduate programs are offered in occupational therapy, physical therapy, physician assistant studies, and clinical laboratory science. All of these programs are described in the graduate school section of this catalog.

**Clinical Laboratory Science**

The Department of Pathology offers a Master of Science degree program in Clinical Laboratory Science. The degree is a non-thesis option that is offered primarily through online distance learning. It provides a broad medical science background as well as experiences in quality management and laboratory finance. This curriculum is designed to prepare students for careers as administrative laboratory directors, clinical laboratory consultants, technical supervisors or laboratory educators.

**Clinical Laboratory Science Management Certificate**

The Department of Pathology offers a Clinical Laboratory Science (CLS) Management Certificate at the graduate level. It provides advanced skills to practicing laboratory professionals in health administration, leadership, conflict management, quality assurance, and health informatics. The program is offered by online distance learning.

**Occupational Therapy**

The Occupational Therapy Department offers a five-year, entry-level Master of Occupational Therapy (MOT) degree. Occupational therapy as a profession is based on the belief that purposeful activity (occupation), including its interpersonal and environmental components, may be used to prevent and mediate dysfunction and elicit maximum adaptation. For information regarding the program, visit our website at: http://www.med.und.nodak.edu/depts/ot/home.htm.

The Occupational Therapy program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE). For information regarding accreditation, contact the ACOTE at 301-652-2682, or 4720 Montgomery Lane, PO Box 31220, Bethesda, MD 20824-1220. All basic professional programs must comply with the Standards for an Accredited Educational Program for the Occupational Therapist, 1998. Graduates of the program will be able to sit for the national entry-level certification examination for the occupational therapist, administered by the National Board for Certification in Occupational Therapy, Inc. (NBCOT, 800 South Frederick Avenue, Suite 200, Gaithersburg, MD 20877-4150; phone 301-990-7979). After successful completion of this examination, the graduate will be an Occupational Therapist Registered (OTR). Many states require licensure in order to practice; however, state licenses may be based on the results of the NBCOT certification examination.

A satellite, professional-level MOT program, also accredited by ACOTE, is available at Casper College, Casper, WY. Tuition and other information regarding the program is available by contacting the Occupational Therapy Department at Casper College, Casper, WY; telephone 307-268-2613. Wyoming residents may call 1-888-699-0006.

**Physical Therapy**

The physical therapy curriculum is accredited by the Commission on Accreditation of Physical Therapy Education (CAPTE). The six-and-one-half-year program leads to the degree of Doctor of Physical Therapy.

Applications for admission to the professional program may be obtained from the Department of Physical Therapy after November 1 and must be returned by February 1 of the calendar year the student wishes to gain entrance into the professional program.

**Physician Assistant Program**

The Department of Family and Community Medicine offers a Master of Physician Assistant Studies. This 24-month graduate program is accredited by the Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA). Enrollment is limited to registered nurses with a minimum of three years professional nursing experience. The program has also initiated a “pilot program” for other clinically practicing health care professionals who have a minimum of three years of clinical experience in their field of certification/licensure. A minimum of a baccalaureate degree is required. Graduates are eligible to take the national certification test administered by the National Commission on Certification of Physician Assistants, Inc. (NCCPA). For additional information, or to begin the application process, go to our website at: www.med.und.nodak.edu/physicianassistant.

**OTHER ACTIVITIES**

**Laboratory Education from North Dakota**

Laboratory Education from North Dakota (LEND), a program in the Department of Pathology, provides distance learning opportunities for laboratory professionals to earn continuing education units (CEUs). The Internet is used to deliver the courses and programs, with presentations and case studies available 24 hours a day, 7 days a week. Students earning undergraduate and graduate credit can apply the credits earned toward degrees in clinical laboratory science.

**Indians Into Medicine (INMED) Program**

The INMED Program was adopted in 1973 to serve American Indians who are enrolled members of federally recognized tribes. Through a comprehensive recruitment program, INMED seeks to identify and encourage students with an aptitude for and an interest in health careers. This recruitment begins as early as the middle school level. The program is committed to preparing professionals in all related health care fields. Each year the School of Medicine and Health Sciences allocates places in its first-year medical, physical therapy and occupational therapy classes to qualified American Indian students.

**FACILITIES**

The School of Medicine and Health Sciences has facilities in Grand Forks (the administrative center of the school), Bismarck,
The College of Nursing
www.nursing.und
Helen Melland, Interim Dean

MISSION AND ORGANIZATION

The mission of the College of Nursing is to educate individuals for professional roles in nursing and nutrition. The College strives to enhance the health of people in the region, nation and across the globe by preparing leaders in nursing and nutrition through innovative, accessible programs, and significant faculty and student scholarship and service.

The College is committed to fostering critical thinking and intellectual inquiry in a caring environment that assumes a positive regard for others and that affirmatively supports and promotes diversity. Students are encouraged to be self directed and participatory learners and to commit themselves to learning as a life-long process that is essential to meeting the needs of society in a constantly changing environment.

The College of Nursing offers professional programs with a foundation in the liberal arts leading to undergraduate degrees in nursing, community nutrition, and dietetics. Graduates of the nursing program are prepared in all areas of basic clinical nursing practice, have a solid foundation for graduate school, and are eligible to sit for the national licensing examination for registered nurses (NCLEX-RN). The baccalaureate program in dietetics, offered as a coordinated program, combines academic preparation with supervised practice experiences for students who wish to become registered dietitians (RD). Upon completion of this degree, graduates are eligible to take the examination for professional registration. The major in community nutrition is designed to enable students to develop a thorough understanding of nutrition and the ability to communicate those principles to the public. Graduates are prepared to work cooperatively with other professionals in improving the overall health of individuals and communities.

Graduate specialties within the masters program in nursing include: Anesthesia Nursing, Psychiatric and Mental Health Nursing, Gerontology Nursing, Public/Community Health Nursing, Nursing Education, and Family Nurse Practitioner preparation. The Ph.D. in nursing focuses on research with an emphasis on the nursing care of vulnerable and diverse populations and prepares graduates to be nurse educators.

The College of Nursing includes two nursing departments: Family and Community Nursing, Practice and Role Development; and the Department of Nutrition and Dietetics. The two departments in nursing jointly administer the undergraduate and graduate nursing programs, while the Department of Nutrition and Dietetics oversees the undergraduate programs in community nutrition and dietetics and a minor in nutrition.

ACCREDITATION

The graduate and undergraduate nursing programs are approved by the North Dakota Board of Nursing and accredited by the Commission on Collegiate Nursing Education. The nurse anesthesia program is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs.

The Coordinated Program in Dietetics is accredited by the Commission on Accreditation for Dietetics Education of the American Dietetic Association.

DEGREES AND REQUIREMENTS FOR GRADUATION

The College of Nursing offers the following degrees to students who successfully complete the prescribed course of study and who fulfill the degree requirements of the University:

- Bachelor of Science in Nursing (B.S.N.)
- Bachelor of Science in Dietetics (B.S.D.)
- Bachelor of Science in Community Nutrition (B.S.C.N.)
- Master of Science (M.S.)
- Doctor of Philosophy (Ph.D.)

All programs within the College of Nursing have minimum grade point averages that must be maintained.
LICENSING

Professional programs of nursing and nutrition are accountable to the public through licensure and registration processes. Many nursing and nutrition licensing boards may not grant licensure to practice if one has been convicted of a felony, and in some cases, a misdemeanor. Those with questions related to licensure are encouraged to consult with the regulatory board in the appropriate state prior to applying for admission to a program. Additionally, many field work and clinical facilities are currently requiring proof of immunizations, drug testing, fingerprints, and/or criminal background checks. Students are responsible for any associated costs.

NURSING PROGRAM

Admission and Progression Requirements

Students who wish to pursue an undergraduate degree in nursing should first apply to the University to be admitted as pre-nursing majors in the College of Nursing. Once a pre-nursing major has been declared, a nursing advisor will be assigned. Students must complete a formal application to the College of Nursing and be approved for admission by the College before enrolling in the nursing curriculum. See nursing major listing for specific requirements for admission and progression. All persons who wish to apply for admission to the undergraduate nursing major are advised to become informed of all admission requirements and to follow the suggested curriculum leading to the Bachelor of Science in Nursing. All qualified students, whether currently enrolled at or planning to transfer to UND, are considered on merit. Since the College of Nursing strives to reflect current trends in the nursing profession, there may be on-going changes in the curriculum.

Students with Disabilities

The UND College of Nursing is committed to providing equal access to qualified students who experience a disability in compliance with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act (ADA). Qualified students with disabilities have the right to request accommodations and will be provided with those accommodations which meet their needs and are appropriate.

Disabilities Covered by the ADA

Students with disabilities who may receive accommodations under the ADA experience learning, physical, sensory, vision, health, or psychological disabilities which substantially affect a major life activity (such as reading, writing, walking, communicating, seeing, hearing.) Some students have “non-apparent” disabilities such as learning, depression, Attention Deficit Disorder, or chronic diseases and may also be covered under ADA.

Student Disclosure

Students who seek reasonable accommodation for a disability should register with UND’s Disability Support Services. This is the office that determines a student’s eligibility for and recommends appropriate accommodations. DSS is located in McCannel Hall #190, 701-777-3425, http://www.und.edu/dept/dss/. If students are not sure they have a disability, but question the functional abilities (common tasks) that may be required to be successful in the nursing program, they should talk with the Director of Student and Alumni Affairs. The director also assists the students with disabilities who have registered with DSS in considering and arranging any recommended accommodations.

Additional information on requesting accommodations in nursing can be accessed on the College of Nursing web site at: http://www.nursing.und.edu under “Undergraduate Program” or is available on request.

Scholarships and Financial Aid

Each year, nursing majors may apply for College of Nursing scholarships. Awards and criteria are listed in the College of Nursing Undergraduate Student Handbook, also available on the Nursing Undergraduate web pages. Selection is based on a variety of factors including GPA, financial need, disadvantaged background, interest, and potential nursing ability. Additional information is available from the Undergraduate Nursing Student Handbook. Students in the nursing program are eligible to apply for federal nursing student loans and/ or North Dakota Board of Nursing Scholarship/Loans and institutional grants. A listing of selected websites which feature scholarships and loans for nursing education is available from the College of Nursing website.

Cooperative Education

Elective Cooperative education experiences are offered to students who have completed two semesters in the nursing program. Students will have the opportunity to increase their understanding of specialty areas within nursing and, additionally, to perform skills learned in prior and concurrent nursing courses while under the guidance of agency staff. Each learning/work experience is individualized according to the student’s prior academic and work experiences and the needs of the employing agency.

Student Organizations

College of Nursing Student Council. The College of Nursing supports a student council that represents the students within the university student governance and serves as an official channel of communication between the student body, the faculty, the administration, the College of Nursing and the University.

Nursing Student Association: NSA is the nursing student’s pre-professional organization. UND-NSA is affiliated with the North Dakota Student Nurses Association and the National NSA.

Nursing Honor Society: Eta Upsilon Chapter of Sigma Theta Tau International is affiliated with the College of Nursing. Sigma Theta Tau is the only honor society for nursing, and fosters excellence, scholarship, and leadership in nursing to improve health care worldwide.

Graduate Studies

The College of Nursing offers graduate coursework leading to a Master of Science degree with a major in nursing and a Doctor of Philosophy in nursing. Students interested in graduate study may contact the Associate Dean for Graduate Studies in the College of Nursing, consult the Graduate School section of this catalog for further information or visit our website at http://www.nursing.und.edu/grad.

NUTRITION AND DIETETICS

Academic Advising

Students are assigned to an adviser in the Department of Nutrition and Dietetics at the time of admission to the university if the student has declared a Dietetics or Community Nutrition major. Majors within the department are advised to follow the appropriate curriculum leading to either a Bachelor of Science in Dietetics or a Bachelor of Science in Community Nutrition (see department listing). There may be on-going curricular changes since the Department of Nutrition and Dietetics strives to reflect current trends in the profession.

Coordinated Program in Dietetics

The baccalaureate program in dietetics, offered as a coordinated program, combines academic preparation with supervised practice experiences for students who wish to become registered dietitians (RD). Upon completion of this degree, graduates are eligible to take the examination for professional registration.
Admission to the professional phase of the Coordinated Program in Dietetics. Application to the professional component of dietetics occurs annually in the spring semester for admission in the following fall semester. The application deadline is the last class day on the academic calendar prior to the break for spring semester recess. To be considered a candidate for admission, the student must have already completed, be currently enrolled in, or plan completion through summer school enrollment of all pre-professional courses (see department listing). Criteria for admission include a demonstrated interest in the field of dietetics, a minimum GPA of 2.6, and a grade of “C” or better in all nutrition, foods, and science courses.

To be eligible for consideration, the student must complete an application and submit it with a letter outlining professional goals and describing personal qualities that would assist in attaining these goals. Each candidate requests references from two individuals and completes a personal interview with each selection committee member. After all applicants have completed the steps in the admission procedure, the selection committee determines the members of the class entering in the fall. The number of students admitted is determined by the availability of faculty and clinical facilities.

Admission of transfer students to the Coordinated Program in Dietetics. Transfer students seeking admission to the professional phase of dietetics must fulfill the same prerequisite requirements as students who complete the preprofessional courses at the University of North Dakota. Students planning to transfer from another accredited institution to UND are advised to contact the Department of Nutrition and Dietetics to verify equivalency of courses on other campuses with those offered at UND prior to applying for admission. All qualified students, whether currently enrolled at or planning to transfer to UND, are considered on merit.

Progression requirements. Students in the professional component of the Coordinated Program in Dietetics will be placed on probation if performance evaluations are unsatisfactory, if the grade point average drops below 2.6, or if a grade of less than a “C” is earned in any course. Dietetic program faculty will meet with the student to discuss the probationary status and develop plans to correct the deficiency. All deficiencies must be removed before advancing to the next semester of the program. If deficiencies remain more than one year, the student must complete a re-acceptance application. Re-acceptance into the program will be on the basis of space available.

Additional expenses. The professional phase of the program has additional expenses due to supervised practice experiences, travel, and professional activities. Additionally, the schedule of classes and supervised practice experiences must have precedence in planning other time commitments, thus limiting employment opportunities. Definite plans for financing the costs of the two years of the professional phase should be arranged prior to application. An estimate of expenses is available from the Department of Nutrition and Dietetics. Financial aid and scholarships are available from various sources. The UND Financial Aid Office can assist in determining which resources are available to individual students.

Community Nutrition

The community nutrition curriculum is designed to allow students to develop an in-depth understanding of nutrition based on the biological and social sciences; the ability to communicate nutrition principles effectively and accurately to the public; and the ability to participate as a team member with other community and health care professionals. Through coursework and supervised practice experiences, graduates will be skilled in conducting community nutrition assessments, identifying problems, developing and conducting effective interventions, and collaborating with other professionals involved to improve the overall health of individuals and communities. A Community Nutrition graduate is eligible to become a licensed nutritionist (L.N.) in the state of North Dakota.

Graduation requirements. The student must earn a grade of “C” or better in all nutrition, foods, and science courses taken to fulfill requirements of the community nutrition major and must attain an overall grade point average of at least 2.2.

Minor in Nutrition

Students in other majors may elect to earn a minor in nutrition. The requirements of the minor are the completion of 20 semester hours of credit in nutrition-related courses. To develop the program of study, students must consult an adviser in the Department of Nutrition and Dietetics.

Scholarships

Students may apply annually for awards and scholarships offered within the Department of Nutrition and Dietetics. Various professional organizations also offer competitive scholarships. Information regarding eligibility and application guidelines may be obtained from the department.

Student Organizations

Student Association of Nutrition and Dietetics (SAND). SAND is the student association for all majors within the Department of Nutrition and Dietetics. Information regarding SAND may be obtained from its officers or from the faculty or staff in the department.

College of Nursing Student Council. The College of Nursing supports a student council that represents the students within the UND student government, including students with majors in the Department of Nutrition and Dietetics.
STUDENT SUCCESS CENTER

HISTORY AND SCOPE

The Student Success Center was created in the fall of 2007 as a result of combining the Adult Re-entry Center, Student Academic Services, and the University Learning Center, to provide comprehensive programs and services to students to aid in the development and implementation of their educational plans and goals. Through the Center’s programs and services, students are empowered to develop the skills and abilities to make a positive adjustment within the campus community. The Student Success Center focuses on three areas—advising, learning services, and programming.

ADVISING

The Student Success Center provides quality academic advising for all undergraduate students deciding on a major—new freshmen, transfer, current, and re-entering students. Professional advisers provide academic and referral services to students until a major is declared.

LEARNING SERVICES

Services and instruction are provided to assist students in successful academic achievement. These services include: drop-in tutoring, student success classes, and individual assistance and assessments for students with academic concerns.

Free drop-in tutoring, available to all UND students, is based on student demand and includes many 100 and 200 level courses, such as accounting, economics, foreign languages, mathematics, biology, chemistry, and physics. A complete listing of subjects and times for drop-in tutoring may be found at http://ssc.und.edu.

The Student Success Center offers the following success classes: UNIV 101 – Introduction to University Life, UNIV 125 – Introduction to Effective Study Skills, UNIV 126 – College Reading, and UNIV 127 – Critical Thinking Strategies for College Students. All classes are offered during the fall and spring semesters.

Individual assistance and assessment for students with academic concerns such as test-taking strategies, learning styles, study skills, and time management issues are offered through the Student Success Center. Workshop presentations are provided throughout the year to address similar issues.

PROGRAMMING

The Student Success Center provides a variety of programs designed to enhance student success from entrance to the University and throughout a student’s undergraduate experience. They include: Freshman and Transfer Getting Started (early registration programs), Keep Going (an academic advising informational session to help facilitate the transition for new students from the first to second semester), Staying on Track (a program designed to take a holistic approach to student learning), and Adult Re-entry programs and services (developed intentionally for the nontraditional/adult learner).

FRESHMAN GETTING STARTED

The Student Success Center conducts a special summer advisement and registration program to provide incoming freshmen students the opportunity to arrange their fall semester class schedules and learn about the University. Students receive individual attention from academic advisers, along with obtaining information from areas such as Housing and Dining Service, Student Account Services, and Student Financial Aid. The intent of the program is to provide an environment that is welcoming and comfortable for students and families to ask questions and gather information to fully prepare for entering UND in the fall semester. Students accepted for admission to the University are invited to participate in the Freshman Getting Started program.

TRANSFER GETTING STARTED

Scheduled in early spring, the Student Success Center facilitates a one-day advisement and registration program for admitted transfer students who will be entering UND for the summer or fall semester. Transfer students are able to meet with an adviser from their respective program of study, learn more about UND programs and services, and acclimate to the campus environment.

STAYING ON TRACK

In an effort to reach out to students and provide information to enrich their academic lives, Staying on Track takes place in early October—strategically at a time in the semester when students begin to find college life a bit more challenging. The program incorporates a holistic approach to student learning and student success. Presentations provided cover a wide range of topics such as time management, test taking tips, stress management, reading a college textbook, note taking, money management, and living a healthy lifestyle.

KEEP GOING

This program was developed to answer the questions freshman and transfer students face as they approach the advising process for the second semester of enrollment. The program is designed to provide concrete information to students to prepare them to meet with their assigned academic adviser within their respective department, refresh their knowledge of the Campus Connection system, and exposure to the Essential Studies program in relation to their overall educational experience at UND.

ADULT RE-ENTRY

The Student Success Center is a place where non-traditional/adult learners are provided assistance as they navigate the many challenges of college life. Current and prospective non-traditional/adult learners will find a supportive atmosphere for gathering information and gaining re-entry assistance. Programs and services are delivered throughout the year to meet the unique needs of the nontraditional/adult learner. The Adult Re-entry Coordinator is located on the third floor of the Memorial Union in room 327.

AWARDS/RECOGNITION

D.J. Robertson Award

The D.J. Robertson Academic Award is presented each fall and spring in recognition of academic excellence by freshman students. These students must achieve a 4.00 grade point average and have completed a minimum of 12 semester hours of traditionally graded coursework.

Thomas J. Clifford Outstanding Freshman Award

The Thomas J. Clifford Outstanding Freshman Award recognizes a sophomore student who, in his or her freshman year, best exemplified the highest academic standards and leadership through participation in University extra-curricular activities and/or community service.

To qualify for the Thomas J. Clifford Outstanding Freshman Award, the student must have completed a minimum of 24 semester hours in two semesters preceding the award. Also, the student must not have completed more than 40 semester hours. This excludes credit earned while in high school and/or credit established through other special examinations. The student must be a present and/or previous recipient of the D.J. Robertson Academic Award.
SUMMER SESSION

SCOPE

Summer Session is an integral part of the academic program at the University of North Dakota. Both undergraduate and graduate courses are taught during the twelve-week Summer Session. In addition to regular classes, special classes, programs, field trips, workshops, conferences, and other short-term activities are conducted.

More than 300 faculty, as well as distinguished visitors, contribute to a quality educational program during the Summer Session. All facilities of the UND campus — including libraries, galleries, music facilities, theatres, lecture halls, dining rooms, and residence halls — are utilized by students attending the Summer Session.

SUMMER SESSION STUDENT BODY

Summer course offerings are for everyone, from juniors in high school to senior citizens. During the Summer Session, courses are offered for students who have completed their junior year in high school and wish to get an early start toward earning college credit. Other typical groups of students found on campus during the summer include: teachers and administrators working toward advanced degrees, students from other colleges, freshman students beginning their academic courses, adults updating their educational backgrounds, professionals wishing to work toward certification, and students wishing to accelerate completion of their degree programs.

SUMMER SESSION SCHEDULE

The twelve-week Summer Session allows students to register for a wide variety of courses which meet for various lengths of time during the Summer Session. Most courses are offered on a six-week session. In some instances courses may be taught in sequence.

CLASSIFICATION OF SUMMER SESSION STUDENTS

Full-Time Undergraduate Student. A full-time Summer Session undergraduate student is one who has been admitted to the University and is enrolled in a minimum of nine credit hours during the twelve-week Summer Session.

Part-Time Undergraduate Student. A part-time Summer Session undergraduate student is one who has been admitted to the University and is enrolled for fewer than nine hours of credit during the twelve-week Summer Session. A student must be enrolled in a minimum of one semester hour to be within this part-time classification.

ADDITIONAL INFORMATION

For detailed information on the summer program, students should consult the Summer Sessions web site at: www.summer.und.edu, or contact the Summer Session Office, University of North Dakota, P.O. Box 8375, Grand Forks, ND 58202-8375.

SUMMER PROGRAMS AND EVENTS OFFICE

The Summer Programs and Events Office coordinates summer activities, both credit and non-credit, and promotes and markets them to the Greater Grand Forks community and beyond. Additionally, the personnel provide administrative support to the Summer Programs and Events Council. The office is located in Gamble Hall, Room 9B, 701-777-0841, http://www.summer.und.edu.
This section of the catalog includes, in alphabetical order, department and program area requirements and course descriptions.

The University publishes electronically an official Schedule of Courses before the beginning of each academic term. It lists the class period, building, and room assigned to each course offered that semester or summer session.

**ENROLLMENT RESTRICTIONS**

Enrollment in some University of North Dakota classes is restricted to students who have been admitted into specific major concentrations, who have achieved specific classification status, or who have completed course prerequisites. In some high demand areas, not all students who request a particular course may be admitted in a given semester because of staffing or other University limitations. Generally, the University registers undergraduate students in order of their classification; nevertheless, the University does not guarantee that a student will be able to enroll in a specific course during any given semester. Students must be registered to attend a class session.

**COURSE NUMBERS**

Courses numbered in the 100s are intended primarily for freshmen; in the 200s for sophomores; in the 300s for juniors; in the 400s for seniors and in the 500s for graduates.

The numbers 199, 299, 399 and 499 are reserved for Honors Program Courses.

**CREDIT**

All academic units are expressed in terms of semester credit, which represents one class period of lecture or two hours of laboratory for each of the weeks that constitute a semester.

**FREQUENCY OF OFFERINGS**

The following symbols at the end of the course description indicate when and how often a class is usually available for registration.

- **F** usually every Fall semester
- **S** usually every Spring semester
- **SS** usually every Summer session
- **F/2** usually every other Fall semester
- **S/2** usually every other Spring semester

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**Accountancy (Acct)**

http://business.und.edu/dept/programs/baaccountancy.cfm

Altepeter, Beard, Byars, Campbell, Carlson (Chair), de Magalhaes, Dosch, Ellingson, Hansen, Harmeson, Loyland and Wilde

**College of Business and Public Administration**

The Department of Accountancy has been preparing individuals for careers in business, including professional accounting, since 1927. Faculty have a long-standing tradition of interaction with a wide range of accounting professionals. Department faculty were instrumental in establishing the North Dakota Society of Certified Public Accountants.

Professional accountants face a variety of challenges and opportunities in their careers. To achieve success as a professional accountant, individuals must have a sound foundation in the liberal arts and sciences, a broad general understanding of business, a solid technical base in accounting, and a well developed ability to communicate in oral and written form. The accounting programs offered by the faculty provide the range of experience and knowledge needed for success as a professional accountant. The faculty’s programs also fulfill general University and College of Business graduation requirements.

**Mission Statement**

The mission of the Department of Accountancy is to prepare individuals for professional careers in accounting and business.

**Values Statement**

Faculty value:
- High quality teaching, scholarship and professional and public service;
- Relevance and innovation in curriculum, instructional methods, scholarship and professional and public service;
- Good relationships with our alumni and recruiters;
- Interaction with the profession and community;
- High standards of professional and ethical conduct;
- A climate that fosters continuous improvement.

**Vision Statement**

Faculty see a future where:
- UND’s Accountancy program is recognized by employers and the general public as the best in the region. When people in the region think of accounting, they will think of UND;
- The Accountancy faculty are leaders in the College of Business and Public Administration.

**Program Learning Goals**

As a result of active participation in the Department’s program(s) of study, accounting graduates will:

1. Understand and be familiar with fundamental business knowledge to include accounting and business terminology, concepts, principles, methods, and procedures.
2. Possess computer skills relevant to entry level accounting professionals.
3. Demonstrate critical thinking skills applicable to accounting and business decisions.
4. Understand the need to continually acquire knowledge and skills to effectively address emerging issues and complex business problems.
5. Be able to work effectively individually and in teams, and possess good oral and written communication skills.
6. Be aware of the ethical issues related to business and their chosen profession and career path.

In achieving this mission, faculty place the highest emphasis on teaching and learning. In addition, the importance of scholarly activities and service is recognized by faculty.
Programs

Accountancy faculty offer two programs — the Bachelor of Accountancy (B.Acc.) and the Bachelor of Business Administration with a major in Managerial Finance and Accounting (B.B.A.), offered jointly with the Department of Finance. The B.Acc. program is designed for students interested in becoming Certified Public Accountants (CPA). The CPA is a national designation that requires passage of a qualifying examination. The requirements to sit for the CPA examination are governed by individual states (more about the CPA examination below).

The B.B.A., a joint program in finance and accountancy, provides some flexibility for students to tailor their programs of study. As such, it is designed primarily for individuals interested in becoming a Certified Management Accountant (CMA) or a Certified Financial Manager (CFM).

Both the CMA and CFM are national designations that also require the passage of a national examination. Students have the option to emphasize either managerial finance or corporate accounting with the available electives.

BACHELOR OF ACCOUNTANCY

Required 126 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. College of Business and Public Administration Requirements, see College listing and including:

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</tr>
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IV. Students must complete at least 90 semester hours of non-accounting courses. Accounting 218 and business law courses are not considered accounting courses for this requirement.

B.B.A. WITH MAJOR IN MANAGERIAL FINANCE AND ACCOUNTING

Required 127 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. College of Business and Public Administration Requirements (see BPA College listing) and including:

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THE CERTIFIED PUBLIC ACCOUNTANT (CPA) EXAMINATION

While the American Institute of CPAs writes the CPA examination, each state is responsible for establishing the requirements to use the CPA designation. According to North Dakota law and rules of the North Dakota State Board of Accountancy, individuals are currently eligible to sit for the Uniform Certified Public Accountant Examination with a bachelor’s degree that includes at least 24 hours of accounting beyond Elements and 30 hours of business courses and at least 150 semester hours of college courses.

The B.Acc. program meets the current requirements for accounting and business courses, however, the B.Acc. program does not meet the 150 hour requirement. Students interested in becoming CPAs should be prepared to either extend their undergraduate program by an additional 24 credit hours or to continue their study at the graduate level. The most likely graduate alternative would be the Master of Accountancy (MAcc) or the Master of Business Administration (MBA).

THE CERTIFIED MANAGERIAL ACCOUNTANT (CMA) EXAMINATION

The Institute of Management Accountants (IMA) establishes the standards or criteria for achieving the CMA designation. While the CMA examination is similar to the CPA examination, the CMA examination concentrates more heavily on corporate accounting and financial analysis.

THE CERTIFIED FINANCIAL MANAGER (CFM) EXAMINATION

The Institute of Management Accountants (IMA) establishes the standards and criteria for achieving the CFM designation. The CFM examination is very similar to the CMA examination except that the CFM examination is more focused on finance issues.
For more information regarding any of the above certifications, please visit the website of the sponsoring organization.

As a result of changing work conditions, both programs of study should be considered as minimums necessary for future success in the chosen designation.

Courses

200. Elements of Accounting I. 3 credits. Basic principles of the complete accounting cycle. F, S.

201. Elements of Accounting II. 3 credits. Prerequisite: Acct 200 or Acct 275. Special emphasis on partnership, corporate accounting, and the uses of accounting information by managers. F, S.

218. Advanced Spreadsheet Applications. 3 credits. Prerequisites: Acct 201 and ISys 117. Corequisite: Acct 201. Advanced techniques in computer spreadsheet applications. F, S.

275. Accounting for Pre-MBA. 3 credits. No credit allowed to students who have completed Acct 201. Financial and managerial accounting concepts and practices oriented towards the decision maker. F, S.

301. Intermediate Accounting I. 3 credits. Prerequisite: Acct 201 and prerequisite or corequisite Acct 218; Sophomore, Junior or Senior Standing; declared and pre-CoBPA majors only. Concepts, time value of money, current assets, current liabilities, plant and equipment, and intangibles. F, S.

302. Intermediate Accounting II. 3 credits. Prerequisites: Acct 301; Junior or Senior Standing; declared CoBPA majors only. Corporations, long-term liabilities, investments, statement analysis, and cash flow statement. F, S.

310. Accounting Information Systems. 3 credits. Prerequisites: Acct 301; Junior or Senior Standing; declared CoBPA majors only. The application of systems design and use from the accountant’s perspective. Coverage includes computerized and manual accounting systems, elements of internal control, flowcharting, and the interface of accounting and management information systems. F, S.

312. Fund Accounting. 3 credits. Prerequisites: Acct 201 and 218; Junior or Senior Standing; declared CoBPA majors only. Financial accounting, control, and reporting for governmental and not-for-profit entities. F, S.

320. Accounting for Production. 3 credits. Prerequisites: Acct 201 and prerequisites or corequisites Acct 218; Sophomore, Junior or Senior Standing; declared and pre-CoBPA majors only. Principles and techniques used to account for and analyze costs incurred to produce products or services. F, S.

380. International Accounting. 3 credits. Prerequisites: Acct 201; Junior or Senior Standing; declared CoBPA majors only. Topics include comparative accounting systems, environmental influences on accounting, international financial statement analysis, foreign currency transactions, international standards harmonization, international taxation, transfer pricing, and multinational performance evaluation. S.

397. Cooperative Education. 1-12 credits; may be repeated to a total of 12 credits. Prerequisites: Acct 301, 320; minimum 2.70 GPA overall; approval of the Director of Accounting Cooperative Education. On the job compensated work experience in various areas of Accounting. S-U grading only. F, S, SS.

401. Advanced Accounting. 3 credits. Prerequisites: Acct 302; Junior or Senior Standing; declared CoBPA majors only. Special problems in accounting including consolidated statements, partnerships, and foreign exchange. F, S.

402. Contemporary Accounting Theory. 3 credits. Prerequisite or corequisite: Acct 401 or consent of instructor; declared CoBPA majors only. A study of the emerging issues and the problems facing the accounting profession with special emphasis on the authoritative pronouncements as designated by the American Institute of CPAs and the Financial Accounting Standards Board. S-U grading not allowed. F, S.

405. Assurance Services. 3 credits. Prerequisites: Acct 302, 309, Econ 210; Junior or Senior Standing; declared CoBPA majors only. Explores methods of improving the quality of information or its context for decision makers. Examples include assurances on the reliability of financial statements, the processes and controls used to manage and operate businesses, assertions and agreements made to third parties, and regulatory compliance. F, S.

406. Independent Assurance. 3 credits. Prerequisites: Acct 405 or consent of instructor; declared CoBPA majors only. Auditing and assurance theory as applied by independent accountants. F, S.

410. Federal Individual Income Tax. 3 credits. Prerequisites: Acct 201; Junior or Senior Standing; declared CoBPA majors only. Federal income tax relating to individuals to include the more complex tax situations. A computerized individual income tax preparation is used as a part of the course. F, S.

411. Business Income Taxation. 3 credits. Prerequisites: Acct 302; Senior Standing; declared CoBPA majors only. Federal income tax relating to corporations and partnerships. Introduction to estate and gift tax and fiduciary income tax. F, S.

412. Advanced Tax. 3 credits. Prerequisites: consent of instructor; declared CoBPA majors only. Unified transfer tax, trusts and estates, other contemporary topics as appropriate, and techniques of tax research. F, S.

450. Contemporary Issues in Accounting. 3 credits. Prerequisites: Acct 302, 405; Senior Standing; declared CoBPA majors only. Corequisite: Acct 405. A critical analysis of contemporary issues in accounting. Written and oral presentations are required.

494. The Literature of Accounting. 1-3 credits, repeatable to 6 credits. Prerequisite: consent of instructor; declared CoBPA majors only. Directed studies in the recognized journals, periodicals, and professional publications of the field.

Business Law

315. Business in the Legal Environment. 3 credits. Prerequisite: Sophomore, Junior or Senior Standing. Prerequisite or Corequisite: Acct 201 and Econ 202; minimum total of 50 credit hours; declared and pre-CoBPA majors only. The legal environment of business, governmental regulation, contracts, and property. F, S.

316. Business Law. 3 credits. Prerequisites: Acct 315; Junior or Senior Standing; declared CoBPA majors only. Commercial paper; secured transactions, business organizations, and liability of professionals. F, S.

416. Advanced Business Law. 3 credits. Prerequisites: Acct 316 and Senior Standing; declared CoBPA majors only. Advanced topics and contemporary issues in business law including ethics, legal representation in business, and the impact of selected governmental regulations on businesses. F, S.

Anatomy and Cell Biology

(Anat)

http://www.med.und.nodak.eduidepts/anatomy/

Carlson (Chair), Carr, Dunlevy, Grove, Jackson, Meyer, Ruit and Watt

Courses

204. Anatomy for Paramedical Personnel. 3 credits. Two lectures per week presenting a system-based study of human gross anatomy. F, S.

204L. Anatomy for Paramedical Personnel Laboratory. 2 credits. Laboratory exploration of human gross anatomy to complement Anatomy 204. Prerequisite or Co-requisite: Anat 204. F, S.

498. Internship in Anatomy. 1-15 credits (repeatable to a maximum of 15 credits). Prerequisite: Junior or Senior standing and instructor consent. In-depth study and/or laboratory experiences in morphology. F, S, SS.

Anthropology

(Anth)

http://www.und.edu/dept/anthro/

Cuozzo, Leach, Mikulak, Porter (Interim Chair), Scharf and Stubblefield

College of Arts and Sciences

An undergraduate major in anthropology can serve as the nucleus for a general liberal arts education, or as the prerequisite for a graduate education that will qualify a person for positions in (1) college and university teaching, (2) research, and (3) administrative and applied positions in government, non-governmental organizations, and museums. American anthropology is divided into four main sub-areas—archaeology, cultural anthropology, linguistic anthropology, and physical anthropology. Undergraduate training includes work in all four areas. Anthropology at UND is especially strong in archaeology and most students have an opportunity to work on archaeological excavations or in the laboratory. Both a major and a minor are offered in anthropology.

B.A. WITH MAJOR IN ANTHROPOLOGY

Required 125 credits (36 of which must be numbered 300 or above and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum (33 Major Credits):

Anth 170 ............. Introduction to Biological Anthropology ...................... (3)
Anth 171 ............. Introduction to Cultural Anthropology ............................. (3)
Anth 172 ............. Introduction to Archaeology ........................................ (3)
Anth 480 ............. Senior Capstone Seminar ........................................... (3)

Method and Theory .. (9)

3 hours from (Cultural):

Anth 350 ............. Ethnographic Methods ..................................................... (3)
Anth 371 ............. Cultural Dynamics .......................................................... (3)
Anth 372 ............. Culture Theory ............................................................... (3)
MINOR IN ANTHROPOLOGY

Required 21 credits including:

Anth 170. Introduction to Biological Anthropology 3 credits.
Anth 171. Introduction to Cultural Anthropology 3 credits.
Anth 172. Introduction to Archaeology 3 credits.

3 hours from Method and Theory:

Anth 300. Archaeological Laboratory Methods 3 credits.
Anth 325. Human Origins 3 credits.
Anth 330. Human Variation 3 credits.
Anth 335. Primates 3 credits.
Anth 350. Ethnographic Methods 3 credits.
Anth 371. Cultural Dynamics 3 credits.
Anth 372. Culture Theory 3 credits.
Anth 375. Women in Prehistory 3 credits.
Anth 378. Physical Anthropology Method and Theory 3 credits.
Anth 420. Archaeological Origins of Plant and Animal Use 3 credits.
Anth 426. Lithic Technology 3 credits.
Anth 439. Human Osteology 4 credits.
Electives in Anthropology 9 credits.

Electives in Anthropology 12 credits.

Courses

100. Introduction to Anthropology. 3 credits. An introduction to the breadth of inquiry pursued by anthropologists, including the origins and biological evolution of humans, the prehistoric development of world cultures, and the interplay of biological, social, and cultural factors in present day societies. On demand.

120. Introduction to the Forensic Sciences. 3 credits. Introduction to Forensic Sciences for those who are curious about the many fields of the forensic sciences but have no previous background in: a) science; and/or b) forensic science. This course will explore some of the actual techniques illustrated in popular descriptions of the forensic sciences. In addition to lectures and discussions of the fields of the forensic sciences, students will engage in practical group and individual activities that will promote their understanding of what science is and how is it applied to crime solving and every day life. Students must be able to attend a one-hour laboratory section in addition to lecture times. On demand.

170. Introduction to Biological Anthropology. 3 credits. An introduction to the field of biological or physical anthropology. This course will provide a general background in human evolutionary biology. FS

171. Introduction to Cultural Anthropology. 3 credits. Examination of diversity and similarities across contemporary world societies. Topics: fieldwork and ethnographic description; theoretical approaches; communication/human language; interrelationships between environment, technology, social and political organization and worldview; sociocultural change; applied anthropology. Films and case studies illustrate intricacies of culture and how an anthropological perspective provides insights about our own society/culture. FS

172. Introduction to Archaeology. 3 credits. This course looks at how we investigate past cultures using the artifacts that people have left behind. What questions do archaeologists ask about the past? How do archaeologists find and record archaeological sites? What field and laboratory techniques are used to collect evidence and gather data, and how do these methods work? How do we interpret and understand the past using archaeological hypotheses, explanations, models, and theories? Case studies will be drawn from different regions, cultures, and time periods to illustrate course concepts. FS

200. World Prehistory. 3 credits. In this course we explore the extraordinary five million year-long record of human cultural achievements, as reconstructed by scientific archaeology. We will focus on prehistoric societies (those that existed before the advent of writing and written history), on what happened in the past, and how the major milestones in the development of world cultures came about. These milestones include the cultural evolution of our earliest hominid ancestors from almost 5 million years ago, the two million year-long persistence of the hunting and gathering way of life, the origins of agriculture and farming societies, and the rise and collapse of prehistoric civilizations. FS

209. Special Topics. 1-4 credits. Repeatable when topics vary. FS

270. Introduction to Forensic Anthropology. 3 credits. Forensic anthropology is the study of skeletal remains in a medicolegal context for the purpose of identification and trauma analysis. This course covers the history of this field, its relevance to death investigation in the United States, and the theories and techniques applied to skeletal identification. On demand.

300. Archaeological Laboratory Methods. 3 credits. Prerequisites: Anth 172 and permission of instructor. A hands-on introduction to the basic processing, organizing, and analytical techniques used in the archaeological laboratory. Excavated materials from prehistoric sites will be used for lab exercises and demonstrations. Includes lecture and lab. S

309. Special Topics. 1-4 credits. Repeatable when topics vary. FS

325. Human Origins. 3 credits. Prerequisites: Anth 170 or consent of instructor. A description of the fossil evidence for primate and human evolution with an emphasis on the origins and evolution of the hominid and human lines. On demand.

330. Human Variation. 3 credits. Prerequisite: Anth 170 or consent of instructor. An examination of the range of human physical variation, with a special emphasis on its adaptive nature. On demand.

335. Primates. 3 credits. A survey of the biology and behavior of the living primates, with a special emphasis on similarities and differences to humans. On demand.

340. Medical Anthropology. 3 credits. An examination of the human biological and cultural responses to health and disease as seen from an anthropological perspective. F

345. Forensic Science. 3 credits. An exposure to the basic methods and theoretical bases and inter-relationships of the forensic sciences. A major emphasis is placed on death investigation. FS

346. Analysis of Forensic Evidence. 3 credits. Pre- or Corequisites: Anth 345; Forensic Science majors, Criminal Justice majors and minors, and Anthropology majors only, or instructor’s consent. Emphasis on the practical applications of the forensic sciences. Whenever possible and practical, hands-on exercises will reinforce course topics. FS

350. Ethnographic Methods. 3 credits. Prerequisite: Anth 171 or by special permission. Introduction to fieldwork methods and analytic approaches used by cultural anthropologists in their ethnographic research; class discussion topics will include ethical issues, framing of research problems, the writing of ethnographic accounts, and modes of presentation of research results. On demand.

370. Language and Culture. 3 credits. Prerequisite: Anth 171 or consent of instructor. Fundamentals of modern linguistics; utility of linguistic concepts of culture analysis; interaction of language with other cultural subsystems. S

371. Cultural Dynamics. 3 credits. Prerequisite: Anth 171. Focus on sociocultural change along a selected theme, such as “the local and the global,” “ethnic minorities and nation-states,” or “ethnographer as researcher and writer.” Also considered are theoretical orientations in the study of society/culture, fieldwork, ethics, and anthropologists’ roles with respect to public policy. F

372. Culture Theory. 3 credits. Prerequisite: Anth 171. An overview of the ideas and approaches that have played a role in the development of anthropological studies of societies and cultures. Focus on the contributions of major figures in anthropology, in the past and at present, as well as current issues within the discipline. Once every 3 semesters.

373. Indians of Latin America. 3 credits. Prerequisites: Anth 171. Examination of traditional and modern Indian cultures of Latin America. Focus on the adaptation to cultural change, the impact of world economy, and the impact of resource exploitation on indigenous peoples. Every third semester.

375. Women in Prehistory. 3 credits. This course will explore recent research that explicitly illuminates women’s roles, behaviors and ideologies in the ancient past, and will examine methodological and theoretical attempts to understand how gender can be retrieved from the archaeological record. On demand.

376. The Aztec, Maya and Inca. 3 credits. Prerequisite: Anth 172. An examination of the high civilizations of Latin America with focus on the Aztec, Maya and Inca. Every third semester.

377. North American Archaeology. 3 credits. Prerequisites: Anth 172 or consent of instructor. Explores the fascinating cultural developments that have taken place throughout prehistory in North America (north of Mexico), ranging from the first peoples of the Americas to the emergence of complex chiefdoms, and from hunting and gathering to the development of intensive agriculture. On demand.

378. Physical Anthropology Method and Theory. 3 credits. Prerequisite: Anth 170. A discussion of current theoretical arguments within the field of physical anthropology and the techniques used to examine them. S

379. Culture Area Studies, 3 credits. May be repeated to maximum of 6 credits. A survey of peoples and cultures of selected areas. Selections based upon staff and student interest. F, S

380. Field Techniques in Archaeology. 1-6 credits. Prerequisites: Anth 172 or consent of instructor. SS

388. Method and Theory in Archaeology. 3 credits. Prerequisites: Anth 172 or consent of instructor. This course explores how archaeologists reconstruct the past: how they formulate research problems and conduct field work; what field and laboratory analysis tools they employ; how they make use of data, and theory to explain culture change. Techniques, methods, and theoretical frameworks used in modern prehis-
thetic archaeology are examined. Readings in the professional literature, case studies, and guest lecturers provide vivid examples of archaeologists in thought and action.

420. Archaeological Origins of Plant & Animal Use. 3 credits. Prerequisite: Anth 172. This course uses archaeological information to examine the relationships between humans and the plant and animal resources we exploit and will focus on specific examples of economic uses of both wild and domestic species, covering both prehistoric and modern consequences of how we interact with biological resources. Basic issues in floral and faunal analysis such as the recovery, quantification, analysis, and interpretation of plant and animal remains from archaeological sites will be presented in depth.

426. Lithic Technology. 3 credits. Prerequisites: Anth 172 or consent of instructor. Study of prehistoric stone tool technology and examination of the analytical methods used by archaeologists in lithics research.

439. Human Osteology. 4 credits. Prerequisites: Anth 170 or Anth 270 or Anth 204 or consent of instructor. This course is an intensive examination of human skeletal anatomy, covering the features of the entire human skeleton and the relationship of human osteology to other fields, including paleoanthropology, palaeopathology, forensic anthropology, and vertebrate anatomy.

441. Forensic Anthropology Field School. 1-6 credits. Prerequisite: consent of instructor. This course is a hands-on exposure to the field and laboratory methods of forensic anthropology.

465. Culture, Illness and Health. 3 credits. Prerequisites: Anth 171 or consent of instructor. Examination of culturally-based beliefs and practices involved in maintenance of health and the handling of illness in non-Western and modern societies.

480. Senior Capstone Seminar. 3 credits. Prerequisite: Senior major status and completion of two of the three method and theory requirements (cultural, archaeology, physical); or departmental permission. The seminar will examine current debates or an area of study involving two or more subfields of anthropology. The seminar will provide an opportunity for students to integrate knowledge and skills obtained in anthropology.


494. Readings in Anthropology. 1-5 credits. Prerequisite: consent of instructor. Designed for students who want instruction in subjects not covered adequately in usual course offerings. Special arrangements must be made with an instructor prior to registration.

497. Forensic Science Internship. 1-12 credits. Prerequisites: Junior or senior status, satisfactory completion of Chem 122 and Biol 151, and instructor consent. Students may enroll in this course after they have secured an internship position in a law enforcement agency, crime laboratory or other institution providing procedural and/or analytical processing of evidence from criminal or civil proceedings. Credits obtained will be determined based on length and content of the internship and course responsibilities.

S/U grading. N

College of Arts and Sciences

B.F.A. WITH MAJOR IN VISUAL ARTS

The Bachelor of Fine Arts program in Art is offered to students with marked abilities who desire an intensive undergraduate concentration in visual art, in preparation for either a career as a professional artist, for graduate study leading to the MFA, or both. Candidates accepted for the program will be expected to maintain a high standard of excellence, demonstrate significant artistic growth, and a 3.00 grade point average in all art courses.

Candidates seeking admission to the BFA program must submit an application to the chairperson who will then schedule a portfolio presentation and personal interview for the candidate with a committee consisting of three departmental faculty members. Each student’s portfolio will be reviewed annually by departmental faculty, who will make a recommendation concerning the student’s status in the BFA program. If probation is recommended, students may apply for readmission at the completion of a full semester. Readmission will be contingent upon faculty evaluation.

Before advancement to upper-division status, all BFA candidates must participate in review and evaluation by the departmental faculty.

Major Emphasis Area Courses:

At least 24 credits must be completed in one of the following emphasis areas:

Ceramics Drawing Fibers Painting
Photography Printmaking Jewelry and Metalsmithing
Sculpture Mixed Media Time-based Media

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum of 78 major credits:

All BFA degree majors in Art have a minimum requirement of 78 credits in Art and Art History courses. Distribution of these credits is as follows:

Core Requirements (15 credits):

Art 112 Basic Design .................................................. (3)
Art 114 Visual Persuasion .......................................... (3)
Art 120 Drawing I .................................................. (3)
Art 211 History of Art II .......................................... (3)
Additional supportive courses (9 credits):

Art 212 Concepts of Art ........................................... (3)
Art 230 Drawing II .................................................. (3)
Any 200-level graphic design or new media course ........................................... (3)

Studies in Studio Art outside emphasis area (12 credits):

200-level two-dimensional studio art courses ........................................... (3-6)
300-level two-dimensional studio art courses ........................................... (0-3)
300-level three-dimensional studio art courses ........................................... (0-3)

Studies in Art History (6 credits):

Any 100-level art history course .......................................................... (3)
Any 200-level art history course .......................................................... (3)

Studies in Studio Art Emphasis Area (24 credits):

200-level studio art courses .......................................................... (3-6)
300-level studio art courses .......................................................... (0-12)
400-level studio art courses .......................................................... (6-18)

494 Professional Exhibition ........................................... (3)

Art Electives (12 credits):

Any 300/400-level studio art or art history course .................................... (3)

Exhibition Requirement:

All BFA candidates are also required to produce a BFA Exhibition with the approval of their faculty adviser and in conjunction with the Art 494 course.

Art and Design

http://www.und.edu/dept/art/

Fink, Fundingsland, Ganje, Jones (Chair), Luber, Miller, Monsebroten, Paulsen, Smith and Widmer

The Art and Design Department provides opportunities for both the potential professional practitioner and the appreciator to study in the various disciplines and media of the visual arts. The broad categories are: two-dimensional (drawing, painting, photography, printmaking, and graphic design), three-dimensional (ceramics, sculpture, jewelry and metalsmithing, and fibers), digital time-based media, art history, and art education. A core of study in the foundations of the visual arts is followed by the development of skills and technical knowledge in the various media. These are prerequisites to the ultimate objective of nurturing growth in conceptual ability and creative production. The Art and Design department’s faculty are highly qualified and dedicated teachers, who are also seriously committed to professional productivity in their respective art disciplines. The Edmund Hughes Fine Arts Center provides more than 35,000 square feet for specialized studios and opportunities for work in visual arts media.

The Art and Design Department is an accredited institutional member of the National Association of Schools of Art and Design.
TEACHER LICENSURE

Through a partnership with the College of Education and Human Development and the Department of Teaching and Learning, students may seek secondary licensure in Art. The following program of study must be completed:

I. Requirements for the B.F.A. with major in Visual Arts.

II. Admission to the Secondary Program, normally while taking T&L 325. (See College of Education and Human Development for admission and licensing requirements.)

III. The program in Secondary Education, to include:

T&L 250 Exploring Teaching in Secondary Schools ........................................ (3)
T&L 339 Technology for Teachers ................................................................. (2)
T&L 345 Curriculum Development and Instruction ..................................... (3)
T&L 350 Development and Education of Adolescents ............................. (3)
T&L 386 Field Experience (Optional) ........................................................... (1)
T&L 390 Special Topic ................................................................................. (1-3)

ART 461 Methods and Materials of Teaching Middle and Secondary School Art ................................................ (3)
ART 432 Classroom Management ............................................................. (3)
ART 433 Multicultural Education ............................................................... (3)
T&L 486 Field Experience ......................................................................... (1)
T&L 487 A full semester of student teaching, normally taken during the semester of graduation ................................................... (16)
T&L 488 Senior Seminar ............................................................................. (1)

* T&L 390, Special Topics, may be taken as an elective.

Art majors seeking secondary licensure must have an adviser in both the Art Department and the Department of Teaching and Learning.

B.F.A. WITH MAJOR IN GRAPHIC DESIGN AND NEW ART MEDIA

Candidates seeking admission to the BFA program in Graphic Design and New Art Media must submit an application to the chairperson who will then schedule a portfolio presentation and personal interview for the candidate with a committee consisting of three departmental faculty members. Candidates accepted for the program will be expected to maintain a high standard of excellence, demonstrate significant artistic growth, and achieve a 3.00 grade point average in all art courses. Before advancement to upper-division status, all B.F.A. candidates must participate in review and evaluation by the departmental faculty.

Each student’s portfolio will be reviewed annually by departmental faculty, which will make a recommendation concerning the student’s status in the program. If probation is recommended, students may apply for readmission at the completion of a full semester. Readmission in the B.F.A. program in Graphic Design and New Art Media will be contingent upon faculty evaluation.

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The following curriculum of 78 major credits:

All BFA degree majors in Art have a minimum requirement of 78 credits in Art and Art History courses. Distribution of those credits is as follows:

Core Requirements (15 credits):

Art 112 Basic Design .......................................................... (3)
Art 114 Visual Perception ...................................................... (3)
Art 130 Drawing I ................................................................. (3)
Art 210 History of Art I .......................................................... (3)
Art 211 History of Art II .......................................................... (3)
Additional supportive courses (12 credits):

Art 240 Printmaking ................................................................. (3)
Art 251 Black and White Photography ......................................... (3)
Art 260 Color Photography ....................................................... (3)
Art 272 Time-based Media I: Time design and Digital Media ........... (3)

Studies in Studio Art outside emphasis area (9 credits from courses in drawing, painting, printmaking, photography, time-based media, sculpture, ceramics, fibers, or jewelry and metalsmithing):

Art 230 Drawing II ................................................................. (3)
200/300-level studio art courses .................................................... (3)
200/300-level studio art courses .................................................... (3)

Studies in Art History (9 credits):

Art 413 History of Graphic Design ...................................................... (3)
Any 400-level art history courses ................................................. (3)
Any 400-level art history courses ................................................. (3)

III. The following curriculum of 78 major credits:

Studies in Graphic Design and New Art Media (24 credits):

Art 273 Graphic Design Foundations ................................................. (3)
Art 382 Typography ................................................................. (3)
Art 480 Advanced Graphic Design ................................................ (3)
Art 481 Graphic Design Internship ............................................... (3)
Additional graphic design courses .................................................. (9)
494 Professional Exhibition .......................................................... (3)

Art Electives (9 credits selected from courses in graphic design, time-based media, printmaking, photography, drawing, painting, sculpture, ceramics, fibers, jewelry and metalsmithing, or art history):

300/400-level studio art or art history course .................................. (3)
300/400-level studio art or art history course .................................. (3)
300/400-level studio art or art history course .................................. (3)

Exhibition Requirement:

All B.F.A. candidates are also required to produce a BFA Exhibition with the approval of their faculty adviser and in conjunction with the Art 494 course.

B.A. WITH MAJOR IN VISUAL ARTS

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum of 42 major credits:

All BA degree majors in Art have a minimum requirement of 42 credits in Art and Art History courses. Distribution of those credits is as follows:

Core Requirements (15 credits):

Art 112 Basic Design .......................................................... (3)
Art 114 Visual Perception ...................................................... (3)
Art 130 Drawing I ................................................................. (3)
Art 210 History of Art I .......................................................... (3)
Art 211 History of Art II .......................................................... (3)

Studies in Studio Art (18 credits):

Any 200-level two-dimensional studio art course .............................. (3)
Any 200-level three-dimensional studio art course .............................. (3)
Any 200-level studio art course ....................................................... (3)
Any 300/400-level studio art course .................................................... (3)
Any 300/400-level studio art course .................................................... (3)

Studies in Art History (3 credits):

Any 400-level art history course ...................................................... (3)
Art Electives (6 credits):

Any 300/400-level studio art or art history course ............................... (3)
Any 300/400-level studio art or art history course ............................... (3)

MINOR IN VISUAL ARTS (Studio)

Required 21 credits including:

Art 110 Introduction to the Visual Arts ................................................. (3)
Art 112 Basic Design .......................................................... (3)
Art 130 Drawing I ................................................................. (3)
Art 230 Drawing II ................................................................. (3)
Additional studio art or art history courses ........................................... (9)

MINOR IN ART HISTORY

Required 24 credits including:

Art 112 Basic Design .......................................................... (3)
Art 120 Introduction to Drawing and Color Materials ......................... (3)
Art 210 History of Art I .......................................................... (3)
Art 211 History of Art II .......................................................... (3)

Additional 400-level art history courses ............................................. (12)

College of Education and Human Development

MINOR IN VISUAL ARTS EDUCATION (Middle or Secondary) See Minor in Art above.

Courses

100. Introduction to Sculpture. 3 credits. Introduction for non-majors to sculpture materials, process, and concepts. Appropriate art safety instruction will be included. F,S

110. Introduction to the Visual Arts. 3 credits. Study and analysis of artistic methods and meaning in the visual arts. Films, original works, slide, discussions, demonstrations. Structure and meaning of visual art forms as revealed through the analysis of psychological applications of art media. F,S

112. Basic Design. 3 credits. This is a foundation studio course which introduces design principles, aesthetic considerations, and basic techniques of working as they relate to the creation of two-dimensional and three-dimensional art. Appropriate art safety instruction will be included. F,S

114. Visual Persuasion. 3 credits. An introduction to basic principles of visual perception and interpretation, with emphasis on visual theories, cultural influences, historical and ethical perspectives. This course will provide an overview of ways in which visual elements are used to communicate and influence meaning, as well as provide students analytical tools to advance visual literacy. F,S

University of North Dakota
120. Introduction to Drawing and Color Materials. 3 credits. Introduction for non-majors to drawing and color media and techniques. Includes working from still-lifes, models, and landscapes. Appropriate art safety instruction will be included. F,S

130. Drawing I. 3 credits. Study and application of different drawing media, methods, and techniques. A continuation of the skills and concepts developed in Drawing I. Appropriate art safety instruction will be included. F,S

151. Introduction to Ceramics. 3 credits. Introduction of non-majors to a variety of cultural backgrounds and techniques required to make hand-built ceramic forms. This is achieved through exercises, demonstrations, discussions, and readings. Appropriate art safety instruction will be included. F,S

200. Sculpture I. 3 credits. Introduction to philosophy, aesthetics, history, and processes of sculpture. Demonstration in the use of metals, stone, clay, plaster, wood, etc. Appropriate art safety instruction will be included. F,S

204. Jewelry and Metalsmithing I. 3 credits. This studio course is an investigation into the tools, techniques, and processes fundamental to the designing and fabrication of contemporary wearable and non-wearable art executed predominantly in precious/semi-precious metal. The principles will be practiced and studied through individual projects, leading to proficiency for the making of body adornments, holloware, and simple fabricated objects. Appropriate art safety instruction will be included. F,S

210. History of Art I. 3 credits. Introductory survey of art history from Paleolithic to Renaissance. F

211. History of Art II. 3 credits. Introductory survey of art history from Renaissance to present. S

212. Concepts of Art. 3 credits. This course critically examines how materials, techniques, principles of design, and visual strategies are applied to the production of fine art. Drawing upon content of core requirements, this course develops the concept of techniques in preparation for advanced study in upper division courses. Appropriate art safety instruction will be included. F,S

220. Painting I. 3 credits. Prerequisite: Art 230. Experimentation with oil painting and associated media with emphasis upon creative compositions, using figure models, still-life subjects and imaginative contemporary expressions. Appropriate art safety instruction will be included. F,S

221. Painting II. 3 credits. Prerequisite: Art 220. Continuation of concepts and techniques explored in Painting I. Appropriate art safety instruction will be included. F,S

230. Drawing II. 3 credits. Prerequisite: Art 130. Advanced study and application of different drawing media, methods, and techniques. A continuation of the skills and concepts developed in Drawing I. Appropriate art safety instruction will be included. F,S

240. Printmaking I. 3 credits. Introduction to basic traditional printmaking processes including relief, etching, lithography, and silkscreen printing. Appropriate art safety instruction will be included. F,S

245. Black and White Photography I. 3 credits. Introduction to black and white photography in a visual arts environment. Emphasis is placed on developing an understanding of fine art photography through the practice of visualization and print making. Coursework includes an introduction to black and white film and paper processing. Appropriate art safety instruction will be included. F

246. Black and White Photography II. 3 credits, prerequisite: Art 245. Applications of black and white photography in a visual arts environment. Emphasis will be placed on composition, lighting and subject content as it supports fine art photography. Course content includes lessons in historical processes. Appropriate art safety instruction will be included. F,S

250. Ceramics I. 3 credits. Introduction to ceramics techniques. A beginning course for majors. Proficiency in the basic hand forming processes and glazing techniques and an understanding of the clay and firing processes are achieved through lectures, discussions, demonstrations, and readings. Appropriate art safety instruction will be included. F,S

253. Ceramics II: Throwing. 3 credits. Prerequisite: Art 151 or 250 or permission of instructor. Throwing is the process by which a form is made by working with the hands and on the potter’s wheel. During the semester emphasis is placed on centering the clay on the wheel and mastering the basic bowl and bottle forms. Appropriate art safety instruction will be included. F,S

260. Color Photography. 3 credits. A beginning non-darkroom oriented class in color photography emphasizing the aesthetic, design and compositional aspects of this artistic medium. Appropriate art safety instruction will be included. S/U grading. F,S,SS

272. Time-based Media I - Time Design and Digital Media. 3 credits. Prerequisite: Art 112. Introduction to visual study in time and motion with a focus on the principles of composition and history of animation. This course will explore the fundamental concepts of the form and instruct in the application of computer software. Appropriate art safety instruction will be included. F,S

273. Graphic Design Foundations. 3 credits. Prerequisites or co-requisites: Art 114, or 115. An introduction to the art, language, key elements, theory and practice of graphic design. This course will focus on the integration of type, imagery and spatial relationships in design. Students will be introduced to the conceptual design process, communicating with clients, high quality crafting and production. Appropriate art safety instruction will be included. F,S

277. Fibers I. 3 credits. Samples and finished art projects of student’s design carried out exploring technical and design possibilities of various textile techniques. Demonstrations/slide lectures/studio work. Appropriate art safety instruction will be included. F,S

301. Sculpture I. 3 credits. Prerequisite: Art 200. Continuation of Sculpture I. Appropriate art safety instruction will be included. F,S

304. Intermediate Ceramics II. 3 credits. Prerequisites: Art 112, 114, 130, or 250, 253 or consent of instructor. This course will have specific technical ceramic applications, applicable to the exploration of intermediate level hand building and/or throwing techniques. The conceptual development of the student’s work is encouraged and may include both ceramic work and/or readings. Appropriate art safety instruction will be included. Repeatable to 12 credits. F,S

305. Jewelry and Metalsmithing II. 3 credits. Prerequisite: Art 204. A continuation and expansion of Jewelry and Metalsmithing I. Specialized techniques and processes utilized in metal fabrication will produce works ranging from body adornment to small sculpture. Emphasis will be placed on the theoretical and conceptual growth of the student and the development of a self-directed personal aesthetic expression. Appropriate art safety instruction will be included. F,S

340. Printmaking II. 3 credits. Prerequisite: Art 240. Intermediate-level investigations of traditional printmaking techniques will be included in Art 240, as well as multiple-color printing, experimental print processes, photo-printing, computer-generated printmaking and non-toxic printing processes. Appropriate art safety instruction will be included. F,S

347. Intermediate Photography. 3 credits, repeatable to 6. Prerequisites: Art 260 or 245 or 246 or consent of instructor. An intermediate photography course designed to help the student develop self-direction abilities through a series of projects in consultation with the instructor. Projects involve the refinement of conceptual and formal qualities in silver or non-silver processes using film or digital techniques. Appropriate art safety instruction will be included. F,SS

370. Applied Visual Strategies. 3 credits. Prerequisite: junior standing. A studio/seminar course that examines conceptual practices in contemporary student and the relationship of those practices to art, artists and viewers within the western culture. The emphasis of the course will be on the application of these ideas and strategies through artistic production. Appropriate art safety instruction will be included. On demand.

371. Fibers II. 3 credits. Coursework will consist of sample making and sustained projects woven on the loom. Techniques taught will include yarn dying. Appropriate art safety instruction will be included. F

380. Time-based Media II - Digital Video. 3 credits. Repeatable to 6. Prerequisites: Art 112, Art 272. Exploration of creative processes in digital video production. Students will acquire intermediate level knowledge of digital video and audio recording; sampling, sequencing, editing, manipulation. Selected readings on the historical, critical, and technical development of video art, sound and editing techniques will be included for in-class discussions. Appropriate art safety instruction will be included. F

381. Time-based Media III-Digital Compositing. 3 credits. Repeatable to 6. Prerequisite: Art 112, Art 272, Art 380. Students will explore the integration of graphics, animation and video design. This class will focus on the incorporation of graphics into video sequences, speed, timing and transformation of image. Students will become familiar with processing tools in color, size, placement modification, analysis and duplication of motion. Selected readings on the history of motion graphic art will be included for in-class discussions. Appropriate art safety instruction will be included. F

382. Typography. 3 credits. Prerequisites: Art 112 Basic Design, Art 114 Visual Persuasion, or instructor consent. The study of type. Examination of historical and contemporary typographic perspectives, including study of the structure and expressive nature of type as an integral element of graphic design. F,2

383. Time-based Media IV - Digital Effects. 3 credits. Repeatable to 6. Prerequisites: Art 112, Art 272, Art 380, Art 381. Investigation into the use of computer-generated animation. Students will explore character, experimental, stop motion, interactive, 3D computer animation and visual effects. Selected readings on technical development of digital effects in art will be included for in-class discussions. Appropriate art safety instruction will be included. S/1 or On Demand.

397. Cooperative Education. Part-time, fall and spring, 1-3 credits, repeatable to 3 credits only. Full-time, fall, spring, and summer, 8 credits, not repeatable or interchangeable with part-time. Arranged by mutual agreement among student, Department and employer prior to enrollment. Special permission is required. Regular grading only. F,SSS

400. Advanced Sculpture. 3 credits. Repeatable. Prerequisites: Art 112, 114, 130, and 201. Continued study of advanced sculpture process and concepts and emphasis on the development of individual artistic direction. Appropriate art safety instruction will be included. May be repeated for credit without limitation. F,S

401. Advanced Jewelry and Metalsmithing. 3 credits. Repeatable. Prerequisites: Art 112, 114, 130, and 205. A continuation and expansion of Jewelry and Metalsmithing II. Specialized techniques and processes utilized in metal fabrication will produce works ranging from body adornment to small sculpture. Emphasis will be placed on the theoretical and conceptual growth of the student and the development of a self-directed personal aesthetic expression. Appropriate art safety instruction will be included. May be repeated for credit without limitation. F,S

402. Advanced Painting. 3 credits. Repeatable. Prerequisites: Art 112, 114, 130, and 221. A continuation of Painting II. Further development of painting concepts, comprehension and research of various media and styles. The course stresses the focus of one painting towards development of the student’s personal visual and personal aesthetic expression. Appropriate art safety instruction will be included. May be repeated for credit without limitation. F,S

403. Advanced Printmaking. 3 credits. Repeatable. Prerequisites: Art 112, 114, 130, and 380. Advanced work in a non-traditional and experimental print medium including photo-based printing, non-toxic printing processes, computer-generated printmaking and exploration of collaborative printing and construction of non-traditional multiples.
404. Advanced Ceramics. 3 credits. Repeatable. Prerequisites: Art 112, 114, 130, 151, or 250, and 253 or consent of the instructor. This course will have specific technical ceramic applications, applicable to the exploration of advanced level hand building for throwing techniques. The conceptual development of the student’s work is essential and may include both ceramic work and/or readings. Appropriate art safety instruction will be included. May be repeated for credit without limitation. F,S

405. Advanced Photography. 3 credits. Repeatable. Prerequisites: Art 112, 114, 130, 260, 261. Refinement of conceptual and of subject areas normally covered within regularly scheduled courses in studio art, graphic design, art history and art education. F,S,SS

407. Advanced Ceramics: Throwing. 3 credits. Repeatable. Prerequisites: Art 112, 114, 130, 151, or 250, and 253 or consent of the instructor. Devoted to more complex throwing problems such as larger pieces, multiple sections form, sets of forms and lidded pieces. Work toward an individual visual “voice” will also be pursued. Appropriate art safety instruction will be included. May be repeated for credit without limitation. F,S

408. Technical Ceramic Applications. 3 credits. Prerequisites: Art 112, 114, 130, 151 or 250, 253, 404 or consent of instructor. Experience in specialized techniques and processes as they apply to ceramics, both new and traditional. Possible topics include, but are not limited to, ceramic sculpture-large scale or figurative, clay and glazes, kiln building, cone 6, mold making, raku and primitive firing and ceramic surface design. Appropriate art safety instruction will be included. Letter grade only. Repeatable as content changes. On demand.

410. History of Art: Selected Topics. 3 credits. Study of varied topics in the history of art and architecture. May be repeated as title changes. F,S,SS

413. History of Graphic Design. 3 credits. Prerequisites or co-requisites: Art 210, Art 211. Junior or Senior standing, or instructor consent. Study of the political, cultural, aesthetic and technological influences of graphic design including the creative innovation who established graphic design as a profession. F,S

416. History of Art: Renaissance and Baroque. 3 credits. Prerequisites: Art 210 and 211. Study of European art and architecture from the fourteenth to the eighteenth century. S/S

417. History of Art: Museum Studies Practicum. 3 credits. Prerequisites: Art 210 and 211. Experience working in an art exhibition setting involving practical experience, research, a written paper and presentation. F,S

419. History of Art: Late 18th through the 19th Century Art. 3 credits. Prerequisites: Art 210 and 211. Study of the major artists and artistic movements from the French Revolution to Impressionism. F/S

423. History of Art: 20th and 21st Century. 3 credits. Prerequisites: Art 210 and 211. Study of artists, concepts, subjects, styles, media, and artistic processes from c. 1900 to the present. F,S

424. History of Art: Non-Western Traditions. 3 credits. Prerequisites: Art 210 and 211. Study of art outside European traditions. Course topics will rotate to include the art of Asia, Africa, Oceania, and Native arts of the Americas. S/S

430. Advanced Drawing. 3 credits. Repeatable. Prerequisites: Art 112, 114, 130, and 230. Further development of drawing concepts, comprehension, and search of various medium and style. The course stresses the focus of one’s attitude towards developing a more personal visual statement in areas of personal interest. Appropriate art safety instruction will be included. May be repeated for credit without limitation. F,S

460. Methods, Materials and Philosophy: Art in the Elementary Classroom. 3 credits. Prerequisites: Sophomore standing in T&L or Art. The study of art materials, methods, philosophy and projects applicable for special education, kindergarten through sixth grade students. Emphasis is on inter-curricular creativity using both 2-dimensional and 3-dimensional projects, featuring multi-cultural and disciplined-based education. Appropriate art safety instruction will be included. F,S


480. Advanced Graphic Design. 3 credits. Repeatable. Prerequisites: Art 112, Art 114, and Art 130, Art 273, or instructor consent. Study and application of abstract representation in graphic design. Design methods and genres are examined during the production of promotional material including identity and business systems and campaigns. Ability to work metaphorically with image and design will be stressed. Focus will be on layout and composition. Continuing students will focus on application of graphic design principles to environmental and three-dimensional material including packaging, showroom graphics, display and electronic media applications. Appropriate art safety instruction will be included. S

483. Advanced Timebased Media: Alternative Presentation of Media. 3 credits. Repeatable. Prerequisites: Art 112, Art 272, Art 380, Art 381 and Art 383. Exploration of contemporary presentation methods and concepts in Animation and time-based digital media. Emphasis on the development of personal aesthetic and conceptual development. Historical, critical, and technical readings will be included for in-class discussions. The course instruction will be included. F/S or On Demand

490. Special Projects/Independent Research. 1-6 credits, no more than 6 in each discipline area. Pre- or corequisite: Senior standing and permission of instructor; formal contract must be signed with professor of record. Advanced independent study within a specific art discipline outside of subject areas normally covered within regularly scheduled courses in studio art, graphic design, art history and art education. F,S,SS

491. Special Topics. 3 credits. Prerequisite: upper division status. Experience in specialized techniques and processes as they apply to various media both new and traditional. Offered only upon approval of the instructor. Appropriate art safety instruction will be included. F,S,SS

494. Professional Exhibition. 3 credits. Prerequisite: Permission of adviser. This course is designed to give B.F.A. candidates a summary experience and to serve as a benchmark in their artistic and professional development. The B.F.A. exhibition should represent focused study in the candidate’s area(s) of concentration. Appropriate art safety instruction will be included. F,S,SS

483. Advanced Timebased Media: Alternative Presentation of Media. 3 credits. Repeatable. Prerequisites: Art 112, Art 272, Art 380, Art 381 and Art 383. Exploration of contemporary presentation methods and concepts in Animation and time-based digital media. Emphasis on the development of personal aesthetic and conceptual development. Historical, critical, and technical readings will be included for in-class discussions. The course instruction will be included. S/S or On Demand

490. Special Projects/Independent Research. 1-6 credits, no more than 6 in each discipline area. Pre- or corequisite: Senior standing and permission of instructor; formal contract must be signed with professor of record. Advanced independent study within a specific art discipline outside of subject areas normally covered within regularly scheduled courses in studio art, graphic design, art history and art education. F,S,SS

491. Special Topics. 3 credits. Prerequisite: upper division status. Experience in specialized techniques and processes as they apply to various media both new and traditional. Offered only upon approval of the instructor. Appropriate art safety instruction will be included. F,S,SS

494. Professional Exhibition. 3 credits. Prerequisite: Permission of adviser. This course is designed to give B.F.A. candidates a summary experience and to serve as a benchmark in their artistic and professional development. The B.F.A. exhibition should represent focused study in the candidate’s area(s) of concentration. Appropriate art safety instruction will be included. F,S,SS

http://www.und.edu/dept/artsci/

The College of Arts and Sciences offers a limited number of non-departmental courses. Among these are Arts and Sciences 294 (Directed Studies), 299 (Special Topics) and 499 (Special Topics). They provide for on-demand courses in areas of particular relevance when students or faculty members wish to initiate them. They can provide special-interest courses for particular groups of students. They can serve as a curricular laboratory for experimental courses which may later be established as regular offerings within departments or programs. Students and faculty members wishing to initiate course offerings under Arts and Sciences 294, 299, and 499 should present their proposals in writing to the Dean of the College. See the Arts and Sciences website (http://www.und.edu/dept/artsci/) for the appropriate A&S course request forms.

MINOR IN CANADIAN AREA STUDIES

Housed in the College of Arts and Sciences, this is an interdisciplinary 20-credit minor in Canadian Area Studies. There are three required courses: Geography 362, Geography of Canada; History 204 or History 205, Canada to 1867 or Canada Since 1867; and A&S 252, Introduction to Canadian Studies. At least 6 additional credits must be taken at the upper-division level.

Students will be able to choose an area of concentration from among the following: French Canada, for the student with sufficient background in the French language, comprising 6-10 hours from French 307, 373, and 490 and History 300; History of Quebec, the 9 required hours plus any other combination of courses from the approved list (see below) to bring the total to 20 hours; Native, comprising 11-12 hours from among English 161 and 162, Indian Studies 201, 203, 331 and 370, Archeology 377 and History 399, Canadian First Nations History plus the required hours; General, comprising 11-12 credit hours from any of the above listed courses plus the 9 required hours.

Courses which carry credit for the Canadian Area Studies minor:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology 377</td>
<td>North American Archeology</td>
<td>3</td>
</tr>
<tr>
<td>A&amp;S 252</td>
<td>Introduction to Canadian Studies</td>
<td>3</td>
</tr>
<tr>
<td>A&amp;S 251</td>
<td>Study in Canada</td>
<td>1-12</td>
</tr>
<tr>
<td>English 161</td>
<td>American Indian Languages I</td>
<td>3</td>
</tr>
<tr>
<td>English 162</td>
<td>American Indian Languages II</td>
<td>3</td>
</tr>
<tr>
<td>English 265</td>
<td>Native American Literature</td>
<td>3</td>
</tr>
<tr>
<td>English 415</td>
<td>Special Topics in Literature: Canadian Literature</td>
<td>3</td>
</tr>
<tr>
<td>French 307</td>
<td>Social and Cultural History of Quebec</td>
<td>3</td>
</tr>
<tr>
<td>French 373</td>
<td>Canadian &amp; Quebec Literature and Thought</td>
<td>3</td>
</tr>
<tr>
<td>French 494</td>
<td>Individual French Readings</td>
<td>1-3</td>
</tr>
<tr>
<td>Geography 262</td>
<td>Geography of North America</td>
<td>3</td>
</tr>
</tbody>
</table>
Athletic Training
(See Family Medicine listing)

Atmospheric Sciences (AtSc)
http://www.atmos.und.edu/
Askelson, Borho, Dong, Gilmore, Grainger, Mullendore, Osborne, Poellot (Chair), Remer and Zhang

The Department of Atmospheric Sciences offers a comprehensive education in the Atmospheric Sciences leading to the degree of Bachelor of Science in Atmospheric Sciences and the Master of Science and Doctor of Philosophy degrees (see graduate school listing). The degree is awarded in the John D. Odegard School of Aerospace Sciences. A minimum of a 2.50 GPA is required for admittance into the program and for graduation. The degree is designed to prepare graduates for professional careers in applied meteorology or for graduate studies.

Facilities

The Department of Atmospheric Sciences has several unique research and teaching facilities. Four primary research facilities are used in national and international research programs: a C-band dual-polarization Doppler weather radar; a surface transportation weather test site; an atmospheric and hydrologic observations ground site; and a Cessna Citation II research jet. Teaching facilities include laboratories for use in cloud physics and instrumentation and a high performance computing cluster. The Regional Weather Information Center supports weather analysis and forecasting classes, along with operational research efforts. Current research areas include clouds and climate change, ground/satellite remote sensing, atmospheric aerosols, radar meteorology, mesoscale numerical modeling, atmospheric transport, data assimilation, and surface transportation weather. Students also have the opportunity to produce and broadcast weather segments for cable television and the Internet.

B.S. IN ATMOSPHERIC SCIENCES

Requires 125 credits (36 of which must be number 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).
II. Center for Aerospace Sciences requirements, see Aerospace Sciences listing.
III. The Following Curriculum:

| Freshman First Semester | Second Semester |
|-------------------------|-----------------
| Engl 110, 125 College Composition I, Technical & Business Writing (3) | Engl 110, 125 College Composition I, Technical & Business Writing (3) |
| Math 165, 166 Calculus I, II (4) | Math 165, 166 Calculus I, II (4) |
| CSci 120 Computer Programming I (4) | CSci 120 Computer Programming I (4) |
| AtSc 110 Introduction to Meteorology I (4) | AtSc 110 Introduction to Meteorology I (4) |
| Social Science (3) | Social Science (3) |
| Arts and Humanities (2) | Free Electives (2) |
| AtSc 100 Atmospheric Sciences Orientation (1) | AtSc 100 Atmospheric Sciences Orientation (1) |

<table>
<thead>
<tr>
<th>Sophomore First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>Math 265 Calculus III (4)</td>
<td>Math 265 Calculus III (4)</td>
</tr>
<tr>
<td>Phys 251/251L University Physics I and Laboratory (4)</td>
<td>Phys 251/251L University Physics I and Laboratory (4)</td>
</tr>
<tr>
<td>Phys 252/252L University Physics II and Laboratory (4)</td>
<td>Phys 252/252L University Physics II and Laboratory (4)</td>
</tr>
<tr>
<td>Chem 121/121L General Chemistry I and Laboratory (4)</td>
<td>Chem 121/121L General Chemistry I and Laboratory (4)</td>
</tr>
<tr>
<td>AtSc 210 Introduction to Synoptic Meteorology (4)</td>
<td>AtSc 210 Introduction to Synoptic Meteorology (4)</td>
</tr>
<tr>
<td>AtSc 240 Meteorological Instrumentation (4)</td>
<td>AtSc 240 Meteorological Instrumentation (4)</td>
</tr>
<tr>
<td>AtSc 270 Computer Concepts in Meteorology (3)</td>
<td>AtSc 270 Computer Concepts in Meteorology (3)</td>
</tr>
<tr>
<td>Communications (3)</td>
<td>Communications (3)</td>
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### Courses

#### Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 266</td>
<td>4</td>
<td>Elementary Differential Equations</td>
</tr>
<tr>
<td>AtSc 350</td>
<td>3</td>
<td>Atmospheric Thermodynamics</td>
</tr>
<tr>
<td>Math 321</td>
<td>3</td>
<td>Applied Statistical Methods</td>
</tr>
<tr>
<td>Econ 210</td>
<td>3</td>
<td>Intro. to Business &amp; Economics Statistics</td>
</tr>
<tr>
<td>AtSc 353</td>
<td>3</td>
<td>Physical Meteorology</td>
</tr>
<tr>
<td>AtSc 360</td>
<td>3</td>
<td>Dynamic Meteorology</td>
</tr>
<tr>
<td>Social Science</td>
<td>3</td>
<td>Social &amp; Human Issues, Social Behavior, and Social Science</td>
</tr>
<tr>
<td>Arts &amp; Humanities</td>
<td>3</td>
<td>Art &amp; Humanities, Visual &amp; Performing Arts, Humanities Elective</td>
</tr>
</tbody>
</table>

#### Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>AtSc 405</td>
<td>3</td>
<td>Numerical Methods in Meteorology</td>
</tr>
<tr>
<td>AtSc 411</td>
<td>3</td>
<td>Synoptic Meteorology</td>
</tr>
<tr>
<td>AtSc 492</td>
<td>1</td>
<td>Senior Project</td>
</tr>
<tr>
<td><strong>Technical Electives</strong></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Free Electives</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

### MINOR IN ATMOSPHERIC SCIENCES

Requires 20 credits including:

- AtSc 110: Meteorology I
- AtSc 310: Introduction to Synoptic Meteorology
- AtSc 350: Introduction to Weather Forecasting

All other Atmospheric Sciences courses will satisfy the minor excluding the following:

- AtSc 251: Advanced Weather Modification
- AtSc 331: Aviation Meteorology II
- AtSc 397: Cooperative Education
- AtSc 497: Internship

### Minor Status

- Any approved upper-division math, physics, chemistry, or engineering class; any approved computer science class.
- A total of 6 credit hours of AtSc 397, Cooperative Education, or AtSc 497, Internship, may be used as Atmospheric Science electives.

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### Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 103</td>
<td>4</td>
<td>Advanced Calculus I, Approved Math or Phys course</td>
</tr>
<tr>
<td>Math 146 or Math 165</td>
<td>3</td>
<td>Advanced Calculus II, Approved Math or Phys course</td>
</tr>
<tr>
<td>Math 266</td>
<td>4</td>
<td>Elementary Differential Equations</td>
</tr>
<tr>
<td>AtSc 350</td>
<td>3</td>
<td>Atmospheric Thermodynamics</td>
</tr>
<tr>
<td>Math 266</td>
<td>4</td>
<td>Elementary Differential Equations</td>
</tr>
<tr>
<td>AtSc 310</td>
<td>3</td>
<td>Atmospheric Physics, AtSc 210 and 360</td>
</tr>
<tr>
<td>AtSc 405</td>
<td>3</td>
<td>Atmospheric Thermodynamics</td>
</tr>
<tr>
<td>AtSc 411</td>
<td>3</td>
<td>Synoptic Meteorology</td>
</tr>
<tr>
<td>AtSc 492</td>
<td>1</td>
<td>Senior Project</td>
</tr>
<tr>
<td><strong>Technical Electives</strong></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Free Electives</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

### General Requirements

- A total of 12 credit hours of additional Atmospheric Science classes are required, of which 9 must be upper-division courses.
- A total of 5 credits of technical electives must be taken from the following:
  - Any approved upper-division math, physics, chemistry, or engineering class.
  - Any approved computer science class.
- A maximum combined limit of 6 credit hours of AtSc 397, Cooperative Education, or AtSc 497, Internship, may be used as Atmospheric Science electives.
- **Minor in Atmospheric Sciences** requires 20 credits including:
  - AtSc 110: Meteorology I
  - AtSc 310: Introduction to Synoptic Meteorology
  - AtSc 350: Introduction to Weather Forecasting

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### Introduction to Weather Forecasting

- **3 credits.** Prerequisite: AtSc 210. An operations approach to application of practical methodologies of weather analysis using computer textual and graphic analysis systems. Involves routine weather laboratory exercises commonly found within the operational sector of meteorology.

### Broadcast Meteorology

- **3 credits.** Prerequisites: AtSc 310 and Communication Sciences major. An introduction to the field of broadcast meteorology which provides an overview of television production, the profession of broadcast meteorology, AMS Seal requirements, ethics and the production, organization, critique, and presentation of weather information.

### Aviation Meteorology II

- **3 credits.** Prerequisite: AtSc 231. A study of aviation weather topics related to flight in high performance and air transport category aircraft. Includes a treatment of high altitude weather features, airborne weather radar, international weather, ground de-icing procedures and other topics. On demand.

### Introduction to Radar Meteorology

- **3 credits.** Prerequisite: AtSc 231 and Phys 252. Introduction to principles and theory of microwave radar and its uses as a meteorological observation or research tool. Includes laboratory.

### Atomic Thermodynamics

- **3 credits.** Prerequisites: AtSc 370, Math 166, and Phys 251. An introduction to the theory and application of atmospheric thermodynamics used in synoptic, meso- and microscale meteorology. The course covers the principles of classical thermodynamics and how they are applied to atmospheric processes.

### Physical Meteorology

- **3 credits.** Prerequisites: AtSc 110 and Phys 252. A study of atmospheric processes and properties from a physical standpoint. Includes boundary layer and upper atmosphere processes, cloud microphysics and electrification, and atmospheric radiation.

### Surface Transportation Weather I

- **3 credits.** Prerequisites: AtSc 210 and 240. An introduction to the concepts, practices and methodologies used in the surface transportation weather industry. Includes configuration, siting, and data management/quality assurance of environmental stations, fundamental concepts of surface transportation weather forecasting, overview of winter road maintenance methods, and applications of geographical information systems technologies in a weather and road maintenance environment.

### Dynamic Meteorology

- **4 credits.** Prerequisites: AtSc 350 and Math 266. Corequisite: Math 266. Basic equations of motion, atmospheric thermodynamics, balanced motions, and atmospheric disturbances are examined on an introductory level.

### Cooperative Education

- **1-8 credits.** May be repeated to a total of 12 credits with a maximum of 4 credits toward major electives. Prerequisites: Overall GPA of at least 2.5, and approval of the Coordinator of Atmospheric Sciences cooperative education.

### Introduction to Cloud Physics Meteorology

- **4 credits.** Prerequisites: AtSc 270 and Math 266. This course is designed to introduce students to numerical methods used to solve mathematical problems that are difficult to solve analytically. The course is designed to focus on numerical problems encountered in the field of atmospheric science.

### Synoptic Meteorology

- **4 credits.** Prerequisites: AtSc 210 and 360. Development and application of quasi-geostrophic theory, including its application to the development and propagation of surface and upper-level systems, isentropic analysis, IPV theory, fronts, jet streams, and the relationship between the synoptic and the mesoscale environment and convection.

### Introduction to Cloud Physics Meteorology

- **4 credits.** Prerequisites: AtSc 270 and Math 266. A study of the physics of clouds with emphasis on microphysical processes involved in cloud formation, precipitation production, and dissipation. Includes laboratory.

### Surface Transportation Weather II

- **3 credits.** Prerequisites: AtSc 310 and 355. An in-depth exploration of surface transportation meteorology designed to prepare students for a career in operational surface transportation meteorology. Includes application of mesoscale weather prediction models in a surface transportation environment, introduction to pavement condition modeling, forecast verification methods, and an introduction to methods of maintenance decision-making.

### Mesoscale Dynamics

- **3 credits.** Prerequisite: AtSc 460. An introduction to mesoscale dynamics and forecasting. Topics include mesoscale circulations, warm and cold season weather systems, terrain induced weather systems and mesoscale models.

### Senior Project

- **1 to 2 credits.** Must be repeated for a total of 3 credits. Senior status in Atmospheric Sciences and consent of adviser required. A capstone project demonstrating a breadth and depth of knowledge in atmospheric sciences. An original student investigation of a topic to be selected in consultation with a supervising faculty member of the department. Students will demonstrate the ability to communicate their research to both oral and written communication at an advanced level.

### Topics in Meteorology

- **4 credits.** Prerequisite: AtSc 498. An introduction to radar meteorology, including basic radar principles, digital processing of radar signals, Doppler radar principles, and presentation of weather information. F/2

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### Degree Requirements

- **4 credits.** Prerequisite: AtSc 210 and 360. A comprehensive introduction to basic concepts of weather modification as currently undertaken and researched around the world. It includes application of fundamental meteorological processes to weather modification, a study of cloud physics and seeding theory, an introduction to the principles of weather radar, a review of past and current programs, and a discussion of related legal, societal, economical and environmental issues.

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### Introduction to Weather Modification

- **3 credits.** Prerequisite: AtSc 250. Provides a comprehensive introduction to basic concepts of weather modification as currently undertaken and researched around the world. It includes application of fundamental meteorological processes to weather modification, a study of cloud physics and seeding theory, an introduction to the principles of weather radar, a review of past and current programs, and a discussion of related legal, societal, economical and environmental issues.

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### Advanced Weather Modification

- **3 credits.** Prerequisite: AtSc 250. Provides a comprehensive introduction to basic concepts of weather modification as currently undertaken and researched around the world. It includes application of fundamental meteorological processes to weather modification, a study of cloud physics and seeding theory, an introduction to the principles of weather radar, a review of past and current programs, and a discussion of related legal, societal, economical and environmental issues.
Aviation (Avit)

http://www.avit.und.edu/f0_Home/index.php


The Department of Aviation offers six different majors in two degree programs. The Bachelor of Business Administration degree may be earned in either Aviation Management or Airport Management, and is granted by the College of Business and Public Administration. The Bachelor of Science in Aeronautics may be earned in Commercial Aviation, Air Traffic Control, Flight Education or Aviation Technology Management, and is granted by the John D. Odegard School of Aerospace Sciences.

The Business degree is fully accredited by the American Assembly of Collegiate Schools of Business (AACSB). The Commercial Aviation and Air Traffic Control majors are fully accredited by the Aviation Accreditation Board International.

A Rotorcraft-Helicopter option is available in the Commercial Aviation program. This option is supported by a full scholarship for both tuition and flying costs, and is available through the U.S. Army Reserve Officer Training Corps (ROTC). Students interested in this Army program should contact the Military Science Department located at the UND Armory Building or the UND Aerospace Student Services office located at Odegard Hall, Room 259.

Cooperative Education and Internship programs are offered by the Department of Aviation, which encourages students to obtain on-the-job experience while continuing their academic education. Opportunities for semester-long cooperative internships are available at major airports, general aviation manufacturers, airlines, and weather modification research operations. Students can apply for elective credits through the cooperative internship program toward their graduation requirements. At the same time, students can obtain valuable on-the-job experience to supplement their formal education.

Career services include the UND Career Planning and Placement Center, the John D. Odegard School of Aerospace Science’s Student Services Center, and an industry and alumni career database, which is maintained by JDOSAS. In addition, representatives from the aviation industry, including many airlines, the Federal Aviation Administration, and Transport Canada come to UND for career fairs and interviewing sessions.

AVIATION DEPARTMENTAL POLICIES

Declaring a Major or Minor

All aviation students need to declare an aviation major or minor as soon as practicable. In order to declare an aviation major or minor, students must have completed 24 college credits and have earned minimum grade point averages (GPAs) cumulative and institutional, of 2.50 on a 4.00 scale. In order to take 300-level and above aviation courses, students must have declared an aviation major or minor, or have received special permission from the instructor of the course.

Minimum Grade Point Average (GPA)

Each non-transfer student enrolling in Aviation 101, Survey of Flight, or Aviation 102, Introduction to Aviation, must have a minimum ACT composite score of 21, or a combined SAT score of 990, or must have completed 12 credits of university level coursework with a minimum GPA of 2.50. Each transfer student enrolling in Aviation 101, Survey of Flight, or Aviation 102, Introduction to Aviation, must have a minimum GPA of 2.50. All students must maintain minimum grade point averages (GPAs), cumulative and institutional, of 2.50 in order to enroll in 200-level and above aviation courses. All students, who have enrolled in aviation courses and who fall below the minimum required GPA, are subject to withdrawal from the courses by the Aviation department.

Attendance

Aviation students are required to regularly attend all academic aviation classes in accordance with the intent and spirit of the policy set forth by the University of North Dakota. Attendance is mandatory with respect to satisfying ground school requirements as established by 14 CFR Part 141. Appendix B - paragraph 3, Appendix C - paragraph 3, Appendix D - paragraph 3, Appendix F - paragraph 3, and Appendix G - paragraph 3. Failure to meet these attendance requirements will disqualify a student for FAA pilot or flight instructor certification. The following courses are 14 CFR Part 141 approved: Avit 102, 221, 222, 323, 324, 325, 414, and 415.

Lesson Completion

Students enrolled in flight courses are required to finish those flight lessons prescribed to each individual course in order to complete the course. Failure to complete the flight lessons within an acceptable time frame, stated in an applicable course syllabus or Training Course Outline (TCO), will result in an unsatisfactory grade.

TRANSFER OF COLLEGE CREDIT/ CERTIFICATES AND/OR RATINGS

The University of North Dakota’s Department of Aviation bases its flight education philosophy on a four-year university degree. Consequently, students who have obtained flight certificates/ratings, with or without college credit, may not have satisfied the academic and flight requirements contained within the aviation major that they are pursuing at the University of North Dakota.

All aviation courses subject to being transferred to UND, flight or non-flight, are reviewed by the Aviation Department for transferability. It is the responsibility of the student to initiate a review process of transfer courses. For questions about the transferability of courses, please contact the Aviation Department, Student Services, at 1-800-288-1525 or write to: Student Services, John D. Odegard School of Aerospace Sciences, 3980 Campus Road, Grand Forks, North Dakota 58202-9007. Students may e-mail UND Aerospace at: flyund@aero.und.nodak.edu. Please refer to http://studentservices.aero.und.edu/f2_Program%20Information/f1_Flight%20Course%20Policy/index.php for more information on departmental and transfer policies.

UND FLIGHT TRAINING POLICY

Regardless of academic major, once a student has enrolled at UND, all subsequent flight training required as part of a student’s course of study, must be completed in residence at UND. Flight training completed away from UND, which is required under a specific curriculum, will not be granted credit for the corresponding UND course, and the student will be subject to dismissal from the program. The Aviation Department does not allow concurrent enrollment in any flight courses.

MEDICAL CERTIFICATES

A current medical certificate is required for all students prior to beginning flight training. The physical examination must be performed by a physician who is designated as an Aviation Medical Examiner (AME).

There are three types of medical certificates—Class I, Class II, and Class III. Students are advised to get a Class II certificate if they
are planning to pursue a career as a professional pilot. Any physical limitation which may alter career plans should become evident at that time. Students over the age of 35 should consider obtaining a Class I medical certificate.

Students are encouraged to make plans to obtain their medical certificates six months before they will begin flight training at UND. This will ensure that any problems can be addressed before the student enrolls in a flight training course.

**AVIATION DEPARTMENT, PROGRAM, OR COURSE-SPECIFIC FEES**

Flight costs are not included in university tuition or fees. They are determined on an hourly basis for aircraft and flight instruction, and are in addition to tuition, fees and any other incidental expenses which are normally charged during registration. Flight costs may be added to the estimated cost of attendance that is used to determine financial aid eligibility if the student is a declared aviation major (pre-commercial aviation, pre-air traffic control, pre-aviation technology management, or pre-flight education) or a pre-airport management or pre-aviation management major through the College of Business and enrolled in a flight course required for a major.

Students enrolling in flight courses are required to deposit money into their flight accounts on a regular basis, and to keep a positive balance, to cover their flight costs. Deposits are made at the Student Account Services office or on-line through the student Campus Solutions access. Students will not be permitted to fly if their minimum balance drops below $200. It is the responsibility of each student to have a known source of income prior to enrolling in any flight training-related curriculum.

A required Laptop Computer Fee of $340 per semester ($680 per academic year) will be charged to all students enrolled in aviation courses.

An Altitude Chamber Fee of $150 will be charged to aviation students who use the altitude chamber as part of Aviation 309, Flight Physiology.

An Air Traffic Control program fee or course fee will be charged to aviation students who declare Air Traffic Control as their major or enroll in certain classes.

Additional John D. Odegard School of Aerospace Sciences program fees or course fees may be charged to students enrolled in any of the aviation degree program courses.

Students are cautioned to note that costs are subject to change, and that they should consult with their academic advisor, student services advisors, or the applicable program cost sheets for the latest information. Please refer to http://studentservices.aero.und.edu/f2_Program%20Information/f4_Medical%20Certificate/index.php for more information on medical certificates and the drug and alcohol testing program.

**FINANCIAL AID INFORMATION**

Students are encouraged to explore all financial aid options as outlined in the General Information section of this catalog. In addition to these forms of aid, the Aviation department provides endowed and non-endowed scholarships for qualifying students each year. All aviation students, including freshmen and new transfer students, are eligible to apply. An online scholarship application process is available during the spring semester. Specific instructions can be found on the UND Aerospace website: http://scholarships.aero.und.edu. In addition to the online scholarships that are available in the spring, short notice scholarships often become available throughout the academic year. Students are encouraged to check the website periodically for the latest scholarship information.

Financial aid is available only for those flight courses required as part of a particular curriculum. Students are encouraged to obtain additional ratings, endorsements, or experience; however, they are individually responsible for the expenses incurred.

**PROGRAM DESCRIPTIONS**

The Aviation Management curriculum is offered to those students whose career objectives are aimed toward the management and operation of the flight-related activities of the aviation industry. Emphasis is placed on applying modern management practices to the airline, airport, and general aviation management professions. A Commercial Pilot Certificate, with instrument and multi-engine ratings, is required.

The Airport Management curriculum is offered to those students seeking administrative positions with companies specializing in or related to the ground activities of the aviation industry. Foundations of the general aviation and air carrier segments, as well as the overall aviation industry will be studied in-depth. However, sufficient flexibility in courses will allow the student to concentrate in a particular area of the industry such as general aviation operations, airline management, airport administration, or corporate aviation management. Completion of either Aviation 101, Survey of Flight, or Aviation 102, Introduction to Aviation, is required.

The Commercial Aviation curriculum is designed for a variety of flight-related careers. Commercial Aviation combines a solid background in aviation with a Certified Flight Instructor Certificate, including appropriate ratings. This major provides a student with the educational foundation necessary for entry-level pilot positions within the aviation industry. A Commercial Pilot Certificate, with instrument and multi-engine ratings, plus a Certified Flight Instructor Certificate, with airplane and instrument ratings, are both required. In addition, Regional Jet (RJ) training or Advanced Transport Category aircraft training is required to graduate with this major.

The Flight Education curriculum is designed for students interested in aviation education as a profession. Flight Education combines a solid background in aviation and vocational education with a Certified Flight Instructor Certificate, including appropriate ratings. This major provides a student with the educational foundation necessary to teach aviation courses in a vocational setting or community college, or to pursue graduate study. Students interested in teaching at the college level should obtain a master’s degree and a terminal doctoral degree in aviation or other complementary discipline. A Commercial Pilot Certificate, with instrument and multi-engine ratings, plus a Certified Flight Instructor Certificate, with airplane, instrument, and multi-engine ratings, are both required.

The Air Traffic Control curriculum is designed to place students directly into the exciting career field of Air Traffic Control. In addition to the primary curriculum, this program requires a second field of study. Completion of either Aviation 101, Survey of Flight, or Aviation 102, Introduction to Aviation, is required.

The Aviation Technology Management curriculum is designed to be the concluding half of a two-plus-two degree. The objective is to allow students with two-year degrees in aviation maintenance, avionics, electronics, dispatch or other aerospace support services to com-
complete a bachelor’s degree with an emphasis in management. Completion of either Aviation 101, Survey of Flight, or Aviation 102, Introduction to Aviation, is required.

Note: The Aviation faculty members highly recommend that Aviation students pursue a minor or a second major in another discipline.

College of Business and Public Administration

B.B.A. WITH A MAJOR IN AIRPORT MANAGEMENT

Required: 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. College of Business and Public Administration Requirements (see College section).

III. The following curriculum:

**PRE-BUSINESS CURRICULUM**

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<td>(1)</td>
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<td>Principles of Finance</td>
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<td>Acct 305</td>
<td>Principles of Management</td>
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<td>Mgmt 300</td>
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<td>Strategic Management</td>
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<td>Mktg 305</td>
<td>Marketing Foundations</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 404</td>
<td>Urban Politics and Administration</td>
<td>(3)</td>
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<tr>
<td>Engl 308</td>
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<td>Polisci 322</td>
<td>Public Policy Making Process</td>
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<tr>
<td>Polisci 439</td>
<td>The Administrator and Public Affairs</td>
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**B.B.A. WITH A MAJOR IN AIRPORT MANAGEMENT**

Required: 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. College of Business and Public Administration Requirements (see College section).

III. The following curriculum:

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<td>Plus electives to total 125 credits</td>
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</table>

John D. Odegard School of Aerospace Sciences

B.S. IN AERONAUTICS WITH A MAJOR IN AIR TRAFFIC CONTROL

NOTE: This program has a selective admission process. See your adviser for information.

Required: 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. School of Aerospace Sciences Requirements (see College section).

III. The following curriculum:
AVIATION COURSES
Avit 100 .............. Aviation Orientation .................................................... (1)
Avit 101 .............. Survey of Flight ............................................................ (5)
Avit 102 .............. Introduction to Aviation .................................................. (5)
Avit 103 .............. Introduction to Air Traffic Control ..................................... (2)
Avit 208 .............. Aviation Safety ............................................................... (3)
Avit 250 .............. Human Factors ............................................................... (3)
Avit 260 .............. ATC: Tower Operations I .................................................... (4)
Avit 261 .............. ATC: Radar Operations I .................................................... (4)
Avit 262 .............. ATC: Radar Operations II ................................................... (4)
Avit 362 .............. ATC: Tower Operations II .................................................. (4)
Avit 363 .............. ATC: Radar Operations II ................................................... (4)
Avit 402 .............. Airport Planning and Administration .................................. (3)
Avit 403 .............. Aerospace Law ................................................................. (3)
Avit 464 .............. ATC: Tower Operations III .................................................. (4)
Avit 465 .............. ATC: Radar and Tower Operations IV ................................ (4)
Avit 468 .............. ATC: Non-radar Environment ............................................. (4)
Avit 485 .............. Aviation Senior Capstone ............................................... (3)

OTHER REQUIREMENTS
Comm 212 .............. Interpersonal Communication ...................................... (3)
Mgmt 305 .............. Managerial Concepts ..................................................... (3)

One of the following:
ISBE 320 .............. Business Communication ............................................. (3)
Engl 226 .............. Introduction to Creative Writing ........................................ (3)
Engl 308 .............. The Art of Writing Nonfiction ........................................... (3)

Plus electives to total 125 credits*. 
*Students will be required to use their electives to establish some expertise in a second field. Normally that will mean taking a formal minor or second major. Suggested fields include Communication, Computer Science, Economics, Foreign Language, Industrial Technology, Atmospheric Sciences, Office Administration, Political Science, Psychology, and Public Administration.

B.S. IN AERONAUTICS WITH A MAJOR IN AVIATION TECHNOLOGY MANAGEMENT

Admission to this program requires the successful completion of an approved two-year program in aviation technology, avionics or electronics, dispatcher, simulator repair or other aviation technical support program. Students seeking a profession in Aviation Maintenance are required to have an FAA Mechanic Certificate with airframe and powerplant ratings. Students in avionics/electronics are required to pass the FCC General Class Radio and Telephone license examination. Students in dispatch are required to possess an FAA Dispatcher’s rating.

Required: 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. School of Aerospace Sciences Requirements (see College section).

III. The following curriculum:

AVIATION COURSES
Avit 100 .............. Aviation Orientation .................................................... (1)
Avit 101 .............. Survey of Flight ............................................................. (5)
Avit 102 .............. Introduction to Aviation .................................................. (5)
Avit 208 .............. Aviation Safety ............................................................... (3)
Avit 403 .............. Aerospace Law ............................................................... (3)
Avit 485 .............. Aviation Senior Capstone ............................................... (3)

One of the following:
Avit 402 .............. Airport Planning & Administration .................................... (3)
Avit 405 .............. Airline Operations & Management ...................................... (3)
Avit 407 .............. General Aviation Operations & Management ....................... (3)

MANAGEMENT COMPONENT
Select 15 credits from:
Acct 200 .............. Elements of Accounting I ............................................. (3)
Acct 315 .............. Business in the Legal Environment ..................................... (3)
ISBE 320 .............. Professional Communication for Business ......................... (3)
ISYS 117 .............. Personal Productivity with Information Technology ............ (1)
ISYS 317 .............. Information Systems in Enterprise ................................... (3)
ISYS 305 .............. End-User Applications ...................................................... (3)
ISYS 308 .............. Information Resource Administration .................................. (3)
ISYS 315 .............. Records and Information Management ............................. (3)
ISYS 360 .............. Information Management ................................................. (3)
Mgmt 300 .............. Principles of Management .............................................. (3)
Mgmt 301 .............. Operations Management ............................................... (3)
Mgmt 302 .............. Human Resource Management ....................................... (3)
Avit 310 .............. Organizational Behavior .................................................... (3)
Mgmt 409 .............. Union-Management Relations ......................................... (3)
Pscy 301 .............. Industrial & Organizational Psychology* .......................... (3)
Soc 361 .............. Social Psychology ** ......................................................... (3)

Plus Electives to total 125 credits (to include remaining upper division credits)

B.S. IN AERONAUTICS WITH A MAJOR IN COMMERCIAL AVIATION

Required: 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. School of Aerospace Sciences Requirements (see College section).

III. The following curriculum:

AVIATION COURSES
Avit 100 .............. Aviation Orientation .................................................... (1)
Avit 101 .............. Introduction to Aviation .................................................. (5)
Avit 208 .............. Aviation Safety ............................................................... (3)
Avit 403 .............. Aerospace Law ............................................................... (3)
Avit 485 .............. Aviation Senior Capstone ............................................... (3)

One of the following:
Avit 402 .............. Airport Planning & Administration .................................... (3)
Avit 405 .............. Airline Operations & Management ...................................... (3)
Avit 407 .............. General Aviation Operations & Management ....................... (3)

MANAGEMENT COMPONENT
Select 15 credits from:
Acct 200 .............. Elements of Accounting I ............................................. (3)
Acct 315 .............. Business in the Legal Environment ..................................... (3)
ISBE 320 .............. Professional Communication for Business ......................... (3)
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ISYS 308 .............. Information Resource Administration .................................. (3)
ISYS 315 .............. Records and Information Management ............................. (3)
ISYS 360 .............. Information Management ................................................. (3)
Mgmt 300 .............. Principles of Management .............................................. (3)
Mgmt 301 .............. Operations Management ............................................... (3)
Mgmt 302 .............. Human Resource Management ....................................... (3)
Avit 310 .............. Organizational Behavior .................................................... (3)
Mgmt 409 .............. Union-Management Relations ......................................... (3)
Pscy 301 .............. Industrial & Organizational Psychology* .......................... (3)
Soc 361 .............. Social Psychology ** ......................................................... (3)

* implies that Pscy 111 is one of the Social Science GER courses
** implies that Soc 110 is one of the Social Science GER courses

Plus Electives to total 125 credits (to include remaining upper division credits)
MINOR IN PROFESSIONAL FLIGHT

Required: 30 credits including:

Avit 101  Survey of Flight .......................... (4)
Avit 208  Aviation Safety ......................... (3)
Avit 221  Basic Attitude Instrument Flying ...... (3)
Avit 222  IFR Regulations and Procedures ...... (3)
Avit 324  Aircraft Systems .......................... (3)
Avit 325  Multi-engine Systems and Procedures (2)
Avit 407  General Aviation Operations and Management (3)
Avit 414  Certified Flight Instructor ............... (5)
Avit 415  Instrument Flight Instructor .......... (4)
Avit 416  Multi-engine Flight Instructor .......... (2)
Avit 485  Aviation Senior Capstone ............... (3)
Avit 490  Methods and Materials in Teaching Aviation I (2)
Avit 491  Methods and Materials in Teaching Aviation II (2)
Avit 492  Airline Operations and Management ...... (3)
Avit 102  Introduction to Aviation .......................... (5)
Avit 208  Aviation Safety ................................. (3)
Avit 221  Basic Attitude Instrument Flying ...... (3)
Avit 222  IFR Regulations and Procedures ...... (3)
Avit 323  Aerodynamics—Airplanes ............... (3)
Avit 324  Aircraft Systems .......................... (3)
Avit 325  Multi-engine Systems and Procedures (2)

MINORS IN AVIATION

NOTE: Students who are majoring in an aviation field are not eligible to declare either of these minors.

MINOR IN PROFESSIONAL FLIGHT

Required: 30 credits including:

Avit 101  Survey of Flight .......................... (4)
Avit 208  Aviation Safety ......................... (3)
Avit 221  Basic Attitude Instrument Flying ...... (3)
Avit 222  IFR Regulations and Procedures ...... (3)
Avit 324  Aircraft Systems .......................... (3)
Avit 325  Multi-engine Systems and Procedures (2)

OTHER REQUIREMENTS

AtSc 231  Aviation Meteorology I ................... (4)
Avit 101  Introduction to Aviation .......................... (5)
Avit 208  Aviation Safety ................................. (3)
Avit 221  Basic Attitude Instrument Flying ...... (3)
Avit 222  IFR Regulations and Procedures ...... (3)
Avit 323  Aerodynamics—Airplanes ............... (3)
Avit 324  Aircraft Systems .......................... (3)
Avit 325  Multi-engine Systems and Procedures (2)

B.S. IN AERONAUTICS WITH A MAJOR

II. School of Aerospace Sciences Requirements (see College section).

I. Essential Studies Requirements (see University ES listing).

Avit 491  Methods and Materials in Teaching Aviation I (2)
Avit 416  Multi-engine Flight Instructor .......... (2)
Avit 415  Instrument Flight Instructor .......... (4)
Avit 403  Aerospace Law ................................. (3)
Avit 325  Multi-engine Systems and Procedures (2)
Avit 323  Aerodynamics—Airplanes ............... (3)
Avit 324  Aircraft Systems .......................... (3)
Avit 325  Multi-engine Systems and Procedures (2)

Avit 102  Introduction to Aviation .......................... (5)
Avit 208  Aviation Safety ................................. (3)
Avit 302  Air Transportation ......................... (3)
Avit 402  Airport Planning and Administration ...... (3)
Avit 403  Aerospace Law .................................. (3)
Avit 405  Airline Operations and Management ...... (3)
Avit 407  General Aviation Operations and Management (3)

MINOR IN AVIATION MANAGEMENT

Required: 24 credits including:

Avit 101  Survey of Flight .......................... (4)
Avit 208  Aviation Safety ................................. (3)
Avit 302  Air Transportation ......................... (3)
Avit 402  Airport Planning and Administration ...... (3)
Avit 403  Aerospace Law .................................. (3)
Avit 405  Airline Operations and Management ...... (3)

Courses

All 300 and 400 level courses are restricted to Aviation majors, minors, or to students with instructor/departmen tal permission. All 400 level courses are restricted to junior/senior status.

100. Aviation Orientation. 1 credit. This course is required for all aviation majors. Its purpose is to prepare new students for their university and professional careers by discussing students’ responsibilities and options concerning the aviation industry. Aviation career options will be explored. Academic and airport requirements and procedures will be covered. F, S

101. Survey of Flight. 5 credits. Prerequisite or corequisite: AtSc 110. This course is designed for Airport Management, Air Traffic Control, or Aviation Systems Management majors, and Aviation Management minors, who do not intend to obtain a Private Pilot Certificate. However, there is still a flight component to the course. The flight lessons are designed to provide a broad array of flight experiences and practical knowledge concerning the nature of flight, the operation of airports, and the air traffic control system. Students will meet the aeronautical knowledge requirements of a Private Pilot.

Course content includes instruction in aerodynamics, aircraft systems, FAA regulations, U.S. airspace system design and function, weight and balance, aircraft performance, aviation weather, flight publication interpretation, radio navigation, cross-country planning and navigation, basic flight physiology, and flight safety. Students must complete the appropriate flight lessons to satisfactorily complete the course. Students who desire to obtain a Private Pilot Certificate after completing this course may do so upon taking Aviation 102 and completing the associated flight lessons for that course.

This course does not lead to a Private Pilot Certificate. F, S, SS

102. Introduction to Aviation. 5 credits. Prerequisite or co-requisite: AtSc 110. The course will develop the student’s knowledge and skills that are needed to safely exercise the privileges and responsibilities of a Private Pilot. Course content includes instruction in aerodynamics, aircraft systems, FAA regulations, U.S. airspace system, weight and balance, aircraft performance, aviation weather, flight publications, radio navigation, cross-country planning and navigation, basic flight physiology, and flight safety. The student must complete the appropriate flight lessons to satisfactorily complete the course. F, S, SS

103. Introduction to Air Traffic Control. 2 credits. This course covers the student’s responsibilities and options concerning the aviation industry. Course content includes instruction in aerodynamics, aircraft systems, FAA regulations, U.S. airspace system, weight and balance, aircraft performance, aviation weather, flight publications, radio navigation, cross-country planning and navigation, basic flight physiology, and flight safety. The student must complete the appropriate flight lessons in the Private Helicopter course to satisfactorily complete the course. F, S, SS

208. Aviation Safety. 3 credits. Prerequisite: Avit 101, 102 or 221. This course provides the student with a detailed introduction into aspects of aviation safety, aviation safety programs, risk management, and the associated components of pilot psychology, physiology, human factors, and accident review and investigation. F, S, SS

221. Basic Attitude Instrument Flying. 3 credits. Prerequisite: Avit 102. This course begins with a discussion of aeronautical decision making (ADM), Airworthiness Requirements for flight, Human Factors in flight. The course proceeds to an in-depth study of pilot/static and gyro instruments and Basic Attitude Instrument Flying. In addition, there will be a discussion of the operation, instrumentation, and the practical use of VOR, ADF, DME, GPS, RMI, and HSI, as well as an introduction to Electronic Instrument Flight Displays (Glass Flight Decks). The student must complete the appropriate flight lessons before satisfactorily completing the course. F, S, SS
243. Aircraft Systems—Helicopter. 3 credits. Prerequisite: Avit 142. Provides a study of turbine powered helicopters. Theory and application of turbine engine dynamics, Drive trains, fuel, oil, hydraulic, and electrical systems will be studied. The student must complete the appropriate flight lessons in the Commercial Helicopter Course to satisfactorily complete the course. On demand.

245. Basic Attitude Instruments and Navigation—Helicopter. 3 credits. Prerequisite: Avit 243. This course begins with a discussion of Aeronautical Decision Making (ADM), Airworthiness Requirements flight, Human Factors and night flight. The course proceeds to an in-depth study of pilot/static and gyro instruments and Basic AIP/ADS flight instrumenting. In addition, there will be a discussion of the operation, interpretation and practical use of VOR,ADF,DME, GPS, RMI, and HSI as well as an introduction to Electronic Instrument Flight Displays (Glass Flight Decks). The student must complete the appropriate flight lessons to satisfactorily complete the course. On demand.

246. IFR Regulations and Procedures—Helicopter. 3 credits. Prerequisite: Avit 244. This course will provide the student with a detailed study of the regulations, procedures, and publications necessary for helicopters operating IFR in the national airspace system. Terminal and enroute procedures will be studied in detail. The student must complete the appropriate flight lessons to satisfactorily complete the course. On demand.

250. Human Factors. 2 credits. This course introduces the student to issues influencing human performance in the complex operational aviation environment. Theory and practical applications of cognitive processing, decision-making, interpersonal interaction and communication will be presented. This course also provides an introduction to elements intended to optimize human performance.

260. ATC: Tower Operations I. 4 credits. Prerequisite: Avit 103. Provides an orientation to basic fundamental clearance deliver (CD) and ground control (GC) operations and procedures. Tower interaction with other ATC and non-ATC agencies is also part of this course. The student must demonstrate basic knowledge of the CD/GC function of control tower operations through written and performance examinations. An ATC lab is required. F, S, SS

261. ATC: Radar Operations I. 4 credits. Prerequisite: Avit 103. This course provides students with basic radar training and knowledge of separation requirements and procedures of terminal radar operations. Student evaluations are based on demonstrated application of acquired controller skills utilizing ATC simulation. Scenarios progress in difficulty. To complete this course, students must, in addition to normal academic requirements, successfully complete an intermediate radar simulation scenario without assistance. An ATC lab is required. F, S, SS

302. Air Transportation. 3 credits. The objective of this course is to provide the student with a general knowledge of the various elements of the air transportation industry. Students will develop their critical thinking and writing skills, and will learn how to analyze and question the decisions made by industry leaders. The course will examine how the aviation industry has evolved, and the possible paths it is likely to chart into the future. At the conclusion of the course, the student will be armed with the skills and information necessary to be a more productive participant in the air transportation industry. F, S, SS

309. Flight Physiology. 3 credits. Prerequisite: Avit 250. In this course, human physiological responses to the stresses of flight environment will be examined in-depth. Topical areas will include hypoxia, spatial disorientation, physiological stressors, fatigue, performance, and hypoxia. The student will experience altered pressure environments during laboratory flights in the UND Aerospace altitude chamber. F, S, SS

323. Aerodynamics - Airplanes. 3 credits. Prerequisite: Phys 150 and 150L; Avit 222 or 244. This course introduces the student to the physical principles of airplane aerodynamics, thereby fostering an appreciation of the factors affecting aircraft performance, stability and control, and special flight conditions often experienced by commercial pilots of fixed-wing aircraft. The student must complete the appropriate flight lessons to satisfactorily complete the course. F, S, SS

324. Aircraft Systems. 3 credits. Prerequisite: Avit 222 or 323; Corequisite: Avit 323. This course provides an in-depth study of reciprocating engine, propeller, electrical, environmental, hydraulic, pneumatic, fuel, ignition, lubrication, and pressurization systems. F, S, SS

325. Multi-Engine Systems and Procedures. 2 credits. Prerequisite: Avit 324. This course is designed to develop the knowledge and skills necessary to safely and proficiently exercise the privileges and responsibilities of a Commercial Pilot with a Multi-engine rating. Included are discussions concerning Aeronautical Decision Making of multi-engine aircraft systems, airworthiness, Crew Resource Management, weight and balance, aircraft performance, and abnormal/emergency procedures. The course also includes a scenario based introduction to U.S. Title 14 Code of Federal Regulations (CFR) Parts 121 & 135, including aircraft operations. F, S, SS

326. Gas Turbine Engines. 2 credits. Prerequisite: Avit 324 or Avit 142. This course will provide an in-depth introduction to the turbine engine through the study of its development, theory of operation and the function of turbine engine components. F, S, SS

346. Aerodynamics and Performance—Helicopter. 4 credits. Prerequisites: Avit 142, Phys 150/150L. This course will provide study of helicopter aerodynamics, performance, stability, control, weight and balance and abnormal flight conditions. The student must complete the appropriate flight lessons in the Commercial Pilot Helicopter Course to satisfactorily complete the course. On demand.

348. Commercial Certification—Helicopter Additional Rating. 3 credits. Prerequisite: Commercial Pilot Certificate. The dual flight development and solo practice necessary to obtain a Commercial Pilot Certificate with a Rotorcraft Helicopter Rating. The course includes ground instruction in helicopter aerodynamics, flights, attitudes, control systems, auto-rotation, vertical flight, and off-airport operations. The student must complete the appropriate flight lessons to satisfactorily complete the course. On demand.

349. Instrument Certification—Helicopter Additional Rating. 1 credit. Prerequisite: Avit 142. At the completion of this course, helicopter students will have completed all FAA requirements for a Helicopter Instrument Rating. A minimum of a Private Pilot Certification with an Instrument Rating is required to enroll in this course. S-U grading only. On demand.

362. ATC: Advanced Tower Operations II. 4 credits. Prerequisites: Avit 101 or Avit 102, Avit 208 and Avit 260. Utilizing the 3D tower simulator, the students are taught the basic, advanced, and fundamental local control tower operations, structure, procedures, tower concepts, theories, positions, and facility levels (5-7). Students will build on the knowledge gained in Avit 260 ATC Tower Operations I. Students will be required to demonstrate the basic knowledge by applying radar arrivals/departure procedures. To complete this course, students will be required to demonstrate their basic knowledge of control tower operations through written examinations and performance scenarios in an ATC lab. F, S, SS

363. ATC: Radar Operations II. 4 credits. Prerequisite: Avit 261. This course provides students with advanced radar training and knowledge of separation requirements and procedures of terminal radar operations. Using advanced Air Traffic Control techniques, uncontrolled airport, military, and emergency operations are introduced. Student evaluations are based on demonstrated application of acquired controller skills utilizing ATC simulation. Scenarios progress in difficulty. To complete this course, students must, in addition to normal academic requirements, successfully complete advanced radar simulation scenarios without assistance. An ATC lab is required. F, S, SS

371. Global Perspectives. 3 credits. This course provides the student a truly well-rounded experience in global diversity, and helps produce graduates that are better prepared to serve the global community. The course examines the study of a specific country’s history, geopolitics, economy, and culture, then travel to that country over the week of spring break for hands-on fieldwork. Aviation-oriented and cultural tours are conducted in the country visited to supplement daily life experience and cultural exchange opportunities. Regular grading. Spring semester only.

385. Seaplane Certification. 1 credit. Prerequisite: Avit 102. The seaplane certification course includes all the necessary classroom and flight instruction for the student to acquire the skill, knowledge, and experience for obtaining a seaplane rating on his/her Private or Commercial Pilot Certificate. The course will include, but not be limited to, normal takeoffs, porpoising and skipping, water emergency takeoffs and landings, taxying, sailing and docking, glassy water operations, cross-wind, rough water, and confined area takeoffs and landings, and the general care and operation of a seaplane. S-U grading only. F, S, SS

386. Conventional Aircraft Operations. 1 credit. Prerequisite: Avit 102. Provides the necessary ground school and dual flight instruction for an endorsement for operation of twin-engine-type airplanes. Allows the student to acquire the knowledge and skills necessary for operation of the twin-engine aircraft on the ground and in flight. S-U grading only. F, S, SS

389. Introduction to Aerobatic Flight. 1 credit. Prerequisite: Avit 102. To introduce, analyze and fly some of the more advanced flight maneuvers defined as aerobatics. This course focuses on advanced maneuvers that will be flown during the course including loops, spins, rolls, and inverted flight, with advanced variations and combinations of maneuvers demonstrated in flight. S-U grading only. F, S, SS

397. Cooperative Education. 1-4 credits. S-U grading only. Prerequisite: Acceptance into a co-op position with cooperating industry and approval by Aviation administration. Regular grading. Spring semester only.

399. Special Aerospace Topics. 1-4 credits. F, S

402. Airport Planning and Administration. 3 credits. This is the first of a two course curriculum in airport administration. This initial course provides an introduction to the complex elements of airport planning and its importance in achieving a successful airport operation. Course content includes a study of the duties and responsibilities of the airport manager with a special emphasis on the Federal Air Regulations governing the operation and administration of commercial service airports within the United States. F, S, SS

403. Aerospace Law. 3 credits. This course is designed to introduce the student to the United States legal system and the development of air law. The course will cover a broad range of topics related to aviation operations including constitutional law, administrative law, Federal Aviation Administration enforcement actions, aircraft ownership issues, products liability law, criminal law, contract law, and international law. Course activities include case reading, argument, and legal research. F, S, SS

405. Airline Operations and Management. 3 credits. This course examines the four major areas of air carrier operations, including ground, technical, flight and system operations, as well as airline economics, utilizing a simulation management tool. There is an intensive examination of regional, point-to-point and network carrier operations. Students will work in teams on a small passenger airline flight management strategy; Marketing; Operations Management; Human Resource Development; Finance; Asset Management; and Behavioral Elements. A portion of each class time is devoted to simulation activities, and the reading assignments focus on management decisions pertaining to the airline industry. Students will participate in current industry events, with an emphasis on ethical decision making. F, S, SS
4.07. General Aviation Operations and Management. 3 credits. Aspects of the operation and management of corporate flight departments, fixed-base operations, air cargo operations, and fractional ownership programs will be discussed. Pertinent regulations including FAR parts 91 and 135 will be studied. Aircraft and equipment evaluations will be conducted. F, S, SS

4.12. Advanced Long Range Navigation. 3 credits. Prerequisites: Avit 325 or Avit 243 and Math 146. This course provides an understanding of global charting systems, great circle routes and waypoint planning. Problems and methods of international flight and modern systems of long range navigation are studied as well as methods of analyzing route structure and displaying navigation information. This course also gives the student a familiarization with the international airspace structure including Required Navigation Performance (RNP) standards, Minimum Navigation Performance Specification (MNPS) operations and Reduced Vertical Separation Standards (RVSS). F, S

4.14. CFI Certification. 5 credits. Prerequisite: Avit 325. Provides the student with a detailed study of the responsibilities and teaching concerns of a flight instructor. The course is divided into two major sections of teaching and learning, including effective teaching methods, learning process, consideration of flight training syllabi, effective evaluations, and flight instructor responsibilities; the second section is concerned with the analysis of the flight maneuvers involved with Private Pilot, Commercial Pilot and Flight Instructor Certificates. The course will also provide practical teaching experiences. The student must complete the associated flight lessons in the CFI Flight Course to satisfactorily complete the course. F, S, SS

4.15. Instrument Flight Instructor. 4 credits. Prerequisite: Avit 414. Provides the student with a study of the responsibilities and techniques used by an Instrument Flight Instructor. This course will also include additional study of instrument flight, charts, publications and regulations pertaining to the IFR environment, further develop the student’s knowledge of Technically Advanced Aircraft and provide practical teaching experience. The student must complete the associated flight lessons in the Instrument Flight Instructor course to satisfactorily complete the course. F, S, SS

4.16. Multi-engine Flight Instructor. 2 credits. Prerequisite: Avit 415. This course provides an understanding of the fundamentals of teaching in a multi-engine airplane. The course will include multi-engine aerodynamics and performance, analysis of multi-engine operations, single-engine operations and procedures, flight instructor responsibilities, flight safety concerns and instrument flight maneuvers in multi-engine aircraft. The student must complete the associated flight lessons in the Multi-engine Airplane CFI course to satisfactorily complete the course. No concurrent enrollment allowed with other aviation flight courses. F, S, SS

421. Advanced Aerodynamics. 3 credits. Prerequisite: Avit 325 or consent of the instructor. Beginning with a brief review of low speed aerodynamics, the course provides a study of the terminology and aerodynamics fundamentals associated with transonic and supersonic flight. F, S, SS

428. Transport Category Aircraft Systems. 4 credits. Prerequisite: Avit 325. This course provides an in-depth study of the complex systems of today’s air transport jet aircraft with an emphasis on the Canadian Regional Jet aircraft. It provides a review of all primary systems, to include both normal and abnormal operations. The course also provides the necessary background for Regional Jet simulator training to be presented in a later course. A course fee is charged for access to the Canadian Regional Jet virtual flight. F, S

429. Turboprop Operations. 4 credits. Prerequisite: Avit 325 or consent of the instructor. This course will provide an introduction to turboprop aircraft systems and procedures. Emphasis will be placed on the systems and operational procedures for a specific turboprop aircraft utilized by the airlines. Course content and presentation will be similar to air carrier initial training. The course will provide a synopsis of the turboprop industry including any recent developments. F, S

430. Crew Resource Management. 3 credits. Prerequisite: Avit 250 and either Avit 245 or 325. This course will provide an in-depth study of Crew Resource Management which involves having a thorough understanding of crew communications, teamwork, leadership, “followership,” decision-making, and situational awareness. In addition, the student will learn how to properly utilize all available resources in order to conduct a safe and efficient flight. The course will also examine the benefits of diversity, and the role diversity plays in the modern aerospace industry. F, S, SS

442. Airport Operations and Administration. 3 credits. Prerequisite: Avit 402. This course is the second of a two course curriculum in airport administration. It is an advanced course emphasizing the further development of the skills and understanding of the operation and management of commercial service airports of all sizes. The content focuses upon the practical application of airport manager skills and includes educational tours of operating airports. The program stresses the airport manager’s role in relations with tenants, public officials, and patrons through the honing of individual writing and public speaking skills. S

464. ATC: Tower Operations III. 4 credits. Prerequisite: Avit 362 and Avit 363. This course teaches advanced local control operations and procedures. Students will learn about and practice Land and Hold Short Operations (LHSHO), below Basic VFR minima operations, IFR operations, nighttime operations, non-радar departure procedures, in-flight and ground emergencies, bomb threat procedures, and special operations (runway incursions, hot cargo, hijacking) procedures. To complete this course, students must demonstrate their knowledge of the preceding tower courses, in addition to this course’s content. An ATC lab is required. F, S, SS

465. ATC: Radar and Tower Operations IV. 4 credits. Prerequisite: Avit 464. This is the capstone course for the ATC program focusing on the interaction between the Tower, Terminal Radar, and En-Route Facilities. The course provides students with highly advanced instruction on the ATC system, publications, Federal Aviation Regulations, separation standards, airspace utility, aircraft types and characteristics, fundamentals of navigation, pilot’s environment, flight assistance and emergencies, special operations, wake turbulence, weather, communications, and teamwork. Instruction is delivered through classroom lecture, group discussions and scenarios with hands-on practice. To complete this course, students must successfully complete the FAA AT Basic Exam and the required advanced simulation scenarios without assistance. An ATC lab is required. F, S, SS

468. ATC: Non-Radar Procedures. 4 credits. This course stresses the comprehensive knowledge of ATC non-radar procedures, to include: airspace utilization, flight plans, general control procedures, board management, initial departure separation, IFR clearances to departing aircraft, communication requirements, and separation standards. Class scenarios will emphasize both enroute and terminal structures. To complete this course, the student shall be required to demonstrate and apply the skills and knowledge required to successfully complete a non-radar performance exercise in an ATC lab. F, S, SS

480. Advanced Aircraft Operations. 3 credits. Prerequisites: Avit 415, 421 and 428. The topics of study include high speed and high altitude aerodynamics, physiological aspects of high altitude flight, considerations associated with operations near high speed buffet boundaries, effects of turbulence on high speed aircraft, the effects of maneuvering load factors, FAR Part 25 takeoff and landing performance, along with the general study of applied systems management. The student must complete the associated flight lessons to satisfactorily complete the course. No concurrent enrollment allowed with other aviation flight courses. F, S, SS

481. Airline Transport Pilot Certification Lab. 2 credits. Prerequisites: Avit 208 and 325. Provides a comprehensive background of flight experience in two engine airplanes to meet the proficiency requirements of the FAA Airline Transport Pilot oral and flight examinations. Students enrolling in the course must hold a valid FAA Commercial Pilot Certificate with an airplane category and multi-engine class rating; in addition, they must hold a valid Instrument/Airplane Rating. Flight instruction in the course includes basic instrument flying, concentrated practice on instrument approach procedures, emergency procedures, and cross-country flying. S/U grading only. On Demand.

485. Aviation Senior Capstone. 3 credits. Prerequisites: Avit 403 and senior status. This course will explore contemporary and ethical issues in the aviation industry. Students will work in multi-disciplinary teams to examine and solve issues related to global aviation, environmental concerns, technology advances, aviation safety and security practices, labor issues and aviation economics. Students will be required to demonstrate an understanding of information literacy and advanced communications through coursework.

490. Methods and Materials in Teaching Aviation I. 2 credits. Prerequisite: Avit 414 or consent of the instructor. This course will acquaint the student with resources and software used in classroom teaching specific to aviation. Topics covered include teaching with technology, utilizing instructional aids, motivating students, marketing a program and a career exploration in aviation education. Students will also gain the experience of managing the Aerospace Learning Center. F

491. Methods and Materials in Teaching Aviation II. 2 credits. Prerequisite: Avit 414 or consent of the instructor. This course will be a continuation of the work started in Aviation 490 by providing the student with additional opportunities in the use of resources and software used in classroom teaching specific to aviation. Additional emphasis will be placed on the use of course syllabi, lesson plans, delivering classroom lessons, and the critique, evaluation, and assessment of student and instructor performance. Students will also gain the experience of managing the Aerospace Learning Center.

497. Aviation Internship. 1-4 credits. Prerequisites: will vary depending on the area of the internship. Aviation internship will provide a student with the actual, on-the-job exposure of a particular area of interest the student has within the aviation industry. Internships will be available in airport management, general aviation management, on both the manufacturer and fixed-base operator level and within the weather modification industry. The weather modification internship will be available only with the necessary federal funding or contractor support. A maximum of 4 credits will be allowed toward graduation. F, S, SS

499. Readings in Aviation. 1-3 credits. Prerequisite: senior standing. Repeatable to 8 credits. Individual student projects designed to develop advanced knowledge in a specific area of expertise. A written report is required. F, S, SS

Banking and Financial Economics (See Economics listing)
Biochemistry and Molecular Biology (BMB)

http://www.med.und.nodak.edu/depts/biochem/

Dettke, Foster, Homandberg (Chair), Milavetz, Ohm, Shabb, Singh, Sukalski, Vaughan and Wu

Courses

301. Biochemistry Lecture. 3 credits. Three lectures per week. Prerequisites: Chemistry 240 or 342 or equivalent. Topics including enzymology; bioenergetics; metabolism and its regulation; nucleic acid metabolism; recombinant DNA technology; structure and function of macromolecules. S

401. Biochemistry of Proteins and Information Flow. 3 credits. Prerequisite: BMB 301. This course will build upon the overview of biochemistry and molecular biology as presented in BMB 301. Lectures will emphasize advanced topics in protein structure and function, enzyenolgy, and the expression and transmission of genetic information. An independent project in proteomics or computational biochemistry will be required. P

403. Advanced Biochemistry Laboratory. 2 credits. Prerequisites: BMB 401 (may be taken the same semester) and permission of instructor. Students will demonstrate competency in understanding and performing physical and molecular techniques commonly used in biomedical research. F

494. Directed Studies. 1 to 4 credits, repeatable to 12 credits. A course designed to provide individual students with the opportunity for creative, scholarly, and research activities in Biochemistry and Molecular Biology under the direction of a departmental faculty member. Open to all students, with consent of the instructor required. F, S, S

Biology (Biol)

http://www.und.edu/dept/biology/undergrad/bio_undergrad.html

Carmichael, Crossley, Darland, Goodwin, Kelsch, La Duke, Meberg, Mehl, Newman, Potvin, Pyle, Ralph, Rhen, Schlosser (Chair), Sheridan, Simons, Tkach and Vaughan

The Department of Biology offers a B.S. in Biology, B.S. in Biology with Pre-Health Science Emphasis, and a B.S. in Fisheries and Wildlife Biology. In addition, there are three options associated with the B.S. in Biology degree: General Biology; Molecular, Cellular and Developmental Biology; and Ecology and Evolutionary Biology. Specific department requirements for the degrees and options are listed below.

Facilities

The Department of Biology is housed in Starcher Hall. In addition to classrooms, three computer laboratories and other specialized teaching laboratories, the building houses a herbarium, three greenhouses, environmental chambers, animal rooms for terrestrial and aquatic organisms, observation rooms, vertebrate and invertebrate museums, a darkroom, and a dissection and tissue culture facilities. The Department also maintains two natural areas (virgin prairie and wooded stream valley) and a biology core molecular facility for teaching and research.

Independent Study

Well qualified majors are urged to participate in independent studies, honors work, or undergraduate research. Normally, studies of this nature are initiated by invitation from a faculty member. Students selected for these programs usually carry out their studies in the research laboratories of the individual professors. Research apprenticeships or assistantships financed by private foundation support or faculty research grants may be available for part-time employment. The department participates in the University Honors Program through certain interdisciplinary colloquia, by honors credit in advanced courses, and by independent studies and tutorials in advanced topics.

College of Arts and Sciences

B.S. WITH MAJOR IN BIOLOGY

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (See University ES listing. Minimum 39 total credits.) The following courses must be taken as part of the Essential Studies Requirement:

English 110 .................. College Composition I .............................. (3)
Comm 110 .................. Fundamentals of Public Speaking ............................. (3)

II. 43 major hours including:

A. Core requirements for all options (23 hours):

Biol 150 & Biol 151 .... General Biology I & II ............................................. (6)
Biol 150L & 151L .... General Biology Lab I & II ............................................. (2)
Biol 312 .... Evolution .................. ....................................................... (3)
Biol 315 .... Genetics .................. ....................................................... (3)
Biol 332 .... Ecology .......................... ...................................................... (3)
Biol 341 .... Cell Biology .......................... ...................................................... (3)
Biol 480 .... Senior Capstone Seminar** ................................................. (3)

TOTAL ......................................................... (23)

*Students who take Biol 111 and Biol 111L (Concepts of Biology and Lab) prior to becoming a Biology major are required to take Biol 150 and Biol 150L to complete the General Biology sequence.

**Credits for an approved Senior Honors Thesis (Biol 489 or Honors 489) on a biology-related topic can be substituted for Biol 480 with prior approval of the student’s Biology faculty academic adviser.

We strongly advise mastery of materials in all core courses except Biol 480 prior to enrolling in other 300 or 400 level Biology courses.

No more than one Biology course intended for non-majors (all University of North Dakota 200 level Biology courses) will count toward the 43 hour major.

Up to two life-sciences related courses from other departments at the University of North Dakota may be counted toward the 43 hour major, provided they do not overlap extensively with subject matter included in Biology Department courses also being used for credit.

At least four upper division Biology courses with laboratories must be included in the 43 hour major. Two upper division life sciences-related laboratory courses from other departments at the University of North Dakota may be counted toward the 43 hour major, provided they do not overlap extensively with subject matter included in Biology Department courses also being used for credit.

A. Biol 494 Directed Studies or Biol 492 Research Experience may be counted as one upper division laboratory requirement with appropriate documentation of the laboratory experience and approval by the supervising faculty member, the faculty adviser, and the Biology Department Chairperson.

Students may include no more than 10 combined credit hours from Biol 494 (Directed Studies), Biol 492 (Research), and Biol 489 (Senior Honors) towards the total 43 credit hours required for this Biology major.

B. Advanced requirements for each option (minimum 20 credit hours required)

Option 1. General Biology

This program is designed for students interested in obtaining a broad background in biology, with maximum flexibility in program design. Students should consult with their adviser to develop an appropriate course of study.

1. Advanced requirements (20 credit hours of Biology electives)

All other 300 or 400 level Biology courses will count toward the 20 elective credit hours needed.

Option 2. Molecular, Cellular, and Developmental Biology

This program is designed for students interested in the cellular and sub-cellular mechanisms underlying biological phenomena. It is especially appropriate for students anticipating a career in biotechnology or biomedical research. These courses will provide a foundation for students planning to continue their studies in graduate or professional programs, or students wanting to pursue technical positions in life science research or pharmaceutical companies. Students should consult with their adviser to develop an appropriate course of study.

Advanced requirements (minimum 20 credit hours):

1. Required courses (12 credit hours):

Biol 341L .... Cell Biology Lab .......................................................... (1)
Biol 410 .... Molecular Biology Techniques ........................................... (4)
Biol 378 .... Developmental Biology ...................................................... (3)
Biol 415 .... Genomics ................................................................. (4)

TOTAL ......................................................... (20)
II. 43 major hours including:

A. Core Requirements (23 credit hours, all courses below):

- Biol 150/151 .... General Biology I & II ................................................................. (6)
- Biol 150L/151L General Biology Lab I & II ......................................................... (2)
- Biol 312 .... Evolution ......................................................................................... (3)
- Biol 315 .... Genetics .......................................................................................... (3)
- Biol 332 .... Ecology ........................................................................................... (3)
- Biol 341 .... Cell Biology ...................................................................................... (3)
- Biol 480 ........ Senior Capstone Seminar ............................................................ (3)

B. General Education Requirement: TOTAL .................................................................... (23)

*Students who take Biol 111 and Biol 111L (Concepts of Biology and Lab) prior to becoming a Biology major are required to take Biol 150 and Biol 150L to complete the Biology sequence.

**Credits for an approved Senior Honors Thesis (Biol 489 or Honors 489) on a biology-related topic can be substituted for Biol 480 with prior approval of the student’s Biology faculty academic adviser.

We strongly advise mastery of materials in all core courses except Biol 480 prior to enrolling in other 300 or 400 level Biology courses.

No more than one Biology course intended for non-majors (all University of North Dakota 200 level Biology courses) will count toward the 43 hour major.
Up to two life-sciences related courses from other departments at the University of North Dakota may be counted toward the 43 hour major, provided they do not overlap extensively with subject matter included in Biology Department courses also being used for credit.

At least four upper division Biology courses with laboratories must be included in the 43 hour major. Two upper division life-sciences-related laboratory course from other departments at the University of North Dakota may be included toward the four course upper division laboratory requirement, provided they do not overlap extensively with subject matter in Biology Department courses also being used for credit.

A. Biol 494 Directed Studies or Biol 492 Research Experience may be counted as one upper division laboratory requirement with appropriate documentation of the laboratory experience and approval by the supervising faculty member, the faculty adviser, and the Biology Department Chairperson.

Students may include no more than 10 combined credit hours from Biol 494 (Directed Studies), Biol 492 (Research), and Biol 489 (Senior Honors) towards the total 43 credit hours required for this Biology Major.

B. Advanced requirements (minimum 20 credit hours):

1. Upper-level courses (minimum 12 credit hours taken from the list below):
   Biol 312 .............. Evolution ............................................................................ (3)
   Biol 333 .............. Population Biology ......................................................... (3)
   Biol 339 .............. Developmental Biology ..................................................... (3)
   Biol 341 .............. Cell Biology ....................................................................... (3)
   Biol 342 .............. Physiology of Organs and Systems .................................... (3)
   Biol 346 .............. Animal Biology ................................................................ (3)
   Biol 351 .............. Genetics ......................................................................... (3)
   Biol 359 .............. Histology .......................................................................... (2)
   Biol 364 .............. Parasitology ..................................................................... (2)
   Biol 367 .............. Histology Lab .................................................................... (1)
   Biol 368 .............. Animal Biology Lab ............................................................. (1)
   Biol 369 .............. Animal Biology ................................................................ (3)
   MBIO 328 ............ Introduction to Immunology ............................................... (3)

2. Biology electives (8 additional credit hours)
   All 300 or 400 level Biology courses, including any of those not taken from the group above, will count toward the elective credit hours needed.

III. Cognate requirements in other departments (30-33 credit hours):

A. Mathematics (3-4 credit hours)
   Math 145 ...... Applied Calculus ................................................................. (3)
   Math 146 ...... Calculus II ............................................................................. (4)

B. Chemistry (16-18 credit hours):
   Chem 121/121L . General Chemistry I and Lab ................................................. (4)
   Chem 122/122L . General Chemistry II and Lab ............................................. (4)
   Chem 240/240L . Organic Chemistry ............................................................. (3)
   Chem 341/341L, 342/342L . Organic Chemistry I and II with Labs ................... (10)

   Note: the sequence of Chem 341 and Chem 342 AND BMB 301 is highly recommended for pre-medical students because some medical schools require or prefer this combination.

C. Physical sciences (8 credit hours):
   Phys 211/212L . College Physics I and II ...................................................... (8)
   Phys 251/252 .... University Physics I and II ................................................. (8)

B.S. IN FISHERIES AND WILDLIFE BIOLOGY

The department offers a four-year program leading to the degree of Bachelor of Science in Fisheries and Wildlife Biology. Students completing this program are qualified to obtain positions with state, federal and private fisheries and wildlife organizations.

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

52-54 major hours, including:
   Biol 150, 151L ........ General Biology I & II ................................................. (6)
   Biol 150L, 151L . General Biology I & II Lab ................................................. (2)
   Biol 314 .............. Genetics ........................................................................ (3)
   Biol 332, 332L . General Ecology and Lab ..................................................... (4)
   Biol 336 .............. Systematic Botany ............................................................. (4)
   Biol 338 .............. Animal Behavior ............................................................... (2)
   Biol 431 .............. Wildlife Management ....................................................... (4)
   Biol 438 .............. Fisheries Management ..................................................... (3)
   Biol 442 .............. Physiology of Organ and Systems .................................. (3)
   Biol 470 .............. Biometry ......................................................................... (3)

3 hours from:
   Biol 312 .............. Evolution ......................................................................... (3)
   Biol 333 .............. Population Biology ......................................................... (3)
   Biol 338 .............. Animal Behavior ............................................................... (2)
   Biol 431 .............. Wildlife Management ....................................................... (4)

3-4 hours of math from either Math 146 (Applied Calculus) or Math 166 (Calculus II)

III. Required in other departments:
   Chem 121/121L . General Chemistry I and Lab ................................................. (4)
   Chem 122/122L . General Chemistry II and Lab ............................................. (4)
   Chem 240/240L . Organic Chemistry ............................................................. (3)
   Comm 110 ............... Fundamentals of Public Speaking .................................... (3)

4 hours from:
   Geol 101/101L . Introduction to Geology ..................................................... (4)
   Phys 211 .............. College Physics I ............................................................... (4)

3-4 hours of math from either Math 146 (Applied Calculus) or Math 166 (Calculus II)

MINOR IN BIOLOGY (minimum 20 hours required)

Required 20 hours, including:
   Biol 150/151 .... General Biology I & II ......................................................... (6)
   Biol 150/151L . General Biology I & II Lab ..................................................... (2)
   Biol 314 .............. Genetics ........................................................................ (3)
   Biol 341 .............. Cell Biology ................................................................. (3)
   Biol 338 .............. Animal Behavior ............................................................... (2)
   Biol 332 .............. Ecology ......................................................................... (3)

3-4 hours of math from either Math 146 (Applied Calculus) or Math 166 (Calculus II)

MINOR IN BIOLOGY (minimum 20 hours required)

Required 20 hours, including:
   Biol 150/151 .... General Biology I & II ......................................................... (6)
   Biol 150/151L . General Biology I & II Lab ..................................................... (2)
   Biol 314 .............. Genetics ........................................................................ (3)
   Biol 338 .............. Animal Behavior ............................................................... (2)
   Biol 332 .............. Ecology ......................................................................... (3)

3-4 hours of math from either Math 146 (Applied Calculus) or Math 166 (Calculus II)

Note: all biology courses that count as upper-division labs are marked with asterisk.*

111. Concepts of Biology. 3 credits. Intended for non-science majors seeking general knowledge and cultural appreciation of contemporary biology. Does not serve as a prerequisite for 150 or any other biology course. Students may not normally receive credit for both 111 and 150-151. F, S

111L. Concepts of Biology Laboratory. 1 credit. Prerequisite or co-requisite: Biol 111. A basic biology laboratory to complement Biol 111. F, S

124. Environmental Science. 2 credits. An introduction to the study of human activity upon the environment in which we live. F
150, 151. General Biology 1 & II. 6 credits. Basic concepts of biology with emphasis on life’s diversity, processes, and man’s place in nature. Broadly designed to satisfy the needs of those pursuing biological and preprofessional curricula. F, S 150L, 151L. Introduction to Biology Laboratory. 2 credits. Prerequisite or co-requisite: Biol 150, 151. A contemporary biology laboratory to complement Biol 150, 151. 240. Wildlife Conservation. 2 credits. Basic principles and philosophies of wildlife conservation in North America. F

Advanced Courses

Biology 150, 150L, 151 and 151L, or equivalent are prerequisites for all 300 and 400 level courses listed below.

312. Evolution. 3 credits. A study of the processes that have led from the origin of life to the diverse patterns and forms of life observable today. S 315. Genetics. 3 credits. An introduction to genetics, with emphasis on classical genetic analysis and the biochemistry of gene transmission, expression and regulation. F 315R. Genetics Recitation. 1 credit. Prerequisites: Biol 150, 150L, 151 and 151L. Corequisite: Biol 315. A recitation to aid students enrolled in Biol 315: Genetics. The class is designed to review both “big idea” concepts from lecture as well as to work through genetics problems. F

322. General Ecology. 3 credits. An introduction to ecology. Covers the relationships of individuals, populations, communities and ecosystems to their biotic and abiotic environments. F 322L.* General Ecology Laboratory. 1 credit. Prerequisite or co-requisite: Biol 322. Field projects and laboratory exercises to complement Biol 332. F 333. Population Biology. 3 credits. Prerequisites: Biol 150, 150L, 151L and Math 102 or higher. Principles of population genetics, population ecology, and evolution in plants and animals. S


341. Cell Biology. 3 credits. Prerequisite or Corequisite: Chem 122. Description of processes common to life at the cellular level including: biochemical and structural organization, membrane function, motility, signal transduction, growth, division and genetic regulation of the cell. S

341L.* Cell Biology Laboratory. 1 credit. Prerequisite or co-requisite: Biol 341, Chem 121 and 122. Recommended: Organic Chemistry. Laboratory investigation utilizing techniques to study life at the cellular level including chemical composition and characterization, enzyme kinetics, metabolism and microscopy. S

350. Plant Biology. 3 credits. Prerequisite: Biol 150/151 or permission of instructor. Structure and function of plants at the cellular, tissue, and whole plant levels. Topics also include ecological adaptations and plant-derived products. S


369. Histology. 2 credits. Microscopical anatomy of vertebrate tissues and organs, with emphasis on man and other mammals. S 369L.* Histology Laboratory. 2 credits. Prerequisite or co-requisite: Biol 369. A basic histology laboratory to complement Biol 369. S

376. Animal Biology Laboratory. 1 credit. Prerequisites: Biol 150 and 151. Evolution, morpho-anatomy, development, reproduction and other aspects of the natural history of invertebrate and vertebrate animals. S

376L.* Animal Biology Laboratory. 1 credit. Prerequisites: Biol 150, 150L, 151 and 151L. Corequisite: Biol 376. Observation of live or fixed animals belonging to various invertebrate and vertebrate groups with emphasis on their adaptations to environment/life styles. Laboratory projects will include some of the classical and modern techniques used in systematic studies. S

378. Developmental Biology. 3 credits. Prerequisites: Biol 150, 150L, 151L, 315 and 341. An overview of general stages and mechanisms of development, experimental approaches used to study developmental processes, and genetic and environmental influences that govern development. F

380. Disease Biology. 3 credits. Prerequisites: Biol 150 and 151. A survey of the nature and etiology of infectious and parasitic disease in animals, pathogenicity and ways of transmission of most important disease agents and effect of disease on individual organisms and populations. Particular attention is given to emerging zoonotic diseases transmittable between animals and humans, and between wild and domestic animals. S

397. Cooperative Education. 1-8 credits, repeatable to 24 credits. Prerequisites: Sophomore standing and approval of the department chair and acceptance by a supervisory faculty member. A practical work experience with an employer under the direction of a supervisory faculty member. A written final report will be required and will be used as a basis for evaluation. S/U grading only. F, S

410. *Molecular Biology Techniques. 4 credits. Applications of DNA and RNA analysis and recombinant DNA technologies, emphasizing practical experience in the laboratory. This class will meet twice a week for 50 minutes in the classroom, and students will be expected to work approximately 4-6 hours a week in the lab during open lab times. F, S

415. *Genomics. 4 credits. Prerequisites: Biol 150/150L, 151/151L and Biol 315. Genomics describes the determination of the complete nucleotide sequence of an organism and subsequent analyses to decode the structural and functional information of all genes and regulatory sequences in the genome. This four-credit course will consist of lectures, computer lab sessions, in-class exercises, take-home assignments, student presentations, and discussion of research articles. S 420. Neuroscience. 3 credits. Prerequisites: Biol 150/150L and junior standing. A course covering fundamental areas of neuroscience including neuroanatomy, cell and molecular neurobiology, sensory systems, motor systems, regulatory systems, nervous system development, and cognitive and behavioral neuroscience. F

425.* Ichthyology. 3 credits. Structure and function, anatomy, physiology, behavior, classification, distribution and ecological aspects of fishes. F, S

427.* Ornithology. 3 credits. Classification, identification, morphology, distribution, ecology and life history of birds. S

428. Mammalogy. 3 credits. Classification, identification, morphology, distribution, ecology and life history of mammals. F, S

43* Wildlife Management. 4 credits. Theory and methods of management of game populations. F

433. Aquatic Ecology. 3 credits. Analysis of the relationships between organisms and their physical, chemical and biological environments in freshwater ecosystems. S

434. Large Mammal Ecology. 3 credits. Prerequisite: Biol 332. A course covering details of the population ecology, specialized management approaches and techniques, and conservation of large-bodied mammals in North America and worldwide. F, S

438.* Fisheries Management. 3 credits. Concepts and approaches to the management of freshwater fisheries. Course will include discussion of life histories and requirements of important regional sport fishes. S

439. Conservation Biology. 3 credits. A course that integrates information from environmental policy, ecology, genetics, biogeography, economics and ethics towards preventing extinction and maintaining biological diversity. F

442. Physiology of Organs and Systems. 3 credits. Prerequisite: Junior or Senior standing. Study of the physiology of organs and organ systems in vertebrates. F 442L.* Physiology of Organs and Systems Laboratory. 1 credit. Prerequisite or co-requisite: Biol 442. A physiology laboratory to complement Biol 442. F

450. Molecular Genetics. 2 credits. Prerequisites: Biol 315. Topics will include basic molecular genetic mechanisms, recombinant DNA technology, the organization and function of the cell nucleus, and the molecular control of gene expression. S

460. Molecular Biology of the Cell. 3 credits. Prerequisite: Biol 315. A study of the structure and organization of the cell with a special emphasis on genetic regulation of the cell division cycle, the genetic basis of cancer, and the role of genes in the immune system. F

470. Biometry. 3 credits. Analysis of biological data. Covers descriptive statistics, inferential statistics (e.g., t-tests, goodness-of-fit tests, regression, ANOVA and non-parametric tests), and interpreting and presenting statistical results. S

477. Concepts of Biology. 2 credits. Prerequisite: Senior status in biological science or consent of instructor. Consideration of the unifying concepts in biology. On demand.

480. Senior Capstone Seminar. 3 credits. Prerequisite: Senior status in biological science or permission of instructor. Key aspects of scientific inquiry and communication are investigated and assessed. Students will participate in discussions of relevant current issues in biology and will develop an independent research project. This course provides an opportunity for students to integrate and apply knowledge and skills obtained in biology. F, S

489. Senior Honors Thesis. 1 to 15 credits; total not to exceed 15. Prerequisite: consent of the Department and approval of the Honors Committee. Supervised independent study culminating in a thesis. F, S

491. Seminar. 1 credit. Prerequisite: Major or minor in biology. Discussion of selected topics in advanced biology, a different topic each semester. F, S

492. Research. 1 to 4 credits. Open to qualified majors. Prerequisite: Consent of instructor. Research conducted under the supervision of a faculty member. F, S

494. Directed Studies. 1 to 4 credits. May be repeated up to a total of 9 credits. Designed to meet the needs of individual students in the areas of faculty specialization. Consent of instructor. F, S

499. Special Topics. 1-4 credits. Prerequisites: Biol 150, Biol 151, or consent of instructor. Important and current topics in biology not covered by other courses. Repeatable when topics vary. F, S
The College of Business and Public Administration provides undergraduate business students with the opportunity to earn a minor in international business. The minor requires a minimum of 24 semester hours: nine hours from various international business courses, nine hours from various arts and sciences courses focused on global issues, and achievement of a Level II proficiency in a language (8 hours) or approved study abroad (6 hours).

Required 24 hours, including:

1. Completion of 9 hours from the following:
   - Accr 380: International Accounting (3)
   - Econ 338*: International Economics (3)
   - Econ 300*: Global Economic Development (3)
   - Econ 438*: International Money and Finance (3)
   - Hist 102: World Regional Geography (3)
   - Hist 101: Western Civilization I (3)
   - Pol 220: International Politics (3)
   - Pol 222: Comparative Politics (3)
   - * only one of the above economic courses may be used.

2. Completion of 9 hours from the following:
   - Amth 171: Cultural Anthropology (3)
   - Econ 416: World Regional Geography (3)
   - Hist 102: Western Civilization II (3)
   - Pol 220: International Politics (3)
   - Pol 222: Comparative Politics (3)

3. Completion of Level II Proficiency in a language (8 hours) or approved university study abroad (6 hours).

4. Completion of B.B.A. or B.Acc. degree.

Courses

The College of Business and Public Administration offers two courses under the BAdm prefix that are available to any student on campus. Our Introduction to Business course fulfills essential studies requirements and provides students with an overview of all business topics. BAdm 395 courses are generally restricted to business majors. The purpose of these courses is to provide special interest courses for particular groups of students. The course title and number may also be used for experimental courses which may later be established as regular offerings within departments or programs.

**101. Introduction to Business**. 3 credits. An essential studies business course and the first step in a well-planned learning agenda that prepares students to become contributing citizens capable of making astute personal economic decisions. Topics covered include economic environment, global competition, entrepreneurship, general and human resource management, marketing, accounting, finance, information systems, and challenges of business careers. In order to foster students’ ability to think critically, the course emphasizes an integrated approach that provides opportunities for synergy among various business functions. F, S, SS

**395. Special Topics**. 1–4 credits; repeatable to 9 credits. Specially arranged seminars, courses, or independent study on a variety of subjects not covered by regular departmental offerings. May be initiated by students with approval of dean and department involved. F, S, SS

**MINOR IN CHINESE STUDIES: CULTURE AND BUSINESS**

The minor in Chinese Studies: Culture and Business is offered through the College of Business and Public Administration and is open to all students across campus. The Chinese Studies minor provides a formal, multidisciplinary approach to the study of modern China, its history, language, culture, and economy. The program targets students from all majors for in-depth examination of a region of growing global importance with special emphasis on the practical development of cross-cultural business skills. The minor requires a minimum of 23 credits in three different categories: Chinese language, area studies and business. It also requires fieldwork or an internship experience in China.

Program Requirements: a minimum of 23 credits distributed between Parts A, B and C as follows:

**Part A: Language** (8 credits)
- Chin 101: First Year Chinese I
- Chin 102: First Year Chinese II

**Part B: Area Studies** (6 credits selected from the following courses)
- Chin 305: Chinese Culture through Films
- Chin 306: Introduction to Chinese Calligraphy
- Hist 362: Modern Chinese History
- Rel 315: Daoism and Confucianism
- Geog 463: Geographical Study: China
- Engl 299: ST: Chinese Literature in Translation

**Part C: Business Studies** (9 credits)
- BAdm 316: Introduction to Business in China
- AND EITHER
  - BAdm 318: China Then and Now (summer in China)
  - BAdm 319: Business Fieldwork in Shanghai (summer in China)
- OR
  - BAdm 497: Internship in China (S/U only)

**Courses**

**316. Introduction to Business in China**. 3 credits. An overview of China’s past, present and future with particular emphasis on cross-cultural business skills and doing business in China today. F

**318. China Then and Now**. 3 credits. Offered only in China, this course examines China’s culture, customs, politics, and artistic heritage through existing monuments, temples, historic residences, city structures and artifacts. SS

**319. Business Fieldwork in Shanghai**. 3 credits. Offered only in China, this course exposes students to the practical problems associated with conducting business in China through lectures and fieldwork. SS

**497. Internship in China**. 1-6 credits. Approval of Director of International Business Programs required. On the job work experience (may be compensated or not) in various areas of business in China.

**MINOR IN SPORT BUSINESS**

The College of Business and Public Administration provides undergraduate business students with the opportunity to earn a minor in sport business. The minor requires a minimum of 21 semester hours described below.

Students receive a conceptual grounding in sport-specific business thought through coursework as well as experience in the sports field through internship opportunities. Students are encouraged to select a business major which corresponds to a sport career choice of interest. Options are covered in the Introduction to Sport Business course requirement. Internship experiences also expose students to sport business career options and serve as a networking tool so vital in the sports industry. Students will be assisted in the identification of internship options; however, students are ultimately responsible for acquiring a meaningful internship position. Students may also be required to relocate for the duration of the internship.

I. Required Credits (21):

**Sprt 205. Introduction to Sport Business**. 3 credits. An overview of the business of sport, including career opportunities. A study of the value of professional business practices to sport organizations. Regular Grading. F, S

**Sprt 310. Economics of Sport**. 3 credits. Prerequisites: Econ 201, Sprt 205. Application of micro and macro economic theory to the analysis of sports markets. Regular Grading. F

**Sprt 320. Sport Financial Management**. 3 credits. Prerequisites: Sprt 205, Fin 310. Application of financial management theory as it relates to sport business. Utilizes financial models and quantitative methods. Includes coverage of financial statement analysis, risk and return analysis, cost of capital, capital budgeting, valuation of real assets, capital structure planning, and working capital management for sport businesses. Regular Grading. F

**Sprt 330. Sport Law**. 3 credits. Prerequisites: Sprt 205, Acc 315. Identification and analysis of legal issues, and the ramifications of these issues as they relate to the sports industry. Includes coverage of contracts, antitrust law, labor relations, collective bargaining, agent-athlete relations, intellectual property, governing bodies, and presentation of the athlete. Regular Grading. F

**Sprt 440. Sport Branding & Sponsorship**. 3 credits. Prerequisites: Sprt 205, Mkt 305. Examining the influence of sport participants and spectators on the development of branding strategies and sponsorship relationships in the multi-faceted sports industry. Regular Grading. S
Chemical Engineering (ChE)

http://www.und.edu/dept/sem/che/

Benson, Bowman, Ji, Kolodka, Mann (Chair), Muggli, Parker, Tande and Seames

The department’s primary objective is the education of undergraduate students so that, upon graduation, they are prepared to take challenging entry-level positions in a wide range of industries. These include not only traditional chemical and petroleum processing, but also fields such as biotechnology, consumer products, electronic materials, energy, food, polymers, pulp and paper, and environmental protection. They may be engaged in research, teaching, development, manufacturing, technical support, marketing, sales or project engineering, and frequently enter engineering management later in their careers. The prescribed curriculum provides a sound, technically based general education for those graduates who wish to pursue other professions such as medicine, law and business. Research and professional activities by members of the faculty, conducted in collaboration with graduate and undergraduate students, provide training for our students on how to succeed as researchers.

To help meet our primary objective, the department has established the following as its education objectives:

- Graduates have the knowledge and skills required to analyze and solve problems related to the field of chemical engineering and communicate these results in verbal and written form to a diverse audience.
- Graduates are prepared to take entry-level positions in the chemical process and broadly related industries and demonstrate integrity, responsibility, ownership, and accountability for their work.
- Graduates have a thorough grounding in fundamentals, allowing them to obtain advanced degrees in chemical engineering or to pursue other professional interests such as medicine or law.
- Graduates have the teamwork, leadership, and lifelong learning skills that prepare them for future professional growth in a broad spectrum of careers.
- Graduates understand the role of chemical engineering as a profession and their role in addressing societal issues, including sustainability, environmental responsibility, and safety.

The core of the program is a strong technical curriculum, whereby the fundamentals of the physical sciences, mathematics, and chemical engineering are learned. This core is complemented by general courses in other engineering and technical disciplines to help prepare the students for professional registration or other future careers. Six of the required technical courses are electives, which provide each student the opportunity to tailor the program to his/her individual interests such as environmental concerns, materials, bio-processes, entrepreneurship, etc. Other prescribed courses include topics such as economics, statistics and professional integrity. The program also gives students a chance to become proficient in skills such as computer use, oral and written communication, and team work. The undergraduate program culminates in a senior capstone design course in which the students bring together all they have learned as they work in teams on a process design and evaluation project. UND’s program is accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET).

Practical, hands-on experience is gained in laboratories distributed throughout the undergraduate program. Lab experiments form a significant part of each student’s learning beginning immediately in first year chemistry and continuing through the curriculum. In addition to university experiences, which include opportunities to conduct research, students are encouraged to spend time working in the engineering profession via summer internships or cooperative education.

Besides the technical education embodied in the program, there is a strong required general education component with a focus on thinking and reasoning in a diverse society. This is included to round out the individual’s university experience and help prepare for a full life, not just a career. There are also many extracurricular activities available (including professional societies, honor societies, sports and clubs) to enhance the enjoyment of the time spent at UND and to develop important friendships and leadership and team building skills.

One of the main characteristics of this department, which distinguishes it from most other chemical engineering programs around the country, is the commitment to building a strong rapport between the students and faculty. We are able to maintain close interaction because of the relatively small class sizes (typically 20-25 students), and because all faculty members are committed to helping all students do their best and succeed. The interaction between faculty and students occurs formally in the classrooms and through the advising process, but it also frequently arises informally because all faculty maintain an open door policy. It all adds up to an environment that fosters mutual respect and maximizes learning. Our alumni report that the education they received at UND enables them to compete effectively with graduates from any other institution.

To allow qualified students to complete both undergraduate and graduate degrees in one year beyond that required to receive the baccalaureate degree alone, the department offers combined Bachelor of Science in Chemical Engineering (BSChE)/Master of Science (with a major in chemical engineering) and BSChE/Master of Engineering degrees. See Combined Degree Program under the School of Engineering and Mines section for additional details. For even more complete information, see Graduate School section.

School of Engineering and Mines

BS. IN CHEMICAL ENGINEERING

Required 133 credits (36 of which must be numbered 300 or above and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>ChE 102 .......... Introduction to Chemical Engineering (2)</td>
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<tr>
<td>Chem 221/221L# .... Fundamentals of Chemistry - Concepts* (3/1)</td>
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<tr>
<td>Chem 222/222L# .... Fundamentals of Chemistry - Analysis* (3/1)</td>
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<tr>
<td>Engl 110 ............ College Composition I* (3)</td>
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<td>Math 165 ............ Calculus I* (4)</td>
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<td>Math 166 ............ Calculus II* (4)</td>
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<td>Phys 251 ............ University Physics I* (4)</td>
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<tr>
<td>Arts/Humanities ES (3)</td>
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<tr>
<td>Social Science ES (3)</td>
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School of Engineering and Mines
Technical Elective I (choose one of the following):

- ChE 201 ....... Chemical Engineering Fundamentals* (3)
- ChE 232 ....... Chemical Engineering Laboratory I (2)
- Engl 125 .... Introduction to Technical & Business Writing* (3)
- Engr 201 ........ Statics (3)
- Math 265 ....... Calculus III* (4)
- Math 266 ....... Elem. Differential Equations (4)
- Phys 252 ...... University Physics II* (4)
- ChE 206 ....... Unit Operations in Chemical Engineering (3)
- Chem 240/240L† .... Survey of Organic Chemistry & Lab (4/1)
- ChE 315 ........ Statistical Data Analysis & Numerical Methods (3)

Junior Year

- ChE 301 ........ Transport Phenomena (4)
- ChE 305 .......... Separations (3)
- ChE 331 ........ Chemical Engineering Lab II (2)
- ChE 332 .... Chemical Engineering Lab III (2)
- EE 206 ....... Elec. Engineering Fundamentals (3)
- ChE 303 ........ Chem. Engineering Thermodynamics (4)
- ChE 321 ....... Chemical Engineering Reactor Design (3)
- ChE 340 ........ Professional Integrity in Engineering (3)
- Business/Entrepreneurship Elective (3)
- Technical Elective I (3)

Senior Year

- ChE 408 ........ Chemical Process Dynamics (3)
- ChE 411 .... Chem. Engineering Plant Design I (4)
- ChE 412 .... Chemical Engineering Plant Design II (5)
- ChE 431 .... Chemical Engineering Lab IV (3)
- Chem 465 .... Physical Chemistry II (3)
- Arts/Humanities ES (3)
- Social Science (ES) (3)
- Technical Elective I (3)
- Advanced Chem. Science Elective (3)
- Engineering Science Elective (3)

Concentration in Sustainable Energy Engineering

Climate change, rising energy costs, and energy security represent some of the most significant issues facing today's society. It will take major advances in technology to help resolve these issues. More importantly, energy-related issues have created a new industry with a strong need for the training and development of human capital. The concentration in Sustainable Energy Engineering is designed to help students prepare themselves for careers associated with sustainable energy technologies.

To qualify for a concentration in Sustainable Energy Engineering, a student must complete the requirements for the B.S. in Chemical Engineering. Requirements for the concentration are fulfilled by taking the following courses to meet the required electives of the B.S. ChE degree. In addition, one additional credit is required for the concentration: ChE 420, Capstone in Sustainable Energy Engineering.

Engineering Science Elective:

- ChE 435 .... Materials and Corrosion (3)

Business/Entrepreneurship Elective (choose one of the following):

- Engr 301 .... Technology and Innovation Case Studies (3)
- Engr 410 .... Technology Venture (3)
- Engr 301 .... Accounting and Financial Concepts for Entrepreneurs (3)
- Engr 302 .... Marketing & Management Concepts for Entrepreneurs (3)

Technical Elective I (choose one of the following):

- ChE 503 .... Fuels Technologies (3)
- Engr 501 .... Energy, Resources and Policy (3)
- Engr 502 .... Alternative Energy Systems (3)
- EE 522 .... Renewable Energy Systems (3)

Technical Elective II (choose one of the following):

- GEOL 103 .... Introduction to Environmental Issues (3)
- GEOL 121/121L .... Global Physical Environment (3)
- GEOS 134/134L .... Introduction to Global Climate (3)

Advanced Chemical Science Elective (choose one of the following):

- CHEM 333/333L .... Environmental, Clinical and Forensic Analysis (3)
- ChE 493 .... Chemical Engineering Research (3)

ChE 420, Capstone in Sustainable Energy Engineering, 1 credit

The student's transcript will be marked with a Concentration in Sustainable Energy Engineering upon completion of the recommended curriculum.

Courses

102. Introduction to Chemical Engineering, 2 credits. An introduction to the chemical engineering profession. Also includes introduction to dimension analysis, material balances, unit operations, safety and engineering economics. S

201. Chemical Engineering Fundamentals, 3 credits. Prerequisite: Chem 122 or 222 or 254. Introductory principles of stoichiometry with emphasis directed to material and energy balances involved in chemical processes. F

206. Unit Operations in Chemical Engineering, 3 credits. Prerequisites: ChE 201. Application of the principles of momentum and heat transfer from a unit operations perspective. S

232. Chemical Engineering Laboratory I, 2 credits. Prerequisite: ChE 201 or concurrent enrollment. The use and application of apparatus to measure the physical and chemical properties involved in chemical process material and energy balances. S

301. Introduction to Transport Phenomena, 4 credits. Prerequisite: Math 266 or concurrent enrollment, ChE 201 and Physics 252. An analytical study of the transport of momentum, energy and mass; derivation and utilization of the differential equations of change. F

303. Chemical Engineering Thermodynamics, 4 credits. Prerequisites: ChE 201* or GeoE 351. Thermodynamics applied to chemical engineering with emphasis on computational work, including thermodynamic laws, chemical equilibria and pressure-volume-temperature relationships. F

305. Separations, 3 credits. Prerequisite: ChE 201* and prerequisite or corequisite ChE 206. Theory and application of rate-based and equilibrium-staged separations. S

315. Statistics and Numerical Methods in Engineering, 3 credits. Prerequisites: Math 266 or concurrent enrollment. Numerical methods include integration, differentiation, Taylor series expansion, curve fitting, linear and nonlinear regression. Statistical analyses of data include hypothesis testing, confidence intervals, tests for equal variances, analysis of variance, propagation of error, and an introduction to statistical design of experiments. S

321. Chemical Engineering Reactor Design, 3 credits. Prerequisites: ChE 201, 206 and Math 266. Theory of chemical reaction rates. Design of batch, tubular, CSTR and catalytic chemical reactors. S

331. Chemical Engineering Laboratory II, 2 credits. Prerequisites: ChE 201 and Math 250. Experiments illustrating physico-chemical principles and the application of fluid flow and heat transfer theory. F

332. Chemical Engineering Laboratory III, 2 credits. Prerequisites: ChE 331. Experiments reinforcing physico-chemical principles, unit operations, and separations. Pre-design labs are also introduced. S

340. Professional Integrity in Engineering, 3 credits. This course emphasizes the need for technical professionals to develop personal integrity and moral character in order to benefit society. Students will develop an appreciation for the global context of their decisions, the ability to make sound ethical decisions, and communicate their ideas effectively. This course also explores the impact of engineering and applied science on society. S

397. Cooperative Education. 1-8 credits repeatable to 24. Prerequisite: Admission to the chemical engineering degree program. A practical work experience with an employer closely associated with the student’s academic area. Arranged by mutual agreement among student, department and employer. S/U grading only. F,SS

404. Air Emissions: Regulation and Control, 3 credits. This course is designed to enable engineers to understand natural and anthropogenic sources of air pollution, their impact on health and the environment, and learn ways to minimize air emissions by application of control practices. F

408. Process Dynamics and Control, 3 credits. Prerequisites: Math 266, ChE 206 and 305. Dynamics and control of chemical processes and of systems. F

411. Chemical Engineering Plant Design I, 4 credits. Prerequisites: ChE 206, 303, 305 and 321. Introduction to how projects are executed in the process industries, including an understanding of what constitutes preliminary process design, preliminary cost estimation, the fundamentals of macroeconomics as applied to process economic assessment, and the typical drawings and other deliverables produced during the scoping phase of process plant design. There is a particular emphasis on safety considerations in design. F

412. Chemical Engineering Plant Design II, 5 credits. Prerequisite: ChE 411. Proficiency is gained in the development of the preliminary design for a major chemical
process. In addition, this course provides an introduction to the second stage of process design—the conceptual design process including an introduction to Piping and Instrument–level design development, process control design and facility layout. S

420. Capstone in Sustainable Energy. 1 credit. Prerequisite: completion of 12 credit hours towards a concentration in Sustainable Energy. The student will work one-on-one with a faculty member to develop a concept paper on the primary issues facing the development and implementation of sustainable energy technologies. S

431. Chemical Engineering Laboratory IV. 3 credits. Prerequisites: CHE 206 and 305. Laboratory study of the unit operations of Chemical Engineering.

435. Materials and Corrosion. 3 credits. Provides an introduction to the fundamental properties of metals and polymers, reviews the forms of metal corrosion and of polymer degradations. F


493A. Special Topics. (regular grading).

493B. Special Topics. (S-U grading). 1-3 credits. Repeatable to 9 credits. Prerequisite: consent of instructor. Special topics dictated by student request and current faculty interest. The particular course may be initiated by the student by contacting members of the faculty. On demand.

*Completed with a C or better. See degree program for admission requirements.

### Chemistry (Chem)

http://www.und.edu/dept/chem/mainpage.html

Abrahamson, H., Abrahamson, J., Chu, Delhommeille, Du, Hightower, Hoffmann (Chair), Kozliak, Kubatova, Novikov, Pierce, Smoliakova, Stahl, Thomasson and Zhao

The Chemistry Department of the University has been approved by the Committee on Professional Training of the American Chemical Society. This means that the teaching staff, curriculum, equipment, library, and other facilities of the Department meet the standards established by the Society for the proper undergraduate training of chemists. Students who complete the work for the professional degree, Bachelor of Science in Chemistry, will upon graduation and certification by the Chairman of the Department, receive a special certificate from the Society. Certified graduates are eligible to become Members of the American Chemical Society; other chemistry graduates may become Associate Members and Members after three years of professional experience in chemistry.

Students who wish to have the best preparation for graduate work or for an industrial position in chemistry should follow the program leading to the Bachelor of Science in Chemistry. Students who desire a course of study which is less concentrated in chemistry in order to prepare themselves for advanced work in other fields should pursue the program leading to the B.S. degree with a major in chemistry. Those students who wish to prepare themselves for teaching in High School may pursue the program leading to the B.S. degree with a major in chemistry in the College of Arts and Sciences and take additional courses in the Department of Teaching and Learning to qualify for teaching certification. The specific course requirements for each of these major programs are listed below.

### Graduate Study

The Department of Chemistry offers graduate programs leading to the degrees of Master of Science and Doctor of Philosophy with majors in inorganic chemistry, organic chemistry, physical chemistry and analytical chemistry. In order to pursue graduate work in chemistry, the student must have the baccalaureate degree with a major in chemistry. Some students may be interested in the five-year, combined M.S./B.S. that is offered. For more detailed information, see the Graduate School Bulletin.

### College of Arts and Sciences

#### B.S. IN CHEMISTRY

Required 125 credits (36 of which must be numbered 300 or above and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES guidelines and course listings).

II. The Following Curriculum:

Major Requirements—48 hours of Chemistry including:

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 221, 221L: Fundamentals of Chemistry</td>
<td>Concepts &amp; Lab</td>
<td>(4)</td>
</tr>
<tr>
<td>Chem 254, 254L: Inorganic Chemistry I &amp; Lab</td>
<td></td>
<td>(4)</td>
</tr>
<tr>
<td>Engl 110: College Composition I</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 125: Technical and Business Writing</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Math 165: Calculus I</td>
<td></td>
<td>(4)</td>
</tr>
<tr>
<td>Math 166: Calculus II</td>
<td></td>
<td>(4)</td>
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<tr>
<td>Essential Studies Electives</td>
<td></td>
<td>(5)</td>
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<tr>
<td>Total Hours</td>
<td></td>
<td>16 15</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 333, 333L: Intro. to Environmental, Clinical &amp; Forensic Chemical Analysis</td>
<td></td>
<td>(4)</td>
</tr>
<tr>
<td>Chem 341, 341L: Organic Chemistry I &amp; Lab</td>
<td></td>
<td>(5)</td>
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<tr>
<td>Chem 342, 342L: Organic Chemistry II &amp; Lab</td>
<td></td>
<td>(5)</td>
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<tr>
<td>Phys 251, 251L</td>
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<td>Math 265: Calculus III</td>
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<tr>
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<table>
<thead>
<tr>
<th>Junior Year</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 464, 465: Physical Chemistry I, II</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Chem 454, 454L: Inorganic Chemistry II &amp; Lab</td>
<td></td>
<td>(4)</td>
</tr>
<tr>
<td>Chem 443, 443L: Instrument Analysis III, I</td>
<td></td>
<td>(2)</td>
</tr>
<tr>
<td>BMB 301: Biochemistry Lecture</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Level II Language</td>
<td></td>
<td>(4)</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>(3)</td>
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<tr>
<td>Total Hours</td>
<td></td>
<td>16 15</td>
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</table>

<table>
<thead>
<tr>
<th>Senior Year</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 442: Instrumental Analysis II</td>
<td></td>
<td>(2)</td>
</tr>
<tr>
<td>Chem 455: Spectroscopy and Structure</td>
<td></td>
<td>(3)</td>
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<tr>
<td>Chem 488: Undergraduate Seminar</td>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Chem 492: Senior Research</td>
<td></td>
<td>(1)</td>
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<tr>
<td>Electives</td>
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<tr>
<td>Total Hours</td>
<td></td>
<td>15 16</td>
</tr>
</tbody>
</table>

* With permission of the adviser, a student may substitute English 120 if English 125 is not available.

* If a student is not ready for Math 165, the math sequence may be moved back one semester and Math 107 (also Math 103, if needed) should be taken in the first semester.

* Suggested electives are courses in Physics, Mathematics, Biology, Languages, Computer Science, Chemical Engineering, Business Management, and Speech.

* Chem 44X (441, 442 and 443) courses are offered within a regular, two-year cycle. Students can take Chem 44X courses in any order.

* Graduate level courses in Chemistry may be taken as electives.

### B.S. WITH MAJOR IN CHEMISTRY

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES guidelines and course listings).

II. The Following Curriculum:

Major Requirements — 36 hours of Chemistry including:

<table>
<thead>
<tr>
<th>Option A. Physical Science Emphasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Year</td>
</tr>
<tr>
<td>Chem 121, 121L: General Chemistry I &amp; Lab</td>
</tr>
<tr>
<td>Chem 122, 122L: General Chemistry II &amp; Lab</td>
</tr>
<tr>
<td>Engl 110: College Composition I</td>
</tr>
<tr>
<td>Engl 125: Technical and Business Writing</td>
</tr>
<tr>
<td>Math 165: Calculus I</td>
</tr>
<tr>
<td>Math 166: Calculus II</td>
</tr>
<tr>
<td>Essential Studies Electives</td>
</tr>
<tr>
<td>Total Hours</td>
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</table>
### Sophomore Year

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 333, 333L</td>
<td>Intro Environmental, Clinical &amp; Forensic Chemical Analysis &amp; Lab</td>
</tr>
<tr>
<td>Chem 341, 341L</td>
<td>Organic Chemistry I &amp; Lab</td>
</tr>
<tr>
<td>Chem 342, 342L</td>
<td>Organic Chemistry II &amp; Lab</td>
</tr>
<tr>
<td>Phys 251</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>Phys 252, 252L</td>
<td>University Physics I &amp; II</td>
</tr>
<tr>
<td>Math 265</td>
<td>Calculus III</td>
</tr>
<tr>
<td><em>Essential Studies Electives</em></td>
<td>(6)</td>
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<tr>
<td><em>Total Hours</em></td>
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</tr>
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</table>

### Junior Year

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Details</th>
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<tbody>
<tr>
<td>Chem 464, 465</td>
<td>Physical Chemistry I, I</td>
</tr>
<tr>
<td>*Chem 443, 444</td>
<td>Instrumental Analysis III, III</td>
</tr>
<tr>
<td><em>Level II Electives</em></td>
<td>(2)</td>
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<tr>
<td><em>Total Hours</em></td>
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</table>

### Senior Year

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Details</th>
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</thead>
<tbody>
<tr>
<td>Chem 442</td>
<td>Physical Chemistry Laboratory</td>
</tr>
<tr>
<td><em>Essential Studies Electives</em></td>
<td>(2)</td>
</tr>
<tr>
<td><em>Total Hours</em></td>
<td>15</td>
</tr>
</tbody>
</table>

1. With permission of the adviser, a student may substitute English 120 if English 125 is not available.
2. If a student is not ready for Math 165, the math sequence may be moved back one semester and Math 107 (also Math 103, if needed) should be taken in the first semester.
3. Chem 44X (441, 442 and 443) courses are offered within a regular, two-year cycle.
4. Students can take Chem 44X courses in any order.
5. Electives consist of courses in Physics, Mathematics, Biochemistry, Biology, Languages, Computer Science, Chemical Engineering, Business Management, and Speech.
6. Graduate level courses in Chemistry may be taken as electives.

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#### Option B. Biochemistry Emphasis

##### Freshman Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 121, 121L</td>
<td>General Chemistry I &amp; Lab</td>
</tr>
<tr>
<td>Chem 122, 122L</td>
<td>General Chemistry II &amp; Lab</td>
</tr>
<tr>
<td>Engl 110</td>
<td>Composition I</td>
</tr>
<tr>
<td>Engl 125</td>
<td>Technical and Business Writing</td>
</tr>
<tr>
<td>Math 146</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>Biol 150, 150L</td>
<td>General Biology I &amp; Lab</td>
</tr>
<tr>
<td>Biol 151, 151L</td>
<td>General Biology II &amp; Lab</td>
</tr>
<tr>
<td><em>Essential Studies Electives</em></td>
<td>(2)</td>
</tr>
<tr>
<td><em>Total Hours</em></td>
<td>16</td>
</tr>
</tbody>
</table>

##### Sophomore Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 333, 333L</td>
<td>Introductory Environmental &amp; Clin Forensic Chemical Analysis</td>
</tr>
<tr>
<td>Chem 341, 341L</td>
<td>Organic Chemistry I &amp; Lab</td>
</tr>
<tr>
<td>Chem 342, 342L</td>
<td>Organic Chemistry II &amp; Lab</td>
</tr>
<tr>
<td>Phys 211, 211L</td>
<td>College Physics I &amp; Lab</td>
</tr>
<tr>
<td>Phys 212, 212L</td>
<td>College Physics II &amp; Lab</td>
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<tr>
<td><em>Essential Studies Electives</em></td>
<td>(3)</td>
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<td><em>Total Hours</em></td>
<td>16</td>
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</table>

##### Junior Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 866</td>
<td>Survey of Physical Chemistry</td>
</tr>
<tr>
<td>BMB 301</td>
<td>Biochemistry Laboratory</td>
</tr>
<tr>
<td><em>Level II Electives</em></td>
<td>(4)</td>
</tr>
<tr>
<td><em>General Electives</em></td>
<td>(12)</td>
</tr>
<tr>
<td><em>Total Hours</em></td>
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</table>

##### Senior Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 667</td>
<td>Survey of Physical Chem Laboratory</td>
</tr>
<tr>
<td>BMB 401</td>
<td>The Biochemistry of Proteins and Information Flow</td>
</tr>
<tr>
<td>BMB 403</td>
<td>Advanced Biochemistry Laboratory</td>
</tr>
<tr>
<td><em>General Electives</em></td>
<td>(8)</td>
</tr>
<tr>
<td><em>Total Hours</em></td>
<td>15</td>
</tr>
</tbody>
</table>

1. With permission of the adviser, a student may substitute English 120 if English 125 is not available.
2. If a student is not ready for Math 146, Math 103 should be taken in the first semester.
3. If a student would like the option to change into the B.S. in Chemistry or the B.S. with Major in Chemistry with emphasis for the Physical Science Option at a later date, be aware that Math 165, 166, and 265 are required. If a student who begins either the B.S. in Chemistry or the B.S. with Major in Chemistry with emphasis for the Physical Science Option wishes to change into the Biochemistry Option, Math 165 will substitute for Math 146.
4. Biology 150 and 151 can be taken in the sophomore year. They are prerequisites to other required biology courses.
5. Electives must include 3 credit hours from Cell Biology (Biol 341), Genetics (Biol 315), or Microbiology (MBio 302). Other suggested electives are courses in Physics, Mathematics, Biochemistry, Biology, Languages, Computer Science, Chemical Engineering, Business Management, and Speech.

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### MINOR IN CHEMISTRY

Required: A minimum of 20 semester hours except all twenty are required for the student’s major. The 20 semester hours shall include one year of general/inorganic chemistry with laboratory, a semester of analytical chemistry with laboratory, and one year of organic with laboratory. Chem 240 and Biochem 301 can be substituted for one year of organic chemistry. If all twenty hours are required by the student’s major, a minor may be achieved by taking 2 semester hours beyond the chemistry courses required for the major.

### Teacher Certification

In addition to fulfilling the requirements of one of the majors listed above, students seeking secondary teacher certification in Chemistry must complete the Department of Teaching and Learning requirements in Secondary Education on page 155. Students seeking certification must also complete these additional courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMB 301</td>
<td>Biochemistry Laboratory</td>
</tr>
<tr>
<td>Biol 150, 150L</td>
<td>General Biology Lab I &amp; II</td>
</tr>
<tr>
<td>Geol 101, 101L</td>
<td>Physical Geology</td>
</tr>
<tr>
<td>Geog 121, 121L</td>
<td>Physical Geography</td>
</tr>
</tbody>
</table>

Chemistry majors seeking secondary certification must have an advisor both in the Chemistry Department and in the Department of Teaching and Learning. Formal admission to Teacher Education is normally sought while enrolled in T&L 325 (see Department of Teaching and Learning listing).

### Clinical Laboratory Science

The Clinical Laboratory Science (CLS) program at UND offers a “4+1” curriculum that allows a student to receive a certificate from the CLS program with one year of additional study past a B.S. degree in Chemistry. Students would then be eligible to take a national certification examination to become a certified Clinical Laboratory Scientist. The CLS program requires a cumulative GPA of at least 2.8 for the B.S. program and a grade of C or better in specific specified courses. Please see the CLS program for more details.

### Courses

#### 110. Survey of Chemistry. 4 credits. Prerequisites: None. A course designed specifically for non-science majors who wish to obtain a basic understanding of chemistry in the world today. Does not serve as a prerequisite for any other chemistry course.

#### 115. Introductory Chemistry. 3 credits. Corequisite: Chem 115L. Measurement, ionic and covalent compounds, chemical calculations, states of matter, energy, solutions, reactions, chemical bonding.

#### 115L. Introductory Chemistry Laboratory. 1 credit. Corequisite: Chem 115. Laboratory to accompany Chem 115, F,S.

#### 116. Introduction to Organic and Biochemistry. 3 credits. Prerequisite: Chem 115 or 121. Corequisite: Chem 116L. Does not satisfy the prerequisite for any advanced chemistry course. A second semester of general chemistry with emphasis on organic and biochemistry. Includes alkanes, alkenes, alkynes, aromatic, alcohols, phenols, ethers, aldehydes, ketones, carboxylic acids, esters, amines, amides, carbohydrates, lipids, amino acids, proteins, and nucleic acids. Especially useful for students who wish to include organic and biochemistry in the first year. Required of students in the B.S. in Chemistry program.

#### 116L. Introduction to Organic and Biochemistry Laboratory. 1 credit. Corequisite: Chem 116. Laboratory to accompany Chem 116, F,S.

#### 121. General Chemistry I. 3 credits. Prerequisite: Math 102. Corequisite: Chem 121L. General Chemistry I or an appropriate score on the Placement Testing Program (PTP). Open to all students; no high school credit in chemistry required. Elementary principles and theories of chemistry; matter, measurement, atoms, ions, molecules, reactions, chemical calculations, thermochemistry, bonding, molecular geometry, periodicity, gasses. Required of all chemistry majors. F,S,SS.

#### 121L. General Chemistry I Laboratory. 1 credit. Corequisite: Chem 121. Laboratory to accompany Chem 121. Required of all chemistry majors. F,S,SS.

#### 122. General Chemistry II. 3 credits. Prerequisite: Chem 121. Corequisite: Chem 122L. General Chemistry II, with a grade of C or better. Required of all chemistry majors. F,S,SS.

#### 211. Fundamentals of Chemistry - Concepts. 3 credits. Prerequisites: high school chemistry and Math 103 or appropriate placement score. Corequisite: Chem 221L. Atomic and molecular structure, stoichiometry, states of matter, thermodynamics, periodicity, and descriptive inorganic chemistry. P

#### 221. Fundamentals of Chemistry Laboratory. 1 credit. Prerequisites: high school chemistry and Math 103 or appropriate placement score. Corequisite: Chem 221. F

#### 240. Survey of Organic Chemistry. 4 credits. Prerequisite: Chem 122; General Chemistry II, with a grade of C or better. Corequisite: Chem 222L, General Chemistry Laboratory II or Chem 222 and 222L. Corequisite: Chem 240L. For all students interested in a semester

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University of North Dakota
survey of organic chemistry. Structure and bonding, nomenclature; hydrocarbons; alkanes, alkenes, alkynes, aromatics; substituted hydrocarbons; alkyl halides, stereochemistry, alcohols, phenols, ethers, amines; carboxyls: aldehydes, ketones; carboxylic acids, esters, amides.


254. Inorganic Chemistry I. 3 credits. Prerequisite: Chem 122 or 221. Corequisite: Chem 254L. Required for chemistry majors. Chemistry of the elements with emphasis on occurrence, preparation, physical properties, chemical reactivity, uses, nomenclature, structure and periodic behavior. Includes chemical kinetics and thermodynamics.

254L. Inorganic Chemistry I Laboratory. 1 credit. Prerequisite: Chem 122 or 221. Corequisite: Chem 254. Qualitative and quantitative inorganic chemistry, including precipitation, acid-base reactions, and redox reactions in aqueous solutions. The preparation and isolation of main-group element and transition metal compounds. The characterization of these compounds with standard chemical and instrumental methods. Determinations of the rates of chemical reactions and of bond parameters.

343. Analytical Chemistry. 3 credits. Prerequisite: Chem 122 or 254. Corequisite: Chem 333L. For all science majors interested in using analytical chemistry techniques in a modern science laboratory. Principles of quantitative and qualitative chemical analysis as applied to environmental, clinical and forensic science are covered.

333L. Analytical Chemistry Laboratory. 1 credit. Prerequisite: Chem 122 or 254. Corequisite: Chem 333. Laboratory to accompany Chem 333. Principles of quantitative and qualitative chemical analysis as applied to environmental, clinical and forensic science are covered.

341. Organic Chemistry I. 4 credits. Prerequisite: Chem 122, General Chemistry II with a grade of C or better or Chem 222 and 222L. Corequisite: Chem 341L. Designed for science and pre-professional students. Required for chemistry majors. Structure and bonding, nomenclature, stereochemistry, functional groups, spectroscopy (NMR, IR, MS) for structure determination.

341L. Organic Chemistry I Laboratory. 1 credit. Prerequisite: Chem 122L. Corequisite: Chem 341L. Laboratory to accompany Chem 341. Required for chemistry majors.


342L. Organic Chemistry II Laboratory. 1 credit. Prerequisite: Chem 341L. Corequisite: Chem 342. Required for all chemistry majors. Laboratory to accompany Chem 342.

392. Special Problems in Chemistry. 1 to 3 credits. Prerequisite: consent of instructor. Total credits not to exceed 3. An opportunity for students to work on research problems under close faculty guidance. S/U grading only.

397. Cooperative Education. 8 credits. May be repeated for a maximum of 12 credits. Prerequisites: one year of freshman chemistry with laboratory and either one of the following course sequences: Chem 341, 342. S/U grading.

431. Selected Topics in Chemistry. 1-5 credits, repeatable with different topics. On demand.

441. Instrumental Analysis I - Spectroscopy. 2 credits. Prerequisites: Chem 333 and 333L. Topics ranging from the fundamentals of spectroscopic analysis to contemporary techniques (including atomic absorption spectroscopy, atomic emission spectroscopy, atomic fluorescence spectroscopy, UV-vis molecular spectroscopy, fluorescence molecular spectroscopy, and infrared spectroscopy) are explored in the classroom and in laboratory exercises.

442. Instrumental Analysis II - Electrochemistry. 2 credits. Prerequisites: Chem 333 and 333L. Topics ranging from the fundamentals of electrochemistry (including thermodynamics, kinetics, and mass transfer) to contemporary techniques of electroanalytical (such as potentiometry, coulometry, amperometry, and voltammetry) are explored in classroom and laboratory exercises.

443. Instrumental Analysis III - Chromatography/Mass Spectrometry. 2 credits. Prerequisites: Chem 333 and 333L. Topics involving the fundamentals of gas and liquid chromatography (GC and LC) and mass spectrometry (MS) as well as their practical considerations in the method development (including sample preparation and MS interpretation) are covered. The modern chromatographic techniques (GC, GC/MS, and high resolution MS) are explored in classroom and laboratory exercises.

454. Inorganic Chemistry II. 3 credits. Prerequisite: Chem 465 or 466. Chemistry of inorganic compounds in terms of modern theories and concepts.

454L. Inorganic Chemistry II Laboratory. 1 credit. Prerequisites: Chem 254 and 254L. Corequisite: Chem 454. A course in laboratory techniques as applied to inorganic systems, including modern methods for synthesizing inorganic compounds and their analyses by spectroscopic and diffraction techniques.

455. Spectroscopy and Structure. 3 credits. Prerequisites: Chem 342 or Chem 466. Corequisite: Chem 464. Students may satisfy the Chem 466 prerequisite by a Chem 466 prerequisite instead. Applications of spectroscopic techniques to the determination of molecular structure.

462. Physical Chemistry Laboratory. 3 credits. Prerequisites: Chem 464 and 465. Required for B.S. in Chemistry and B.S. with a Major in Chemistry Physical Science Emphasis majors. The solution of chemical problems in the laboratory using modern physical and analytical methods.

463. Advanced Synthesis Laboratory. 3 credits. Prerequisites: Chem 462 or 467 and 454. Advanced synthetic, separation, and characterization methods currently used in modern laboratory practice will be emphasized.


467. Physical Chemistry II. 3 credits. Prerequisites: Chem 341, Math 265, Phys 252. The use of energy concepts in studying and understanding the nature of matter, equilibria, reactivity, kinetics, criteria for reactions.

468. Survey of Physical Chemistry. 4 credits. Prerequisites: Chem 342, Math 146 and Phys 212. Required for chemistry majors in the B.S. with Major in Chemistry with Biochemistry option. Survey of topics in physical chemistry with an emphasis for the life sciences. Topics include chemical thermodynamics, kinetics, introductory quantum mechanics, and spectroscopy.

469. Survey of Physical Chemistry Laboratory. 2 credits. Prerequisite: Chem 466. The solution of chemical problems in the laboratory using physical and biophysical methods.

488. Undergraduate Seminar. 1 credit. Corequisites: Chem 492 or 463. Required for B.S. in Chemistry. Introduction to current research in chemistry and to professional chemistry seminar preparation.


492. Senior Research. 1-6 credits. Prerequisite: Chem 342. Corequisite: Chem 462 or 467. An opportunity for advanced students to work on research problems under close faculty guidance. Submission of a comprehensive final report is part of the course requirements. May be repeated up to 6 credits. Total credits must be greater than 1 but not exceed 6. F, S, SS

Civil Engineering

www.engineering.und.edu/ce

Guillicks, Jerath, Lim, Moretti (Chair), Mamaghani and Suleiman

The mission of the civil engineering program at the University of North Dakota is to provide students with a well-rounded civil engineering education. Graduates of the program will be prepared to function effectively in a wide range of professional settings such as engineering consulting firms, industries and governmental agencies. The civil engineering program emphasizes the areas of environmental engineering, geotechnical engineering, structural engineering, and water resources engineering. The required curriculum includes the fundamentals for each of these areas and provides an opportunity for additional learning experiences with technical electives and a major design experience.

Teamwork, problem solving, and design exercises are interwoven throughout the curriculum; culminating in a two-semester, capstone design project during the senior year. Several courses include laboratories which develop experimental, teamwork, and communication skills. Technical reports and/or presentations required in several courses develop knowledge of contemporary issues and life-long learning skills, as well as communication skills. Relevant computer software is used throughout the curriculum. Students are strongly encouraged to prepare for a professional license by taking the national Fundamentals of Engineering (FE) exam prior to graduation. Students who excel academically are also well qualified to pursue graduate work in civil engineering or a related field.

Engineering Combined Degree Program

To encourage undergraduate engineering students to extend their studies to include a graduate degree, the School of Engineering and Mines has a combined program which permits students to earn both B.S. and M.S. degrees in an engineering discipline. This program allows students to designate two three-credit hour courses to count for both degrees. The selected courses must have graduate course requirements. May be repeated up to 6 credits. Total credits must be greater than 1 but not exceed 6. F, S, SS

Civil Engineering (CIEN)
**EO1** Graduates have the knowledge and skills required to analyze and solve problems related to the field of civil engineering.

**EO2** Graduates practice civil engineering in a wide range of professional settings including consulting firms, government agencies and industries.

**EO3** Graduates work mainly in the areas of engineering design project management, construction, contract administration, technical support, and research.

**EO4** Most graduates continue learning by participating in job related training activities, pursuing a professional engineering license, and/or attending graduate school.

**EO5** Most graduates contribute to the economic development of North Dakota and the surrounding region.

The civil engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

In addition to the normal transfer credit stipulations, Distance Engineering Degree Program (DEDP) and transfer students in Civil Engineering must complete a minimum of 22 credit hours of CIEN 300-level or higher engineering coursework, including the CIEN 482 and 483 Civil Engineering Design sequence.

**B.S. IN CIVIL ENGINEERING**

Required 135 credits (36 of which must be numbered 300 or above, and 60 of which must be in a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

<table>
<thead>
<tr>
<th>Courses</th>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 121, 121L</td>
<td>General Chemistry I/Laboratory</td>
<td>(4)</td>
</tr>
<tr>
<td>Chem 122, 122L</td>
<td>General Chemistry II/Laboratory</td>
<td>(4)</td>
</tr>
<tr>
<td>Biol 150, 150L</td>
<td>General Biology I/Laboratory</td>
<td>(4)</td>
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<tr>
<td>Engl 110</td>
<td>College Composition I</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 125</td>
<td>Technical &amp; Business Writing</td>
<td>(3)</td>
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<tr>
<td>Engl 120*</td>
<td>College Composition II</td>
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<tr>
<td>CIEN 101</td>
<td>Introduction to Civil Engineering</td>
<td>(1)</td>
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<tr>
<td>Engr 200</td>
<td>Computer Applications in Engineering</td>
<td>(2)</td>
</tr>
<tr>
<td>Math 165, 166</td>
<td>Calculus I &amp; II</td>
<td>(4)</td>
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<tr>
<td>Math 265</td>
<td>Calculus III</td>
<td>(4)</td>
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<tr>
<td>CIEN 202</td>
<td>Introduction to Digital Terrain Modeling</td>
<td>(1)</td>
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<tr>
<td>CIEN 313</td>
<td>General Surveying</td>
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<td>CIEN 313L</td>
<td>General Surveying Laboratory</td>
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<tr>
<td>Econ 210</td>
<td>Introduction to Business and Economic Statistics</td>
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<tr>
<td>Engr 201</td>
<td>Statics</td>
<td>(3)</td>
</tr>
<tr>
<td>Engr 203</td>
<td>Mechanics of Materials</td>
<td>(3)</td>
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<tr>
<td>Math 265</td>
<td>Calculus III</td>
<td>(4)</td>
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<td>Math 266</td>
<td>Elementary Differential Equations</td>
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<td>Phys 251, 251L</td>
<td>University Physics I/Laboratory</td>
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<tr>
<td>Phys 252, 252L</td>
<td>University Physics II/Laboratory</td>
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<tr>
<td>GeoE 203</td>
<td>Geology for Engineers</td>
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<tr>
<td>GeoE 101**</td>
<td>Introduction to Geology</td>
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<tr>
<td>Social Science</td>
<td>(3)</td>
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<tr>
<td>Junior Year</td>
<td></td>
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<tr>
<td>CIEN 301</td>
<td>Civil Engineering Lab I</td>
<td>(2)</td>
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<tr>
<td>CIEN 302</td>
<td>Civil Engineering Lab II</td>
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<tr>
<td>CIEN 306</td>
<td>Fluid Mechanics</td>
<td>(3)</td>
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<td>CIEN 351</td>
<td>Structural Mechanics</td>
<td>(3)</td>
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<td>CIEN 412</td>
<td>Soil Mechanics</td>
<td>(2)</td>
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<td>Engr 202</td>
<td>Dynamics</td>
<td>(3)</td>
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<tr>
<td>CIEN 423</td>
<td>Hydraulic Engineering</td>
<td>(2)</td>
</tr>
<tr>
<td>CIEN 431</td>
<td>Environmental Engineering</td>
<td>(3)</td>
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<tr>
<td>CIEN 451</td>
<td>Steel Design</td>
<td>(3)</td>
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<tr>
<td>COMM 110</td>
<td>Fundamentals of Public Speaking</td>
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</table>

**Senior Year**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Fall Semester</th>
<th>Spring Semester</th>
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<tr>
<td>CIEN 414</td>
<td>Foundation Engineering</td>
<td>(3)</td>
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<tr>
<td>CIEN 416</td>
<td>Transportation Engineering</td>
<td>(3)</td>
</tr>
<tr>
<td>CIEN 432</td>
<td>Environmental Engineering II</td>
<td>(3)</td>
</tr>
<tr>
<td>CIEN 444</td>
<td>Contracts and Specifications</td>
<td>(3)</td>
</tr>
<tr>
<td>CIEN 453</td>
<td>Reinforced Concrete</td>
<td>(3)</td>
</tr>
<tr>
<td>CIEN 421</td>
<td>Hydrology</td>
<td>(3)</td>
</tr>
<tr>
<td>Engr 460</td>
<td>Engineering Economics</td>
<td>(3)</td>
</tr>
<tr>
<td>CIEN 482</td>
<td>Civil Engineering Design</td>
<td>(2)</td>
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<tr>
<td>CIEN 483</td>
<td>Civil Engineering Design</td>
<td>(3)</td>
</tr>
<tr>
<td>Technical Elective</td>
<td>(3)</td>
<td></td>
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<tr>
<td>Technical Elective</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Social Science</td>
<td>(3)</td>
<td></td>
</tr>
</tbody>
</table>

* Students are encouraged to take Engl 125.

** Courses are encouraged to take GeoE 203.

**101. Introduction to Civil Engineering.** 1 credit. This course will be a series of lectures and discussions concerning the practice of civil engineering. Topics covered include the scope of civil engineering practice, professional practice issues, engineering design, ethics, communication skills, teamworking skills, and career planning. S

**202. Introduction to Digital Terrain Modeling.** 1 credit. Prerequisite: Engr 101. The course introduces some basic functions of the Civil 3D land systems design program. The course uses a combined lecture and laboratory format to teach fundamentals of land surface modeling. Students will have access to Civil 3D software through the SEM computer system. S

**301. Civil Engineering Lab I.** 2 credits. Prerequisites: Engr 203 and Engl 110. Corequisites: Ecom 210 and CIEN 412. Course involves lab experiences dealing with: 1) determining soil index properties, grain size distribution, permeability, moisture density relations, shear strength, and consolidation of soils; 2) engineering properties of concrete, asphalt, steel, and composites; and 3) design of experiments. Students perform lab work in teams and communicate results by written reports. F

**302. Civil Engineering Lab II.** 2 credits. Prerequisites: Engr 203 and Engl 110. Corequisites: Ecom 210, CIEN 431 and CIEN 423. Course involves lab experiences dealing with: 1) fluid properties, flow measurements, open channel flow, pipe flow, and hydraulic machinery; 2) water and wastewater treatment topics such as BOD, total and suspended solids, water hardness, chlorination, alkalinity, coagulation, and jar testing; and 3) design of experiments. Students perform lab work in teams and communicate results in written reports and one oral presentation. S

**306. Fluid Mechanics.** 3 credits. Prerequisites: Phys 251 and Math 265. Fluid properties; fluid statics and dynamics; transport theory and transport analogies, conservation of mass, energy, and momentum; dimensional analysis; boundary layer concepts; pipe flows; compressible flow; open channel flow. F,S

**313. General Surveying.** 2 credits. Prerequisite: Math 165. Corequisite: On-campus students must take CIEN 313L along with this class. Measurements of distances and angular systems; EDM; satellite and inertial systems; triangulation; differential leveling; horizontal curves; vertical curves; traverse surveys; U.S. public land surveys; earthwork; boundary surveys; construction surveys. F

**313L. General Surveying Laboratory.** 1 credit. Prerequisite: DEDP students must have completed CIEN 313. Corequisite: On-campus students must be enrolled in CIEN 313. Course will involve laboratory assignments dealing with measurements of distances and angles; use of EDM, GPS, and automatic levels; traversing; leveling; horizontal curves; vertical curves; and topographic survey. F (on campus), SS (DEDP students)

**351. Structural Mechanics.** 4 credits. Prerequisite: Engr 203. Reactions, shear and bending moment, plane and space trusses, influence lines, deflections, virtual work, energy methods, approximate analysis, consistent deformation methods, slope deflection and moment distribution methods, introduction to matrix methods. Use of computer for analysis. F

**397. Cooperative Education.** 1-3 credits repeatable to 24. Prerequisite: Admission to the civil engineering degree program or consent of advisor. A practical work experience with an employer closely associated with the student’s academic area. Arranged by mutual agreement among student, department and employer. F,S,SS

**412. Soil Mechanics.** 2 credits. Prerequisite: Engr 203. Course topics include principles of soil mechanics including weight-volume relationships, classification, compaction, effective stress, permeability and seepage, consolidation, shear strength, site exploration, introduction to lateral earth pressure, and slope stability. F

**414. Foundation Engineering.** 3 credits. Prerequisite: CIEN 412. Soil improvements and ground modifications, soil exploration and sampling, bearing capacity, spread footings, mat foundations, settlement analysis, drilled shaft and pile foundations, foundations on difficult soil. S

**416. Transportation Engineering.** 3 credits. Prerequisite: CIEN 412. Transportation systems; transportation planning and future developments; computer aided design and analysis of transportation facilities including traffic operations, highway geometry, and pavement. S
421. Hydrology. 3 credits. Prerequisite: CIEN 306. Course topics include measurement, interpretation, analysis and application of hydrologic data; precipitation, evaporation and transpiration; runoff hydrographs; routing methods; groundwater; and snow hydrology. Computer applications. F

423. Hydraulic Engineering. 2 credits. Prerequisite: CIEN 306. Fluid statics and dynamics; open channel flow; transitions and controls; hydraulic structures; hydraulic machinery; hydraulic power conversion; and hydraulic modeling. S


432. Environmental Engineering II. 3 credits. Prerequisite: CIEN 306. Water distribution networks, mass curve analysis, wastewater collection systems, pumping systems for water and wastewater, system design project, computer-assisted design, and computer applications. F

434. Environmental Engineering Laboratory. 4 credits. Physical, chemical and biological methods used in environmental engineering, water chemistry, instrumental methods, lab tours. On demand. F


444. Contracts and Specifications. 3 credits. Engineering contracts and specifications, legal aspects of engineering practice and employment, professional practice issues, procurement of work, governmental regulations. S

451. Steel Design. 3 credits. Prerequisite: CIEN 351. Selection of sections, bolted and welded connections, trusses, bearings, lightgage structural members, fatigue of structural members and introduction to plastic design. S

453. Reinforced Concrete. 3 credits. Prerequisite: CIEN 351. Materials and specifications, axially and eccentrically loaded columns, strength beam theory, shear stresses, bond and development length, serviceability, and one-way slabs. F

482. Civil Engineering Design II. 2 credits. Prerequisites: Two of these four: CIEN 412, 423, 431, and 451. This is a comprehensive design course which integrates engineering design and engineering science components of previous and ongoing coursework into a major design experience. Design projects can be in the areas of environmental, geotechnical, structural, water resources, transportation, and environmental engineering. Course activities include defining the problem, formulating project objectives, gathering background information, scheduling the project, applying design standards and realistic constraints; developing design alternatives; and evaluating design alternatives. Other topics covered include project management, effective team-working, engineering ethics, and computer aided design. Group design reports and individual oral presentations are required. F

483. Civil Engineering Design II. 2 credits. Prerequisite: CIEN 482 or departmental consent. Two of these four: CIEN 412, 423, 431, and 451. This is a comprehensive design course which integrates engineering design and engineering science components of previous and ongoing coursework into a major design experience. Design projects can be in the areas of environmental, geotechnical, structural, water resources, transportation, and environmental engineering. Course activities include developing and analyzing a detailed design, preparing plans and drawings, developing design specifications, and estimating construction costs. Other topics covered include professional practice issues and computer-aided design. Group design reports and individual oral presentations are required. S

490. Special Topics. 1 to 3 credits. Prerequisite: Departmental approval. Investigation of special topics dictated by student and faculty interests. F/S

Clinical Laboratory Science (CLS)
http://pathology.med.und.nodak.edu/cls/

Coleman, Paur (Program Director), Peterson, Porter, Ray, Schill, Sens (Chair), Solberg and Triske
http://medicine.nodak.edu/cls

The Department of Pathology at the University of North Dakota has offered a degree in clinical laboratory science since 1949. The Clinical Laboratory Science (CLS) program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), which is located at 8410 West Bryn Mawr, Suite 670, Chicago, IL 60631.

Clinical Laboratory Scientists, sometimes referred to as Medical Technologists, are key members of the health care team. They are concerned with the study and practice of diagnostic medicine and generate accurate and reliable test results in chemistry, hematology, immunology, immunohematology and microbiology. The results provide valuable information used in the diagnosis and treatment of disease. Excellent employment opportunities exist not only in hospitals and clinics, but also in physician offices, government agencies, industry, research, the armed forces and health related facilities. A severe shortage of clinical laboratory scientists exists and has generated a large demand for new graduates. In addition to immediate employment opportunities, many graduates attend medical school or pursue graduate degrees in science, management or education.

School of Medicine and Health Sciences

B.S. IN CLINICAL LABORATORY SCIENCE

The CLS degree includes two years of pre-professional (freshman and sophomore) education followed by two years of professional (junior and senior) coursework. Application for advancement to the professional education component is made during the summer before the junior year. Applications will be sent to the student from the program. Applicants to the professional program must have a cumulative GPA of at least 2.8 and no more than one D in any math or science course. Exceptions for acceptance and continuance may be made by petition to the Department of Pathology Professional and Academic Standards Committee. During the second year of the professional curriculum (senior year), students register for courses in the summer, fall and spring semesters.

When a student is registered in 300 and 400 level CLS courses, a specific CLS tuition is assessed.

Required 130 credits (36 of which must be numbered 300 or above, and 60 credits of which must be from a four-year institution) including:

I. Essential Studies Requirements (see University ES listing).
II. Curriculum:

Freshman Year
FIRST SEMESTER
Engl 110 ................. College Composition I ............................................ (3)
Bio 150 & 150L ...... General Biology I and Laboratory .......... (4)
Chem 121 I & 121L ...... General Chemistry I and Laboratory . (4)
Math 103 or 104 ....... College Algebra or Finite Math .......... (3)

SECOND SEMESTER
Biol 151 ................. General Biology II ................................................. (3)
Comm 110 .............. Fundamentals of Public Speaking .......... (3)
Chem 122 I & 122L ...... General Chemistry II and Laboratory (4)
Engl 120 or 125 ...... College Composition II or Technical and Business Writing .... (3)

Humanities elective ............................................. ......................................... (3)

Sophomore Year
FIRST SEMESTER
MBio 202 .............. Introductory Medical Microbiology Lecture .......... (3)
Anat 204 ............... Anatomy for Paramedical Personnel ............ (3)
CLS 101 ................. Orientation to Medical Laboratory Sciences .... (2)
Comm 212 .............. Interpersonal Communications .................. (3)
Social Science ....... Introduction to Psychology (recommended) ...... (3)

School Science ... Principles of Microeconomics (recommended) .......... (3)

SECOND SEMESTER
Chem 240 & 240L .... Survey of Organic Chemistry and Laboratory .... (5)

Intermediate Year
FIRST SEMESTER
CLS 234 ............... Human Physiology ............................................ (4)

SECOND SEMESTER
Chem 334 ............... Analytical Chemistry .......................... (3)

Professional Curriculum Year I

Junior Year
FIRST SEMESTER
CLS 301 ............... Immunology ......................................................... (3)

SECOND SEMESTER
Chem 334 ............... Analytical Chemistry .......................... (3)

Senior Year
FIRST SEMESTER
Chem 334 ............... Analytical Chemistry .......................... (3)

SECOND SEMESTER
CLI 444 ............... Clinical Laboratory Science Laboratory .......... (2)

Specific requirements include:

3 hours from:
Biol 315 ............... Genetics ................................................................. (3)
Biol 341 ............... Cell Biology ................................................................. (3)

Chem 333 ............... Analytical Chemistry .......................... (3)

Soc. Science Elec. ... Intro. to Sociology (recommended) .......... (3)
The CLS program offers a 4 + 1 curriculum. A student is eligible for this program if they have earned a B.S. or B.A. degree and have completed the following prerequisite courses:

- General Chemistry .............................................. (8)
- Organic Chemistry ................................................... (3)
- Biochemistry ......................................................... (3)
- General Biology ..................................................... (6)
- Microbiology ........................................................... (3)
- Anatomy ................................................................. (3)
- Physiology ............................................................... (3)
- CLS 234 Human Parasitology* ......................................... (2)
- CLS 301 Immunology* ............................................... (3)
- CLS 325 Hematology* ............................................... (3)
- CLS 325L Hematology Laboratory** ................................ (1)
- Strongly recommended:
  - CLS 336 Laboratory Calculations* ................................ (1)
  - CLS 394 Medical Microbiology* .................................. (2)

* Available online
** Offered as an intensive laboratory on campus in May.

Upon successful completion of the prerequisite coursework, the 4 + 1 student applies to the second year of the professional program. The applicant must have a cumulative GPA of at least 2.8, and no more than one D in any math or science course. Exceptions for acceptance and continuance may be made by petitioning the Department of Pathology Professional and Academic Standards Committee. When a student is registered in 300 and 400 level CLS courses, a specific CLS tuition is assessed.

Upon successful completion of the 4 + 1 program of study, the student will earn a B.S. in Clinical Laboratory Science degree from UND and will be eligible to take a national certification examination and become a certified Clinical Laboratory Scientist and/or Medical Technologist.

### Professional Curriculum Year 2

#### SUMMER SESSION

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<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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<tr>
<td>CLS 470</td>
<td>Clinical Immunohematology Laboratory</td>
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<tr>
<td>CLS 471</td>
<td>Clinical Chemistry I</td>
<td>(1)</td>
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<tr>
<td>CLS 472</td>
<td>Pre-analytical Testing</td>
<td>(1)</td>
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<tr>
<td>CLS 473</td>
<td>Clinical Hemostasis I</td>
<td>(2)</td>
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<td>CLS 474</td>
<td>Clinical Urinalysis I</td>
<td>(2)</td>
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<td>CLS 477</td>
<td>Clinical Immunohematology I</td>
<td>(1)</td>
</tr>
<tr>
<td>CLS 478</td>
<td>Clinical Microbiology I</td>
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<td>CLS 479</td>
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<td>CLS 480</td>
<td>Clinical Immunohematology II</td>
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<td>CLS 481</td>
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<tr>
<td>CLS 496</td>
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</table>

**Total Credits 129**

### 4 + 1 B.S. in Clinical Laboratory Science

The CLS program offers a 4 + 1 curriculum. A student is eligible for this program if they have earned a B.S. or B.A. degree and have completed the following prerequisite courses:

- General Chemistry .............................................. (8)
- Organic Chemistry ................................................... (3)
- Biochemistry ......................................................... (3)
- General Biology ..................................................... (6)
- Microbiology ........................................................... (3)
- Anatomy ................................................................. (3)
- Physiology ............................................................... (3)
- CLS 234 Human Parasitology* ......................................... (2)
- CLS 301 Immunology* ............................................... (3)
- CLS 325 Hematology* ............................................... (3)
- CLS 325L Hematology Laboratory** ................................ (1)
- Strongly recommended:
  - CLS 336 Laboratory Calculations* ................................ (1)
  - CLS 394 Medical Microbiology* .................................. (2)

* Available online
** Offered as an intensive laboratory on campus in May.

Upon successful completion of the prerequisite coursework, the 4 + 1 student applies to the second year of the professional program. The applicant must have a cumulative GPA of at least 2.8, and no more than one D in any math or science course. Exceptions for acceptance and continuance may be made by petitioning the Department of Pathology Professional and Academic Standards Committee. When a student is registered in 300 and 400 level CLS courses, a specific CLS tuition is assessed.

Upon successful completion of the 4 + 1 program of study, the student will earn a B.S. in Clinical Laboratory Science degree from UND and will be eligible to take a national certification examination and become a certified Clinical Laboratory Scientist and/or Medical Technologist.

### Articulation Program

Clinical Laboratory Technician (CLT) or Medical Laboratory Technician (MLT) graduates are encouraged to apply to the UND CLS program. A CLT/MLT graduate will be eligible for the transfer of up to 60 semester credits depending on the curriculum completed. Transfer credits allow the waiver of several science courses in the professional curriculum. The student’s record is evaluated and a recommendation made to the Registrar regarding the number of credits to be transferred and the science courses to be waived. The student may be eligible for a shortened professional program based on previous coursework, years of experience working in a clinical laboratory, and a competency assessment. A specific outline for the number of credits that will transfer has been incorporated into articulation agreements with numerous regional technical and community colleges. Contact the CLS program for additional information.

When a student is registered in 300 and 400 level CLS courses, a specific CLS tuition is assessed.

### Western College Alliance for Clinical Laboratory Science (WCACLS) Education

The Clinical Laboratory Science program is affiliated with Bemidji State University, Bemidji, MN; Jamestown College, Jamestown, ND; Mayville State University, Mayville, ND; Minot State University, Minot, ND; Montana State University, Billings and Bozeman, MT; University of Mary, Bismarck, ND; University of Montana, Missoula, MT; University of South Dakota, Vermillion, SD; University of Wisconsin-La Crosse; and Winona State University, Winona, MN. The program of study for the first three years at these colleges is aligned with the UND CLS program. Students from these institutions apply to the UND CLS program for their final year of study. Upon completion they receive a certificate from the University of North Dakota verifying completion of 12 months of clinical training in the UND NAACLS accredited program. They are then eligible for a degree in Clinical Laboratory Science or a related major from their respective institution and eligible to complete a national certification exam.

### B.S. Degree, 4+1, and WCACLS Students (Professional Curriculum Year 2)

A summer practicum experience on the UND campus in Grand Forks, ND is required, followed by approximately seven months in a clinical laboratory of a medical center. There are special requirements prior to contact with patients and testing of patient specimens. A background check and specific antibody titers are required by all clinical affiliates prior to work with patients. Students are responsible for additional costs that include: travel, housing, food, and summer lab course fees during the second year of the professional curriculum.
The program has clinical affiliation agreements with over 40 medical centers in Colorado, Iowa, Minnesota, Montana, North Dakota, Oregon, South Dakota, Wisconsin and Wyoming for the clinical experience. A complete list and description of the current clinical sites is available at http://medicine.nodak.edu/cls.

The CLS program reserves the right to place on probation or to cancel the registration of any student whose performance in the classroom or clinical experience is unsatisfactory.

Program accommodations for qualified handicapped persons will be reviewed upon notification of a prospective student’s needs and limitations.

**CLS Categorical Training (Certificate) Program**

The CLS Categorical Training (Certificate) program provides advanced skills to baccalaureate prepared students to become eligible to work in high complexity clinical laboratory and meet the requirements to take a national certification examination in a specific categorical area.

The requirements for entrance include a baccalaureate degree from an accredited college or university and completion of 20 semester hours in biological, chemistry and/or medical sciences (in addition to or part of the baccalaureate degree). It will include four “category” choices: Clinical Chemistry/Urinalysis, Hematology/Hemostasis, Immunohematology, Microbiology. The curriculum includes both an academic and a clinical component. When a student is registered in 300 and 400 level CLS courses, a specific CLS tuition is assessed. The curriculum for each category is as follows:

**CLINICAL CHEMISTRY/URINALYSIS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CLS 336</td>
<td>Laboratory Calculations*</td>
<td>1</td>
</tr>
<tr>
<td>CLS 460</td>
<td>Laboratory Practice*</td>
<td>2</td>
</tr>
<tr>
<td>CLS 465</td>
<td>Clinical Laboratory Management*</td>
<td>3</td>
</tr>
<tr>
<td>CLS 471</td>
<td>Clinical Chemistry I</td>
<td>2</td>
</tr>
<tr>
<td>CLS 474</td>
<td>Clinical Urinalysis I/*/**</td>
<td>2</td>
</tr>
<tr>
<td>CLS 481</td>
<td>Clinical Chemistry II</td>
<td>2</td>
</tr>
<tr>
<td>CLS 485</td>
<td>Clinical Urinalysis II*</td>
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<tr>
<td>CLS 489</td>
<td>Clinical Body Fluids</td>
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</tr>
<tr>
<td>CLS 491</td>
<td>Clinical Chemistry III**</td>
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Total Categorical Credits: 16

**HEMATOLOGY/HEMOSTASIS**

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<tbody>
<tr>
<td>CLS 325L</td>
<td>Hematology Laboratory*</td>
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<td>CLS 325L</td>
<td>Hematology Laboratory**</td>
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</tr>
<tr>
<td>CLS 336</td>
<td>Laboratory Calculations*</td>
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<tr>
<td>CLS 460</td>
<td>Laboratory Practice*</td>
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<tr>
<td>CLS 465</td>
<td>Clinical Laboratory Management*</td>
<td>3</td>
</tr>
<tr>
<td>CLS 473</td>
<td>Clinical Hemostasis I/*/**</td>
<td>2</td>
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<tr>
<td>CLS 479</td>
<td>Clinical Hematology I*</td>
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<tr>
<td>CLS 483</td>
<td>Clinical Hemostasis II</td>
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<tr>
<td>CLS 488</td>
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<tr>
<td>CLS 498</td>
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Total Categorical Credits: 19

**IMMUNOHEMATOLOGY**

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<td>CLS 301L</td>
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<tr>
<td>CLS 336</td>
<td>Laboratory Calculations*</td>
<td>1</td>
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<td>CLS 465</td>
<td>Clinical Laboratory Management*</td>
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<tr>
<td>CLS 477L</td>
<td>Clinical Immunohematology I*</td>
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<td>CLS 477L</td>
<td>Clinical Immunohematology I Lab**</td>
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<td>CLS 480</td>
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<td>CLS 492</td>
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Total Categorical Credits: 16

**MICROBIOLOGY**

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<tr>
<td>CLS 336</td>
<td>Laboratory Calculations*</td>
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<tr>
<td>CLS 460</td>
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</tr>
<tr>
<td>CLS 478</td>
<td>Clinical Microbiology I/*/**</td>
<td>2</td>
</tr>
<tr>
<td>CLS 484</td>
<td>Clinical Microbiology II*</td>
<td>2</td>
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<tr>
<td>CLS 492</td>
<td>Clinical Microbiology III**</td>
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<tr>
<td>CLS 495</td>
<td>Clinical Microbiology III**</td>
<td>2</td>
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</tbody>
</table>

Total: 15

* Distance Courses - Internet
**Clinical Laboratory

**Online Courses**

There are many courses offered by the CLS program through online or distance learning. The primary method of distance learning course delivery is WEB based. Students participating in online coursework are required to have Internet access. Specific computer requirements are available from the CLS program.

**Graduate Level Programs**

A Master of Science (M.S.) degree with a major in CLS and a certificate program in CLS Management is available. The graduate level programs are described in the graduate section of this catalog and at http://www.medicine.nodak.edu/cls.

**Courses**

The Clinical Laboratory Science program is a program within the Department of Pathology. The Clinical Laboratory Science (CLS) courses that are offered are listed below.

101. **Orientation to Medical Laboratory Sciences.** 2 credits. Introduction to the role, ethics, conduct, certification, education, employment, and fundamental knowledge and skills related to medical laboratory science.

234. **Human Parasitology.** 2 credits. Physiological aspects of human parasites, their symbiotic host parasite relationships and clinical diagnostic techniques.

234L. **Human Parasitology Laboratory.** 1 credit. Laboratory methods for the identification and diagnosis of human parasites.

301. **Immunology.** 3 credits. Principles of clinical immunology focusing on the cellular and molecular nature of antigens and immunoglobulin, the immune response, immunogenetics, and immune mediated disease.


352L. **Hematology Laboratory.** 1 credit. Corequisite: CLS 325. Morphologic examination of blood and bone marrow and laboratory testing used in hematological study.

366. **Laboratory Calculations.** 1 credit. Calculations used in the clinical laboratory including measurement systems, dilutions, graphing, solution chemistry, statistics of quality control and research interpretation.

380. **Professional Issues in Clinical Laboratory Science.** 1 credit. Discussion of CLS professional issues, ethics, current topics of healthcare delivery, governmental regulations, societal concerns, cultural diversity, disease prevention, research and environment.

394. **Medical Microbiology.** 2 credits. Medically important microorganisms are identified using a wide variety of clinical techniques. Included in the discussion will be susceptibility studies and the correlation of the presence of microorganisms to health and disease.

399. **Special Topics in Clinical Laboratory Science.** 1-13 credits. Lecture, discussion, and readings on topics of current interest in the clinical laboratory sciences.

430. **Clinical Practicum I.** 13 credits. Applied theory and practice at the clinical affiliate.

440. **Clinical Practicum II.** 12 credits. Techniques and practice in the clinical affiliate.

460. **Laboratory Practice.** 2 credits. This course represents an overview of standard laboratory practices including safety, glassware, microscopes, centrifuges, balances, specimen collection and handling.

464. **Clinical Review.** 3 credits. Emphasis is on concepts related to the role of a clinical laboratory scientist. Analysis and evaluation focuses on the theories of immunohematology, clinical chemistry, microbiology, hematology and other areas contributing to clinical application.

465. **Clinical Laboratory Management.** 3 credits. Management practices in the clinical laboratory including concepts related to service and quality, information management, financial management, personnel management, laboratory education and research.

471. **Clinical Chemistry I.** 2 credits. Theories and principles of clinical chemistry procedures are discussed as well as how the results of these procedures correlate to health and disease.

472. **Prenatal Testing.** 1 credit. Theory and practice of phlebotomy in the clinical setting, specimen processing, review of state and federal regulations, safety and biohazard compliance, interpersonal relationship skills.
Facilities and Special Programs. The program has computerized writing, graphics, and editing laboratories, as well as its own reading room that houses a wide selection of daily and weekly newspapers and professional journals. The University’s Television Center facility is available for student training.

The Native Media Center’s program promotes diversity in communication by enhancing awareness of Native American issues among media professionals and by attracting Native American students into journalism and communication careers. The activities include production of special electronic and print publications and materials written by, about, and for Native peoples.

Another program available is the Northern Interscholastic Press Association, which serves high school journalism programs in North Dakota and northern Minnesota.

Student Opportunities. Students are encouraged to supplement classroom instruction through work on campus publications, a national award-winning television program, and supervised, professional internships.

Admission Requirements. Admission to the College of Arts and Sciences does not automatically carry admission to the Communication Program. Students planning to pursue a major through the program should declare Precommunication as their intended major. In order to reach the next level, that of Admitted Major, Precommunication—and those who are pursuing an Admitted Minor status—must:

- Pass Comm 102 or 103 and Engl 110 with a grade of C or better
- Pass an English Proficiency Test administered by UND’s Testing Center
- Have a 2.50 overall GPA (which must be continued in order to take courses in Communication. At graduation, GPA must also be at least 2.50.)
- Have earned at least 24 semester credits
- Have his or her assigned faculty adviser approve a personal Plan of Study contract

Students are classified as Precommunication majors until they have completed these requirements. Additional information about the application process is available from the program’s student adviser.

Attaining Admitted Major status opens many restricted classes. In addition, students are eligible for communication scholarships when they are admitted majors.

Transfer Students’ Communication Credits. Communication students transferring into the Communication program from other universities may bring in a maximum of nine communication credits, but no more than six of the nine may be in upper division.

Communication Program (Comm)

http://www.und.edu/dept/scomm/

Conway, Fiero, Kalbfleisch (Program Coordinator), Ommen, Rakow, Rendahl and Shafer

The Communication Program offers a comprehensive, integrated curriculum in communication that focuses on how information processes and communication technologies affect and can benefit a diversity of local and global communities. It prepares undergraduate students for careers as ethical communicators with a broad understanding of contemporary communication issues and with skills that are adaptable to a variety of contexts.

One major, Communication, is offered leading to the Bachelor of Arts degree. A minor in Communication is also offered.

Liberal Arts Emphasis. Students are encouraged to acquire a broad general education in the arts and humanities, social sciences, and natural sciences. Students must earn a minimum of 80 semester credits outside the program, at least 65 of these credits must be in courses approved for the University’s essential studies requirements and those offered by the traditional liberal arts departments.

College of Arts and Sciences

B.A. WITH MAJOR IN COMMUNICATION

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a four-year institution) including:

I. Essential Studies Requirements (note: with the exception of Comm 110, Communication pre-majors, admitted majors and admitted minors cannot count Communication courses toward these requirements.)

II. Liberal Arts Courses and others not in the Communication Major

III. Major Requirements

Required minimum of 37, maximum of 45. Communication majors may not exceed 45 credits in the major within the 125 credits of graduation. Communication majors must earn a grade of “C” or better in all Communication courses.
Level A: SURVEY
6 credits required
Comm 102 Communication and the Human Community ................. (3)
Comm 103 Information, Technology and Social Change ............... (3)

Level B: SKILLS/THEORY
15 credits required, at least one course in each category

COMMUNITY category
Comm 300 Fundamentals of Public Speaking ................................ (3)
Comm 201 Visual Communication ................................................. (3)
Comm 212 Interpersonal Communication ....................................... (3)
Comm 303 Principles of Public Relations ........................................ (3)
Comm 341 Advertising Creative Strategy ........................................ (3)
Comm 365 Small Group Discussion ............................................... (3)

INFORMATION category
Comm 200 Introduction to Media Writing ...................................... (3)
Comm 204 Reporting and Feature Writing ...................................... (3)
Comm 321 Advanced Journalistic Writing ..................................... (3)
Comm 332 Editing ........................................................................ (3)
Comm 352 Writing for Public Relations .......................................... (3)
Comm 355 Writing for the Electronic Media ................................... (3)
Comm 396 Business and Professional Speaking ............................. (3)

TECHNOLOGY category
Comm 204 Graphic Design ......................................................... (3)
Comm 226 Photo Imaging ............................................................. (3)
Comm 305 Publications ................................................................ (3)
Comm 396 Advertising Media Planning ....................................... (3)
Comm 319 Digital Imaging ............................................................ (3)
Comm 332 Television Studio Production ....................................... (3)
Comm 354 Electronic Field Production ......................................... (3)

Level C: THEORY/SKILLS
12 credits required, at least one course in each category

COMMUNITY category
Comm 300 Communication and Society ....................................... (3)
Comm 301 Psychology of Communication ..................................... (3)
Comm 310 Media and Diversity ..................................................... (3)
Comm 328 Community Journalism ................................................. (3)
Comm 401 Organizational Communication ................................... (3)
Comm 402 International/Intercultural Communication ................... (3)
Comm 403 Community Relations ................................................... (3)
Comm 499 Special Topics (may be repeated as topics change) .......... (3)

INFORMATION category
Comm 308 Argumentation ......................................................... (3)
Comm 313 Persuasion ................................................................ (3)
Comm 367 Classical and Modern Criticism .................................... (3)
Comm 404 Advertising and Sales .................................................... (3)
Comm 405 Social Implications of the Information Society .............. (3)
Comm 410 Research Methods in Communication ......................... (3)
Comm 452 PR Campaigns and Strategic Issue Management ........... (3)
Comm 451 Political Communication ............................................. (3)
Comm 499 Special Topics ......................................................... (3)

TECHNOLOGY category
Comm 302 Popular Culture .......................................................... (3)
Comm 331 Survey of Broadcasting ................................................ (3)
Comm 403 Media Consequences and Effects ................................. (3)
Comm 407 Communication Technologies and the Future ............... (3)
Comm 412 Communication Law .................................................... (3)
Comm 428 U.S. Media History ...................................................... (3)
Comm 499 Special Topics ......................................................... (3)

Level D: EXPERIENCE
3.5 credits (no more than 3 credits of 397 and 497 combined are allowed)
Comm 329 Practicum ................................................................ (1-3)
Comm 394 Individual Projects, Readings ....................................... (1-3)
Comm 397 Cooperative Education ............................................... (1-3)
Comm 397 Internship ................................................................. (1-3)

Level E: PORTFOLIO
1 credit required
Comm 450 Senior Portfolio ......................................................... (1)

*NOTE: Additional pre-requisites may apply to some courses. Check individual course descriptions.

MINOR IN COMMUNICATION

Required: 24 credits
6 credits in Level A (Comm 102 and 103);
3 credits in Level B in each category of Community, Information, and Technology;
3 credits in Level C in each category of Community, Information, and Technology.
Internship or practicum courses will not count toward the minor. Minors must fulfill the admissions requirements of the Communication program. They must also earn a grade of C or better in all communication courses and must maintain an overall GPA of 2.5.
319. Digital Imaging. 3 credits. Corequisite: Admitted Communication major. This course introduces students to the practice of digital imaging, including photographic composition, film and print scanning, digital cameras, and digital imaging software. Emphasis is placed on the communication of meaning through the creation and management of digital images.

321. Advanced Journalistic Writing. 3 credits. Prerequisite: Comm 200; admitted Communication major or instructor consent. News coverage and writing techniques involving public and private sectors of contemporary society. S

322. Editing. 3 credits. Prerequisite: Comm 200; admitted Communication major or instructor consent. Copy editing and layout applicable to newspapers and other print media. S

328. Community Journalism. 3 credits. Prerequisite: Admitted Communication major. Considers the role that news media can play in enhancing community life. May focus on the role of print and broadcast journalism in Native American communities, on the role of weekly newspapers in small, rural towns or on broadcast and print media in cities. Provides an in-depth introduction to an assessment of efforts to determine how new forms of news media could provide innovative service for communities. F

329. Practicum. 1 to 3 credits*. Prerequisite: Admitted Communication major. Supervised and graded experiences offered in a variety of communication contexts, including week-long experiences not limited to, Studio One, Public Radio, Native Directions and communication campaigns. Experiences offered will vary. F-S

331. Survey of Broadcasting. 3 credits. Prerequisite: Admitted Communication major. Examination of broadcasting with emphasis on basic technology, structure, and organization. Study of programming include the basic legal, financial and artistic aspects of broadcasting as well as techniques and utilization of audience research. S

332. Television Studio Production. 3 credits. Prerequisite: Admitted Communication major. Introduction to basic studio production. Emphasis on the function and operation of TV equipment, lighting, production, recording, editing, including crew management, program conception, writing, planning, and evaluation. F

341. Advertising Creative Strategy. 3 credits. Introduces students to creative ideas in advertising and their translation into words and images. Emphasis is on strategic approaches to creative decision-making across all media. Topics include the selection of objectives, copy, the process of demand, research and media placement. F-S

353. Writing for Public Relations. 3 credits. Prerequisites: Comm 200; admitted Communication major. Intensive practice in preparing the most common types of materials used in public relations. Special emphasis on writing style and form, and effective media relations. F-S

357. Writing for the Electronic Media. 3 credits. Prerequisites: Comm 200, admitted Communication major. Introduction to basic electronic writing. Topics include information gathering techniques, principles of writing for different electronic formats and the differences in writing for print versus electronic media. Consideration of ethical, cultural, legal and regulatory issues in constructing scripts. F

354. Electronic Field Production. 3 credits. Corequisite: Admitted Communication major. Study and application of the concepts, principles, and practices of single-camera production of nonfiction video and audio outside of a studio setting. Includes the study of news, documentary, corporate, educational, and independent video production. Emphasizes the ethical issues involved in the field production process. S

365. Small Group Discussion and Conference. 3 credits. A theory and performance course in which students learn discussion techniques and study small group communication in networks, roles and worknorms in task oriented and problem solving projects. S

366. Business and Professional Speaking. 3 credits. Prerequisite: Admitted Communication major. Advanced study of rhetorical invention, disposition and style, and the application of those principles through preparation of business and professional speeches and speech manuscripts. F

367. Classical and Modern Criticism. 3 credits. Prerequisite: Admitted Communication major. A study of the ancient to contemporary development of rhetorical critical standards and practices in public speaking and communication. F

394. Individual Projects and Readings. 1-3 credits. Prerequisite: Junior standing. School of Communication consent. Individual projects or directed study related to topics, issues or activities in the areas of journalism, speech or communication. F-S

397. Cooperative Education. 1-3 credits. Prerequisite: Admitted Communication major; Level B or instructor consent. A practical work experience with an employer closely associated with the student’s academic area. Arranged by mutual agreement among student, department, and employer. S-U grading only. F, S

401. Organizational Communication. 3 credits. Prerequisite: Admitted Communication major or instructor consent. Analysis of communication behavior in formally structured relationships. F

402. International/Intercultural Communication. 3 credits. Prerequisite: Admitted Communication major or instructor consent. This course will provide an over-view of the study of intercultural or international communication. Topics addressed will include: history, literature, and culture of specific groups including racial, religious, and ethnic issues. May focus on communication patterns that have F

403. Community Relations. 3 credits. Prerequisites: Admitted Communication major or instructor consent. Examination of strategies organizations use to establish and maintain rapport with communities. Theoretical foundations, crisis and issue management, conflict resolution, promotional strategies, and effective media relations. F

404. Advertising and Society. 3 credits. Prerequisite: Admitted Communication major or instructor consent. Examines and evaluates the social, ethical and economic aspects of advertising. Attention is given to appraising the effects of advertising on the consumer and competition. F

405. Social Implications of the Information Society. 3 credits. Prerequisites: Admitted Communication major or instructor consent. Considers and evaluates different perspectives on the information society, ranging from humanistic and Neomarxist critiques to the optimistic scenarios of some futurists. Examines the implications of new means of creating, storing, manipulating and disseminating information. Discussion of whether or not the potential benefits will be realized. F

406. Media Consequences and Effects. 3 credits. Prerequisites: Admitted Communication major or instructor consent. Examination of the ways in which individuals and societies are affected by media systems. Topics include Technology, History, Media Power and the Media, Audiences and Users, Information and Entertainment, Mass Culture and Popular Culture. Uses a critical perspective to interpret the consequences and effects of media systems. F

407. Communication Technologies and the Future. 3 credits. Prerequisites: Admitted Communication major or instructor consent. Enables students to develop an in-depth understanding of new communication technologies and to explore their potential. Consideration of how media industries are being restructured, of the social consequences of new technological applications and of implications for the exercise of social power. S

410. Research Methods in Communication. 3 credits. Prerequisite: Admitted Communication major or instructor consent. Introduction to methodologies of historical, descriptive, and experimental research with attention to interpreting research results, selecting research designs and conducting communication research projects. S

412. Communication Law. 3 credits. Prerequisite: Admitted Communication major or instructor consent. Examination of philosophical and historical background, development and court interpretations of “speech-press” clause of First Amendment with attention to libel law, right to privacy, access to information and broadcasting regulation. F

428. U.S. Media History. 3 credits. Prerequisite: Admitted Communication major or instructor consent. Development and impact of the American news media in the context of the social, political, economic and intellectual history of the United States from colonial times to the present. Previous coursework in general American history helpful. S

450. Senior Portfolio. 1 credit. Prerequisite: Departmental approval. A review, synthesis, and demonstration of what has been learned in the communication major. Creation of an academic portfolio documenting achievement of the program’s goals for student learning. F-S

452. Public Relations Campaigns. 3 credits. This course develops the public relations function as a strategic, managed activity with management relevance and accountability. Focusing on strategic communication planning, the course gives: a) a detailed exploration of the steps for preparing a public relations campaign proposal, F b) an in-depth discussion of strategic PR management functions, and c) an overview of research strategies and hands-on practice in creating an entire campaign proposal. S

461. Political Communication. 3 credits. Prerequisite: Admitted Communication major or instructor consent. Analysis of political campaigns: a study of leading speakers, their speeches and the impact these have on our political, social, legal, and religious life. The rhetoric of mass movements and power, protest, and conciliation are analyzed. F

497. Internship. 1-3 credits. Prerequisite: Junior standing and instructor consent. Supervised experience in the mass media or related field consistent with student’s career objectives. Final report, employer’s evaluation and samples of work required. F

499. Special Topics. 1-3 credits, repeatable to 6*. Prerequisite: Admitted Communication major. Selected topics that are currently not offered in specific communication courses and/or topics that are not covered by regular department offerings. On demand. * Communication majors may not exceed 45 credits in the major within the 125 credits for graduation.

Communication Sciences and Disorders (CSD)

Biberdorf, Cummings, Madden (Chair), Pawlowska, Rami, Robinson, Schill, Seddoh and Swisher

It is the general mission of the Department of Communication Sciences and Disorders to provide academic and clinical instruction, supervised clinical practicum, and research experience for students; to provide clinical services to individuals, groups, and agencies within the University and greater Grand Forks area; to provide professional leadership with local, state, and national organizations; to contribute to the body of knowledge concerning communication processes and communication disorders; and to serve the University and participate in its governance. This mission is directed at meeting the needs of the University of North Dakota and its constituency.

http://www.und.edu/dept/cdis/index.html
ACADEMIC PROGRAMS

The undergraduate coursework in Communication Sciences and Disorders is grounded in a liberal arts education. The undergraduate degree is designed to prepare the student to become a lifelong learner, critical thinker, and problem solver.

The coursework is also designed to prepare the undergraduate major to pursue professional and graduate work, including a graduate degree in Speech-Language Pathology or Audiology. A graduate degree in either field of communication disorders is required to work as a speech-language pathologist or audiologist.

A minor in American Sign Language and Deaf Studies also is offered. The minor provides an option for students who wish to acquire American Sign Language skills and gain a greater understanding of the culture of the deaf who sign.

College of Arts and Sciences

B.A. WITH MAJOR IN COMMUNICATION SCIENCES AND DISORDERS

Required 125 credits (36 of which must be numbered 300 or above and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).
   (Laboratory science requirement to be met by 4 credits of anatomy, biology or physics)

II. The Following Curriculum

A. Major Course Requirements

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<td>CSD 231</td>
<td>Anatomy and Physiology of the Speech and Hearing Mechanism .............................................. (4)</td>
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<td>CSD 232</td>
<td>Survey of Communication Disorders .......... (3)</td>
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<td>CSD 235</td>
<td>Speech and Hearing Science .......... (4)</td>
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<td>Articulation and Phonological Development and Disorders .................................................... (3)</td>
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<td>CSD 431</td>
<td>Introduction to Audiology .............................................. (3)</td>
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<td>CSD 434</td>
<td>Aural Rehabilitation .............................................. (3)</td>
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<tr>
<td>CSD 439</td>
<td>Craniofacial Anomalies .............................................. (2)</td>
<td></td>
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<tr>
<td>CSD 440</td>
<td>Language Disorders I .............................................. (3)</td>
<td></td>
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<tr>
<td>CSD 441</td>
<td>Language Disorders II .............................................. (3)</td>
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<tr>
<td>CSD 460</td>
<td>Senior Seminar .............................................. (1)</td>
<td></td>
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<tr>
<td>CSD 464</td>
<td>Clinical Practicum I: Speech-Language Pathology .............................................. (3)</td>
<td></td>
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<tr>
<td>CSD 485</td>
<td>Clinical Practicum II: Speech-Language Pathology .............................................. (3)</td>
<td></td>
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</tbody>
</table>

Total Credit Hours 52

B. Major courses not required for the B.A., but recommended:
Comm 110 Fundamentals of Public Speaking .............................................. (3)

Total Credit Hours 3

C. Courses required in other departments:
Psych 241 Introduction to Statistics .............................................. (4)
Psych 250 Developmental Psychology .............................................. (4)
Psych 270 Abnormal Psychology .............................................. (3)
Engl 209 Introduction to Linguistics .............................................. (3)
Math 103 College Algebra (or above) .............................................. (3)

A course in gerontology is required of all undergraduate majors in CSD. The following are suggested: Psych 355, Soc 352.

Total Credit Hours 20

D. Courses Required for Teacher Certification
IS 121 Introduction to Indian Studies .............................................. (3)
Or
T&L 433 Multi-Cultural Education .............................................. (3)

One course from the following:
T&L 310 Intro to Early Childhood Education .............................................. (3)
T&L 311 Observation and Description of Young Children .............................................. (3)
T&L 313 Young Children Language and Thought .............................................. (3)
T&L 314 Social and Emotional Lives of Young Children .............................................. (3)
T&L 315 Education of the Exceptional Student .............................................. (3)
T&L 319 Introduction to LD, ED, and DCD .............................................. (3)
T&L 330 Introduction to Teaching and Learning .............................................. (3)

The Teacher Certification sequence for future speech-language pathologists also includes:
CSD 400 School Programs in Speech-Language-Hearing .............................................. (3)
CSD 585 Practicum in the School Setting (graduate students only) .............................................. (10)

* CSD 400 must be completed before taking CSD 585

SPEECH, LANGUAGE, AND HEARING CLINIC

The Clinic provides an opportunity for students to gain practical experience in speech and language evaluation and treatment procedures as student clinicians and provides a basis for research into the clinical process. This experience is under the direct supervision of departmental faculty who hold the Certificate of Clinical Competence of the American Speech-Language-Hearing Association. The Department of Communication Sciences and Disorders is accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association.

Services provided include evaluation and treatment of individuals with all types of speech and language disabilities and hearing impairments (including evaluations for hearing aid candidacy). Referrals to the Clinic may be made by anyone, and treatment is provided for individuals of all ages.

MINOR IN AMERICAN SIGN LANGUAGE AND DEAF STUDIES

Required Courses:
CSD 101 American Sign Language I .............................................. (2)
CSD 102 American Sign Language II .............................................. (2)
CSD 201 American Sign Language III .............................................. (3)
CSD 333 American Sign Language IV .............................................. (3)
CSD 343 Language Development .............................................. (3)
CSD 363 Introduction to Deaf Studies .............................................. (3)
Engl 209 Introduction to Linguistics .............................................. (3)
Anth 171 Introduction to Cultural Anthropology .............................................. (3)

Courses

101. American Sign Language I. 2 credits. This course is designed to teach functional American Sign Language (ASL) which can be used in everyday interactions. The grammar and vocabulary of ASL will be learned within the context of communicative activities. Topics relating to Deaf Culture will be discussed throughout the course. F

102. American Sign Language II. 2 credits. Prerequisites: CSD 101. This course is a continuation of ASL I. Students will be responsible for all information from the previous course. The grammar and vocabulary of ASL will be learned within the context of communicative activities. Topics relating to Deaf Culture will be discussed throughout the course. S

201. American Sign Language III. 3 credits. Prerequisites: CSD 101 and 102. This advanced course is a continuation of ASL I and II. Students will apply previous knowledge from ASL I & II as a tool to enrich their vocabulary and understanding of the structure of ASL. This course is designed to teach functional American Sign Language which can be used in everyday interactions. The grammar and vocabulary of ASL will be learned within the context of communicative activities. Topics relating to Deaf Culture will be discussed throughout the course. F

202. American Sign Language IV. 2 credits. Prerequisites: CSD 101, 102, 201. This advanced course is a continuation of ASL I, II, and III. Students will apply previous knowledge from ASL I, II, and III to deepen their understanding of the structure of ASL while continuing to increase their vocabulary base. Receptive and expressive skills will greatly be enhanced. As in the previous courses, grammar and vocabulary of ASL will be learned within the context of communicative activities. Topics relating to Deaf Culture will be discussed throughout the course. F

223. Phonetics. 3 credits. Introduction to Phonetics. Includes articulatory descriptions of the speech sounds of English and other languages, the International Phonetic Alphabet, coarticulatory phenomena, suprasegmentals, phonological features and phonological processes. Supervised practice in broad and narrow transcription of normal and disordered speech is provided. F

231. Anatomy and Physiology of the Speech and Hearing Mechanism. 4 credits. Structure and function of the mechanisms involved in breathing, phonation, respiration, articulation, and hearing. F

232. Survey of Communication Disorders. 3 credits. Speech disorders: causes, symptoms, diagnosis and therapy of the common speech defects. F

235. Speech and Hearing Science. 4 credits. Prerequisite: CSD 231 and Math 103 or consent of instructor and CSD 223. An introduction to the normal processes of speech, hearing and language through the study of basic speech and hearing science exploring the scientific investigation of the physiological and acoustical parameters of speech. S

332. Articulation and Phonological Development and Disorders. 3 credits. Prerequisite: CSD 223. Development, etiology, diagnoses and management of phonological and articulation disorders. S
340. Normal Language Structure. 3 credits. Pre- and corequisite: Engl 209 or equivalent. The purpose of this course is to learn to analyze the grammar of English, focusing on morphology and syntax. The knowledge gained will serve as a foundation for the analysis of normal and impaired language. F

343. Language Development. 3 credits. Pre- and corequisites: Engl 209; Pye 241, 250; CSD 340; or equivalents. The nature and development of linguistic content, form, and use from birth to adulthood are studied relative to the development of communication and speech; relative to cognitive, social, and physical development; and relative to cultural diversity. F

343L. Language Development Laboratory. 2 credits. Prerequisite or corequisite: CSD 343. Laboratory component of CSD 343. F

363. Deaf Studies. 4 credits. The purpose of this course is to provide an introduction and broad overview of the history and culture of the Deaf community. A particular emphasis will be on the role of American Sign Language (ASL) in the values, norms, traditions, and identity that encompasses the Deaf community. As well, the field of signed language interpreting will be discussed. S

400. School Programs in Speech-Language-Hearing. 3 credits. Prerequisites: CSD 333 and CSD 343. Corequisite: T&L 486. This course covers the educational model of service delivery and how the speech-language pathologist works collaboratively in a school setting to meet the needs of students with speech, language, and hearing disabilities. Regular grading. F.

422. Neuropathology of Communication Disorders. 3 credits. Prerequisite: CSD 231. A study of the essentials that form the basis for neuroanatomy, neurophysiology, neuropharmacology, and neurology, with a special section of study dealing with the neurological bases for speech, language and hearing. S

425. Language, Multiculturalism and Communication Disorders. 3 credits. Prerequisites: Engl 209, CSD 223, 343, 353 and 440. Study of language structure and its interaction with culture from the perspective of the concept of world view, and the application of this relationship to the practice of speech-language pathology. F

431. Introduction to Audiology. 3 credits. Prerequisites: CSD 231 and 235 and Math 103 or 104. Elementary structure and function of the hearing mechanism; basic psychophysical dimensions of the auditory mechanism; techniques for hearing loss; pure tone threshold and screening audiometry. Students are required to do hearing testing to qualify for certification in speech and hearing. F.

434. Aural Rehabilitation. 3 credits. Prerequisites: CSD 431 & 343 or consent of instructor. Principles, techniques and clinical practice in the diagnosis and rehabilitation of hearing disorders in children and adults; auditory training, speech reading and hearing conservation. S

438. Craniofacial Anomalies. 2 credits. Prerequisites: CSD 223, 231 and 333. An introduction to medical genetics and craniofacial anomalies and syndromes, the etiology of these disorders, and the assessment and treatment of related feeding and communication disorders. S

440. Language Disorders I. 3 credits. Prerequisite: CSD 343. The course covers the causes, identification, assessment, and remediation of language disorders. The focus is on the phonological, semantic, syntactic, and pragmatic aspects of language disorders. F

441. Language Disorders II. 3 credits. Prerequisite: CSD 440. The course integrates the concepts learned in Language Disorders I with the assessment and remediation of speech disorders. It includes a more in-depth analysis of special topics. General principles of diagnostic testing, including criteria and norm referenced assessment tools, are discussed. S

460. Senior Seminar. 1 credit. Prerequisite: Senior status. This course is designed to be the "Capstone" course for our senior students. Professional competencies, the Code of Ethics, professional issues facing the student embarking upon advanced professional study, and the practicing professional's scope of practice will be covered. The course will culminate in the administration of a comprehensive assessment of the students' learning at the undergraduate level. S

484. Clinical Practicum I: Speech-Language Pathology. 3 credits. Prerequisite: CSD 431; CSD 343. An introduction to the clinical process and speech and language intervention. Includes supervised observation of clinical intervention. F, S, SS

485. Clinical Practicum II. 3 credits. Prerequisites: CSD 382, CSD 484. Continuation of the content introduced in CSD 484 with increased emphasis on the clinical process and clinical skills. Includes supervised observation of direct clinical intervention. F, S, SS


497. Special Problems in Communication Disorders. 1-3 credits. Prerequisite: consent of instructor. An examination of special topics in Communication Disorders. On demand.

Computer Science (CSci)

http://www.cs.und.edu

Grant, Hu, Kim, Liu, Mahalko, Marsh (Chair), O’Neil, Reza, Stokke and Wigen

The underlying goal of the Department of Computer Science is to provide up-to-date, quality instruction in its undergraduate and graduate programs. In support of this goal, a curriculum has been developed which encourages a formal, abstract, theoretical approach to the study of computer science while providing students with experience on state-of-the-art equipment. The degree programs are designed to provide a background of professional education for careers in business, science, government, and industry, and to furnish a strong foundation for graduate study in computer science.

The department offers a Bachelor of Science in Computer Science through the John D. Odegard School of Aerospace Sciences and a Bachelor of Arts with a Major in Computer Science through the College of Arts and Sciences. A minor in computer science is also available.

The B.S. program provides the strongest mathematical and scientific background. It is recommended for students who intend to pursue graduate studies or to seek employment involving technical or scientific applications of computing. The B.S. degree is accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: 410-347-7700.

The B.A. program offers more flexibility with fewer requirements relating to science and mathematics, but with additional requirements for courses in the humanities. This degree program is recommended for students pursuing a broader-based liberal arts education.

Optional specializations in Network and Operating Systems Analysis, Software Engineering, Game Development and Computer Animation, and Information Technology are available in conjunction with the degree programs.

In addition to the majors and minor, several courses are offered to provide basic knowledge of computer technology and programming for students wishing to use the computer as a tool in other disciplines.

John D. Odegard School of Aerospace Sciences

B.S. IN COMPUTER SCIENCE

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. Requirements of the Odegard School of Aerospace Sciences. See College listing.

III. Courses from computer science as follows:

CSci 160 .................. Computer Science I ................................................. (4)
CSci 161 .................. Computer Science II ............................................... (4)
CSci 230 .................. Systems Programming .......................................... (3)
CSci 242 .................. Algorithms and Data Structures .......................... (3)
CSci 289 .................. Social Implications of Computer Technology ............ (3)
CSci 363 .............. User Interface Design ............................................. (3)
CSci 365 .................. Organization of Programming Languages ............... (3)
CSci 370 .................. Computer Architecture ........................................ (4)
CSci 435 .................. Formal Languages and Automata ......................... (3)
CSci 451 .................. Operating Systems I ............................................... (3)
CSci Electives* ............ (12)

* All Computer Science electives must be at or above the 200 level. A combined total of at most 6 credits from Csci 260, 297, 397 or 494 may be applied toward these electives.

IV. Courses from other departments as follows:

Comm 110 ............. Fundamentals of Public Speaking .............................. (3)
EE 201 .................. Introduction to Digital Electronics ............................ (2)
EE 202 .................. Electrical Engineering Laboratory ........................... (1)
Math 208 ............. Discrete Mathematics ................................................. (3)
Math 165, 166 ....... Calculus I and II .................................................... (8)
Approved math elective .................................................. (3)
Approved probability/statistics elective ................................. (3)
Approved 2-semester laboratory science sequence ....................... (8)
2 approved courses in science or quantitative methods .................. (6-8)

College of Arts and Sciences

B.A. WITH MAJOR IN COMPUTER SCIENCE

Required 125 hours (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

104 University of North Dakota

Grant, Hu, Kim, Liu, Mahalko, Marsh (Chair), O’Neil, Reza, Stokke and Wigen
I. Essential Studies Requirements (see University ES listing).

II. College of Arts and Sciences Requirements. See College listing.

III. Courses from Computer Science as follows:

CSci 160 .......... Computer Science I ..................................................... (4)
CSci 161 .......... Computer Science II ..................................................... (4)
CSci 230 .......... Systems Programming .................................................... (3)
CSci 242 .......... Algorithms and Data Structures ..................................... (3)
CSci 365 .......... Organization of Programming Languages ...................... (3)
CSci 370 .......... Computer Architecture .................................................. (4)
CSci 435 .......... Formal Languages and Automata ..................................... (3)
CSci 451 .......... Operating Systems I ......................................................... (3)
CSci 465 .......... Principles of Translation ................................................... (3)

* Electives may be selected from CSci 260 (at most 3 hours), CSci 289, CSci 297 or CSci 397 (at most 3 hours) and any other Computer Science courses numbered 300 or above.

IV. Courses from other departments as follows:

Level II proficiency in a language other than English (Level IV recommended)

Engl 209 .......... Introduction to Linguistics ............................................... (3)

EE 201 .......... Introduction to Digital Electronics .................................... (2)
EE 202 .......... Electrical Engineering Laboratory ...................................... (1)
Math 208 .......... Discrete Mathematics ..................................................... (3)
Phil 350 .......... Symbolic Logic ................................................................. (3)
Econ 210 .......... Introduction to Business and Economic Statistics ............... (3)

MINOR IN COMPUTER SCIENCE

Courses from Computer Science as follows:

CSci 160 .......... Computer Science I ..................................................... (4)
CSci 161 .......... Computer Science II ..................................................... (4)
CSci electives* ......................................................................................... (12)

* All 12 credits hours of Computer Science electives must be 200 level or above.

OPTIONAL SPECIALIZATIONS

A student’s coursework in either the B.S. program, the B.A. program, or the Minor program may be designed to complete one or more of the following three specializations. Each specialization completed will be noted on the student’s academic record.

I. Network and Operating Systems Analysis

Coursework must include:

CSci 327 .......... Data Communications ..................................................... (3)
CSci 370 .......... Computer Architecture .................................................. (4)
CSci 451 .......... Operating Systems I ......................................................... (3)
and two courses from the following list:

CSci 260 .......... Advanced Programming Languages: PERL .................... (3)
CSci 427 .......... Advanced Data Communications ..................................... (3)
CSci 452 .......... Operating Systems II ....................................................... (3)
CSci 551 .......... Distributed Operating Systems ......................................... (3)
CSci 555 .......... Computer Networks ........................................................ (3)

II. Software Engineering

Coursework must include:

CSci 230 .......... Systems Programming .................................................... (3)
CSci 242 .......... Algorithms and Data Structures ..................................... (3)
CSci 363 .......... User Interface Design ....................................................... (3)
CSci 365 .......... Organization of Programming Languages ...................... (3)
CSci 463 .......... Computer Engineering ..................................................... (3)
and one course from the following list:

CSci 456 .......... Principles of Translation ................................................... (3)
CSci 562 .......... Formal Specification Methods ........................................... (3)
CSci 565 .......... Advanced Software Engineering ....................................... (3)

III. Information Technology

Coursework must include:

CSci 363 .......... User Interface Design ....................................................... (3)
CSci 389 .......... Computer and Network Security ...................................... (3)
CSci 455 .......... Database Management Systems ....................................... (3)
CSci 457 .......... E-Commerce Systems ....................................................... (3)
and two courses from the following list:

CSci 260 .......... Advanced Programming Languages: PERL .................... (3)
CSci 327 .......... Data Communications ..................................................... (3)
CSci 399 .......... Handheld Computing ........................................................ (3)
CSci 513 .......... Advanced Database Systems ............................................. (3)

A student’s coursework in the B.S. program may be designed to complete the following specialization. This specialization will be noted on the student’s academic record.

IV. Game Development and Computer Animation

Elective coursework must include:

CSci 384 .......... Artificial Intelligence ....................................................... (3)
CSci 463 .......... Software Engineering ....................................................... (3)
CSci 446 .......... Computer Graphics I ....................................................... (3)
CSci 448 .......... Computer Graphics II ....................................................... (3)
Art 110 .......... Introduction to the Visual Arts .......................................... (3)
Art 112 .......... Basic Design ................................................................. (3)

Approved 2-semester laboratory science sequence must include:

Phys 251 .......... University Physics I ....................................................... (4)
Phys 252 .......... University Physics II ....................................................... (4)

Approved math elective must include:

Math 327 .......... Linear Algebra ............................................................... (3)

Courses

101. Introduction to Computers. 3 credits. Recommended corequisite: CSci 101T.

An overview of the fundamental concepts and applications of computer science. Topics include data storage, hardware, operating systems, and programming principles. F,S,SS

101T. Software Applications Tutorial, 1 credit. Recommended corequisite: CSci 101. An introductory tutorial course to complement CSci 101. Activities will include hands-on experience with operating systems and application software (including word processors, spreadsheets, and databases). SU grading only. F,S,SS

120. Computer Programming I. 4 credits. An introduction to computer programming in a high-level language, with emphasis on problem solving and logical thinking. Students learn to design, implement, test, and debug programs for small-scale problems using elementary data types and control structures. Includes laboratory. F,S,SS

130. Introduction to Scientific Programming. 4 credits. An introduction to scientific computing, with problem solving, algorithm development, and structured programming in a high-level language with an engineering and mathematical focus. Emphasis on learning how to design, code, debug, and document programs, using techniques of good programming style. Includes laboratory. F,S,SS

150. Introduction to Computer Science. 3 credits. This is an introductory course for prospective computer science majors as well as offering an introduction to computing for non-computer science majors. Students will receive a broad introduction to the discipline of computer science without the immersion into a programming language. Students will learn to write interactive Web-based programs. No previous computing or programming experience is assumed. F,S

160. Computer Science I. 4 credits. An introduction to computer science, with problem solving, algorithm development, and structured programming in a high-level language. Emphasis on learning how to design, code, debug, and document programs, using techniques of good programming style. Includes laboratory. F,S,SS

161. Computer Science II. 4 credits. Prerequisites: CSci 130 or CSci 160 and either Math 103 or Math 107. Concurrent enrollment in Math 208 is recommended. A broadening of foundations for computer science with advanced concepts in computer programming. Includes an introduction to data structures, analysis of algorithms, and the theory of computation. Includes laboratory. F,S,SS

170. Computer Programming II. 4 credits. Prerequisite: CSci 120. Advanced techniques in computer programming using a high-level language. Topics include the use of recursion, pointers, and fundamental data structures in developing small to medium-sized programs. Includes laboratory. F,S,SS

199. Topics in Computing. 1-3 credits, repeatable to 6 credits. Selected introductory-level topics in computing for students of all majors. Course may be repeated for different topics. On Demand.

230. Systems Programming. 3 credits. Prerequisites: CSci 130 or CSci 160. Focus on low level programming. Topics covered include pointers, memory management, code optimization, compiling and linking, and library management. F

242. Algorithms and Data Structures. 3 credits. Prerequisites: CSci 151 and Math 208. Object-oriented implementations of complex data structures including lists, sets, trees, and graphs. Time and space analysis and classification of algorithms using upper bounds (big Oh), lower bounds (big Omega), and exact bounds (big Theta). Techniques for analysis of recursive algorithms including use of the “Master Theorem” for divide-and-conquer recurrences. S

260. Advanced Programming Languages. 3 credits. Prerequisite: CSci 161 or consent of instructor. Programming in a specific high-level language for students who are already proficient at programming in another high-level language. Course may be repeated for different languages. A student may not receive credit for both CSci 260 and a 100-level programming course in the same language. F,S

289. Social Implications of Computer Technology. 3 credits. An introduction to the ethical issues arising from society’s use of computers. Topics include the impacts of computer hardware and software on society and the law. Includes discussion on the ethical implications of computer usage. F,S

290. Experiential Learning. 1-3 credits, repeatable to 6. Prerequisite: CSci 161. A practical experience in which students offer their proficiency in computing as a resource or service for others. The experience may involve software development, software consulting and assistance, system administration, or instruction. S/U grading only. F,S,SS

299. Topics in Computer Science. 1-3 credits, repeatable to 6 credits. Prerequisite: Consent of Instructor. Selected intermediate-level topics in computer science for students with some experience or previous coursework in computing. Course may be repeated for different topics. On Demand.
327. Data Communications. 3 credits. Prerequisites: CSci 230 and Math 208. An introduction to the concepts of data transmission, communication hardware and protocols, communication software and the design, performance and management of computer networks. F

363. User Interface Design. 3 credits. Prerequisite: CSci 161. A study of the design and implementation of user interfaces for software applications. Students will apply principles of interface design to build applications using a toolkit of graphical interface components. Required coursework includes a team project. F

365. Organization of Programming Languages. 3 credits. Prerequisite: CSci 242. Compilers and run time requirements of programming languages, parameter passing and value binding techniques. Vector and stack processing. S

370. Computer Architecture. 4 credits. Prerequisite: CSci 230, EE 201, 202. Computer structure, machine presentation of numbers and characters, instruction codes and assembly language. Introduction to hardware methodologies and software extensions to hardware in computers. Some topics on hardware and software selection will be discussed. F

409. Artificial Intelligence. 3 credits. Prerequisite: CSci 242. A survey of the applications and techniques of artificial intelligence. Topics include problem solving paradigms, tree searching, rule-based systems, theorem proving, knowledge representation, natural language processing, image processing, and computer learning. F

389. Computer and Network Security. 3 credits. Prerequisite: CSci 161. This course introduces techniques for achieving security in multi-user standalone computer systems and distributed computer systems. Coverage includes host-based security topics (cryptography, intrusion detection, secure operating systems), network-based security (firewalls, risk assessment and security policies). S

397. Cooperative Education. 1-3 credits repeatable to 6. Prerequisite: 15 completed credits in CSci including CSci 161, in addition to standard co-op requirements. A supervised work experience with an employer closely associated with the student's academic area. Arranged by mutual agreement among student, department, and employer. S-U grading only. F, S, SS

399. Topics in Computer Science. 1-3 credits, repeatable to 12. Prerequisite: Consent of instructor. Selected topics in Computer Science which allow students to study specialized subjects. F, S

427. Advanced Data Communications. 3 credits. Prerequisite: CSci 327. Analysis of existing and future data communications technologies and protocols, including the modeling of realistic networked environments and the analysis of their performance. S/2

435. Formal Languages and Automata. 3 credits. Prerequisite: CSci 242. A study of automata, grammars, and Turing machines as specifications for formal languages. Computation is defined in terms of deciding properties of formal languages, and the fundamental results of computability and decidability are derived. F

445. Mathematical Modeling and Simulation. 3 credits. Prerequisite: CSci 161 or 170, Math 166 and a statistics course. A study of various mathematical applications for digital computers, including the modeling, simulation and interpretation of the solution of complex systems. F/2

446. Computer Graphics I. 3 credits. Prerequisites: CSci 242, CSci 363, and Math 166. Introduction to computer graphics. Topics include display technology, light and color, 2D and 3D representations, image processing, ray-tracing, and computer animation. F/2

448. Computer Graphics II. 3 credits. Prerequisite: CSci 446. A continuation of CSci 446, topics covered include: history of games, game taxonomies, game design theory, computer game development, XNA and C#, physics engines and AI engines. S/2

451. Operating Systems I. 3 credits. Prerequisite: CSci 242 and 370. Introduction to operating system theory and fundamentals. Topics include: multithreading, CPU scheduling, memory management methods, file systems, interprocess communication, and a survey of modern operating systems. S

452. Operating Systems II. 3 credits. Prerequisite: CSci 451. A study of the implementation of operating systems and parts of operating systems, and development of system software. S

455. Database Management Systems. 3 credits. Prerequisite: CSci 242. Database concepts, database administration, database design, and database performance, including the partial design of a DBMS application. S

457. Electronic Commerce Systems. 3 credits. Prerequisite: CSci 260 (.NET). A study of electronic commerce system architecture and electronic commerce content design and implementation. Topics include Internet basics, business issues, Web markup languages, static and dynamic Web programming, e-commerce content design and construction, and databases and host languages with embedded SQL such as JDBCS. S/2

463. Software Engineering. 3 credits. Prerequisites: CSci 242 and CSci 363. This course teaches software engineering principles and techniques used in the specification, design, implementation, verification and maintenance of large-scale software systems. Major software development methodologies are reviewed. As development team members, students participate in a group project involving the production or revision of a complex software product. S

465. Principles of Translation. 3 credits. Prerequisite: CSci 365 and CSci 370. Techniques for automatic translation of high-level languages to executable code. F/2

490. Special Projects in Computer Science. 1-3 credits varying with the choice of project. May be repeated (3 credits maximum). Prerequisite: consent of instructor. A course for advanced students. S-U grading only. F, S

494. Senior Seminar in Computer Science. 1 credit. May be repeated (1 credit maximum). Prerequisite: consent of instructor. A course for advanced students. F

### Counseling Psychology and Community Practice (Coun)

http://www.und.edu/dept/grad/depts/coun/

Beal, Heggie (RTS Co-Director), Juntunen (Ph.D. Training Director), Lowey (Chair), Perry (Ph.D. Graduate Program Director), Pinterits, Schroeder, Walker (School Counseling Director), Wettersten, Whitcomb (Master’s Director) and White

The Department of Counseling Psychology and Community Practice offers graduate programs leading to the degrees of Master of Arts in Counseling and the Doctor of Philosophy in Counseling Psychology. The Department also offers Bachelor of Science degrees in Rehabilitation and Human Services (RHS) and in Recreation and Tourism Studies (RTS). The M.A. with a school counselor emphasis is accredited by the National Council for the Accreditation of Teacher Education (NCATE). The Ph.D. in Counseling Psychology is accredited by the American Psychological Association (APA) and prepares graduates for Psychologist licensure in North Dakota, as well as other states. Coursework for the M.A. degree satisfies eligibility requirements for certification as a Counselor, for School Counselor and Rehabilitation Counselor certification, and for Addiction Counselor licensure in North Dakota and other states. The Department is committed to diversity with a particular emphasis on providing graduate training for Native Americans interested in mental health careers.

**M.A. IN COUNSELING**

The master’s program provides preparation for counseling practice in community service agencies, universities and colleges, rehabilitation agencies, addiction treatment agencies, or schools, depending upon the emphasis of the student. Students are admitted to one of four program emphases: Addiction Counseling, Community Agency, Rehabilitation Counseling, or School Counseling, each of which has separate requirements.

Admission is based on achievement in undergraduate work, particularly during the junior and senior years, scores on the General Record Exam (General Test) or the Miller Analogies Test (Addiction, Mental Health, and Rehab emphases only), recommendation letters, a personal statement, and relevant experience. Prospective students must have completed at least twenty semester credits of undergraduate coursework in the behavioral sciences, e.g., psychology, sociol

In the School Counseling emphasis, these include educational psychology, instructional methods, statistics, and developmental psychology. In the Addiction, Community Agency, and Rehabilitation emphases, these include abnormal psychology, developmental psychology, theories of personality, and statistics. In the School Counseling emphasis, offered as a distance education program, students are admitted once a year, with completed applications required by November 1 for a spring start date. In the Addiction Counseling, Community Agency, and Rehabilitation Counseling emphases, students are admitted once a year, with completed applications required by February 1 for a summer or fall start date.

Typically, 28-30 students are admitted each year from a pool of 45-65. The master’s program requires completion of 48-54 semester credits depending on emphasis (Addiction, Community Agency, Rehabilitation, or School). To complete the program in two academic years, part-time summer enrollment is required, along with full-time fall and spring semester course loads. The program includes a two-semester supervised internship at an external agency.
COMBINED PROGRAM IN COUNSELING WITH A REHABILITATION EMPHASIS

To encourage students who are majoring in Rehabilitation and Human Services to extend their studies to include a graduate degree, the Department of Counseling offers a Combined Program in Counseling with a Rehabilitation Emphasis. The Combined Program allows students to earn a bachelor’s degree in Rehabilitation and Human Services and a master’s degree in Counseling with a Rehabilitation Emphasis in approximately five years. This would be a year less than is typically required to complete these degrees separately.

The deadline for a completed application to be received in the Graduate School is February 1. In addition to the admission requirements for the Counseling master’s program, a completed application must include the following:

1. At least 95 credit hours (including credits in progress) towards the bachelor’s.
2. A degree in Rehabilitation and Human Services, including RHS 200, RHS 250, RHS 309, RHS 310, and Parts IV, V, and VI in the RHS Program.
3. A minimum GPA of 3.0 in all undergraduate work.
4. A written statement of interest in Rehabilitation Counseling as a Profession.

Students are granted approved admission status in the Graduate School when they have completed a total of 125 credits with an overall GPA of 3.0 or higher. This program allows students to designate two three-credit graduate courses to count for both degrees. These courses would be COUN 514 and COUN 519.

The B.S. degree in Rehabilitation and Human Services and the M.A. degree in Counseling are granted at the same time. In the event that a student does not complete the graduate degree, the undergraduate degree is granted only after the completion of 125 credits, including an approved rehabilitation internship.

Degree Requirements

1. Completion of an additional 24 undergraduate credits during or after the senior year.
2. Completion of the following 35 credits of graduate course work in the Counseling Department: 506, 510, 514, 515, 516, 518, 519, 530, 531, 532, 533, and 580.
3. Completion of 8 credits of COUN 588 – Rehab Counseling Internship.
4. Completion of either COUN 997 – Independent Study (2 cr) or COUN 998 – Thesis (4 cr)

PH.D. IN COUNSELING PSYCHOLOGY

The doctoral degree program, Counseling Psychology, provides advanced preparation in counseling theory, practice, and research. The program accepts students at the post bachelors and post masters level. Admission is based upon achievement in undergraduate and graduate work (if applicable), scores on the Graduate Record Examination (General Test), recommendation letters, and relevant experience. The program requires four years of full-time study at the post bachelors level or three years at the post master’s level, plus a year-long, full-time, external internship. Upon completion, graduates are prepared to work as doctoral level counseling psychologists in a variety of settings, such as university counseling centers, mental health agencies, university departments of counseling or psychology, hospitals and private practice. Five to six students are admitted each year. The application deadline is January 10th for admission the following year.

Details of the bachelor’s, master’s and doctoral degree programs in the Department of Counseling Psychology and Community Services may be found in the respective sections of this catalog or at www.counseling.und.edu. For more information, contact the respective directors, Department of Counseling (701-777-2729).

Criminal Justice Studies

(CJ)

http://www.und.edu/dept/cjs/

DiCristina, Gottschalk, Hume (Chair), Mayzer and Meyer

This program is a cooperative venture that draws on the resources of the departments of anthropology, philosophy, sociology, and criminal justice. The purpose of the program leading to a Bachelor of Science in Criminal Justice Studies in the college of Arts and Sciences is to prepare students for positions as practitioners within criminal justice professions while also offering educational upgrading for individuals already working in criminal justice fields. By incorporating the various disciplines, departments and colleges along with their respective faculty, the program is able to integrate the various approaches and ideals to the study of criminal justice.

Admission Requirements. Students pursuing a major in criminal justice must be formally admitted to the program. To be formally admitted, students must have completed 45 total credit hours with a minimum overall grade point average of 2.70. In addition, students must have completed CJ 201, CJ 210, CJ 270, and Soc 253 with a minimum grade point average of 2.70 and declare their major in the College of Arts and Sciences after the successful completion of all admission requirements (including GPA requirements), students who have declared criminal justice studies as their major will be notified that they have been accepted into the program. Once admitted, majors are required to maintain a GPA of 2.70 overall and in the major to graduate with a degree in Criminal Justice Studies. Failure to meet either or both of these requirements will result in the student being placed on probation in the major for one semester. Failure to maintain the requirements for two consecutive semesters may result in dismissal from the Program.

College of Arts and Sciences

B.S. IN CRIMINAL JUSTICE STUDIES

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum (42 credits):

  Preadmission Requirements (12 credits):

  CJ 201 Introduction to Criminal Justice (3)
  CJ 210 Introduction to Policing (3)
  CJ 270 Introduction to Corrections (3)
  Soc 253 Juvenile Delinquency (3)

  Required upper division courses (21 credits):

  CJ 330 Criminological Theory (3)
  CJ 341 Criminal Law (3)
  CJ 342 Criminal Procedure (3)
  CJ 401 Administration of Criminal Justice Systems (3)
  Soc 323 Sociological Research Methods (3)
  Soc 326 Sociological Statistics (3)
  Phil 412 Philosophy of Law (3)

  9 additional credits from:

  Anth 345 Forensic Science (3)
  Anth 346 Analysis of Forensic Evidence (3)
  CJ 302 Women, Crime, and Criminal Justice (3)
  CJ 350 Correctional Alternatives (3)
  CJ 351 Police Administration (3)
A concentration in a single supplementary field other than criminology studies is also required of all criminal justice majors. This concentration may be met in one of three ways: (1) a language proficiency of level IV in a modern foreign language; (2) completion of the four-course sequence in American Sign Language; or (3) 20 credit hours (at least nine of which must be numbered 300 or above) in any single subject matter taught at this University.

MINOR IN CRIMINAL JUSTICE STUDIES

21 credits required:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 201</td>
<td>Introduction to Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>CJ 210</td>
<td>Introduction to Policing</td>
<td>3</td>
</tr>
<tr>
<td>CJ 270</td>
<td>Introduction to Corrections</td>
<td>3</td>
</tr>
<tr>
<td>Soc 252</td>
<td>Juvenile Delinquency</td>
<td>3</td>
</tr>
</tbody>
</table>

9 additional credits from:

Anth 345 Forensic Science
Anth 346 Analysis of Forensic Evidence
CJ 302 Women, Crime, and Criminal Justice
CJ 330 Criminological Theory
CJ 341 Criminal Law
CJ 342 Criminal Procedure
CJ 350 Correctional Alternatives
CJ 351 Police Administration
CJ 352 Criminal Investigation
CJ 361 Victimology
CJ 430 Dev. Perspectives on Adolescent Problem Behavior
CJ 452 The Police Role in Society
Phil 412 Philosophy of Law
Soc 252 Criminology

Courses

201. Introduction to Criminal Justice. 3 credits. An undergraduate study and overview of the criminal justice system emphasizing the “system,” its legal actors and its political constraints. Designed for the beginning student in law enforcement, criminology, corrections, sociology, social welfare, government and pre-law. F

210. Introduction to Policing. 3 credits. Prerequisite: CJ 201. Introduces the student to the specific field of law-enforcement agencies. Provides an overview of federal, state, and local law enforcement agencies. Reviews the coordination requirements of the system. S

270. Introduction to Corrections. 3 credits. Prerequisite: CJ 201. This course describes the correctional system as part of a larger criminal justice system. Students will be introduced to the history and practice of corrections from earlier forms of physical punishment to jail, probation, intermediate sanctions, prisons, parole, and the death penalty. Special topics in the field will also be addressed as appropriate. F,S

310. Women, Crime, and Criminal Justice. 3 credits. Prerequisite: CJ majors and minors only. This course will explore the changing roles of women as offenders, as victims, and as professionals in the criminal justice system. Attention will be directed toward empirical findings, conflict theory insights, and the feminist perspective within the discipline. The basic goal of this course is to respectfully enhance understanding of the importance of gender equality within the field of criminal justice and to encourage self-examination of habitual modes of thinking and acting. S

330. Criminological Theory. 3 credits. Prerequisite: CJ majors and minors only. This class will provide an overview of a variety of criminological theories. Attention will be directed toward the study of the major theoretical schools of thought which have influenced the discipline of criminology. The basic goal of this course is to help the student develop an understanding of and appreciation for the insights gained by examining crime and criminals through different theoretical frameworks. S

341. Criminal Law. 3 credits. Prerequisite: CJ majors and minors, forensic science majors only. This course covers the fundamentals and foundations of American criminal jurisprudence with an emphasis on common law definitions of crimes and modern requirements for the criminalization of behavior, statutory development. F

342. Criminal Procedure. 3 credits. Prerequisite: CJ majors and minors, forensic science majors only. This course covers requirements of the American system of criminal procedure, especially regarding the legal requirements of search and seizure, interrogation, right to counsel, and eyewitness identifications. Special attention is given to the relationship between the 4th, 5th, 6th, 8th, and 14th amendments to the U.S. Constitution and the development of the law of the criminal procedure. S

350. Correctional Alternatives. 3 credits. Prerequisites: CJ majors and minors only. This course is designed to explore and evaluate intervention strategies developed in the criminal justice system as alternatives to institutional corrections in the sentencing of adjudicated persons. Among these options this course looks for community corrections, parole, house arrest, restitution, community service, and the development of intervention strategies in support of the dispositional S

351. Police Administration. 3 credits. Prerequisite: CJ 210. CJ majors and minors only. Principles of police administration and organization for a modern police agency. Included are planning and development of organizations, direction, goal identification, etc. F

352. Criminal Investigation. 3 credits. Prerequisites: CJ 210, CJ majors and minors, and forensic science majors. An overview and examination of basic principles and techniques in the criminal investigations procedures and the rules of the law of evidence in criminal court proceedings. F

361. Victimology. 3 credits. Prerequisite: CJ majors and minors only. This class will provide an overview of the literature and research concerning victimization. Attention will be directed toward current trends concerning the victim in the American criminal justice system, with particular emphasis on measuring victimization, fear of crime, the impact of victimization on the individual, and victims rights and compensation initiatives. The basic goal of this course is to help the student develop an understanding of the impact of victimization on the victim, those associated with the victim, the criminal justice system, and each of us as individuals. F

397. Cooperative Education. 1-6 credits, repeatable to 12. Prerequisites: CJ 491, instructor consent. A practical work experience with an employer closely associated with the student’s academic area. Arranged by mutual agreement among student, department, and employer. Students may be required to have a criminal background check performed with results deemed favorable by the field agency as a condition of their initial enrollment and/or continued enrollment in cooperative education credits. S/U grading only. F,S,SS

399. Problems in Criminal Justice. 1-3 credits, repeatable to 6. Prerequisite: CJ majors and minors only, consent of instructor. Students study special topics under the direction and supervision of a member of the faculty. Prior consent of instructor is required before enrollment. F,S,SS

401. Administration of Criminal Justice Systems. 3 credits. Prerequisite: Senior standing. This course is a senior capstone intended to integrate material across the criminal justice curriculum. The course explores various definitions of justice as those concepts impact on the criminal justice system as well as the political philosophical underpinnings of the American criminal justice system. Finally, the course evaluates criminal justice policies with respect to these principles of justice and philosophical foundations. F

430. Developmental Perspectives on Adolescent Problem Behavior. 3 credits. Prerequisite: CJ majors and minors only. This course on developmental criminology provides the criminal justice student with an overview of theory and research on adolescence. Cognitive, emotional, moral, physical, and social developments from puberty to early adulthood will be discussed and related to the explanation of problem behaviors, e.g., substance use, delinquency, sexual activity, and school failure. F

452. The Police Role in Society. 3 credits. Prerequisite: CJ majors and minors only. The functions and role of police in society with a focus on contemporary issues in police administration and administration. S

490. Orientation to Administrative Internship. 1 credit. Prerequisite: Consent of instructor. This orientation class will provide you with an introduction to the internship and cooperative education processes. Attention will be directed toward polishing the thinking skills, ethics, and job skills necessary to obtain and maintain an internship, attend graduate school, and/or secure a work position. The primary goal of this course is to provide support and guidance to qualified students attempting to secure a criminal justice internship or cooperative education position. Students may be required to have a criminal background check performed with results deemed favorable by the field agency as a condition of their initial enrollment in internship or cooperative education credits. S

494. Readings in Criminal Justice. 1-6 credits, repeatable to 12. Prerequisites: CJ majors and minors only, consent of instructor. Selected readings with oral and/or written reports. S

499. Administrative Internship. 1-6 credits, repeatable to 12. Prerequisites: CJ 491, instructor consent. On-the-job training in a criminal justice position with a final report and analysis of the agency by the intern. Students may be required to have a criminal background check performed with results deemed favorable by the field agency as a condition of their initial enrollment and/or continued enrollment in internship credits. S/U grading only. F, S, SS

Cytotechnology

http://medicine.nodak.edu/cytotech

T. Weiland, M.D. (Medical Director)
K. Hoffman, MM,SCT (Program Director)
K. Droog, SCT (Education Coordinator)

Cytotechnologists are laboratory professionals trained to microscopically screen and interpret cellular samples from all over the body. Cytotechnologists work with pathologists in the anatomic pathology laboratory to diagnose a variety of benign and malignant conditions. Other duties include assisting with the fine needle aspirations, as well as specimen preparation and staining. The most critical task of the cytotechnologist is the recognition and identification of any abnormal cells present in the specimen. In this role the cytotechnologist is important to the early detection and diagnosis of disease. Their diagnosis will directly affect a patient’s ability to receive the
proper follow-up care and treatment. Specimens, examined by the cytotechnologist, come from various body sites, such as the female genital tract, the lung, the urinary bladder, or any body cavity shedding cells. Cytotechnologists must be accurate and reliable because they work independently with little supervision. Cytotechnologists enjoy challenges and must have the confidence to make diagnoses based on cell findings.

Diagnostic cytology practice is documented at UND back to 1952. The Department of Pathology has offered an accredited course in cytotechnology since 1967. Most recently awarded reaccreditation in 2003, this program currently exists as the only such program in North Dakota and 1 of 38 nationwide.

The UNDMSHS Cytotechnology Program (Path 401, Path 402, & Path 403) is a 12-month professional program. It is designed to be taken as either a 5th year, following a baccalaureate in another major, or as the 4th year of a major in Cytotechnology. Enrollment is limited to 8 students per year. Students are selected using criteria of: application essay, academic performance, references, and an interview with program officials.

Applications for admission to the Cytotechnology Program should be submitted to the program director. To be eligible for enrollment, the applicant must:

1. have completed all required prerequisite courses with a grade of C or better.
2. have a cumulative GPA of 2.8.
3. Certificate students will need to have a transcript showing completion of a minimum of 20 semester hours of biological science and 8 of chemistry.

Exceptions for acceptance and continuance may be made by petition to the Pathology Professional and Academic Standards Committee.

University commencement and program graduation both occur at the end of summer session. Upon completion of the program, graduates are eligible to take the national certifying examination administered by the Board of Registry of the American Society of Clinical Pathologists.

Most cytotechnologists work in hospitals or private laboratories in urban areas. Employment opportunities are presently fair to good. Program information, advising, and application forms are available through the program director in Room 5909, UND School of Medicine and Health Sciences, or on our website at: http://medicine.nodak.edu/cytotech, or by phone at: 701-777-4466, or email at: khoffman@medicine.nodak.edu.

A program fee of $500 per semester is assessed to all students enrolled in the Cytotechnology Program year (12 months).

### School of Medicine and Health Sciences

#### B.S. IN CYTOTECHNOLOGY

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

- **Anat 204 & 204L** .... Anatomy for Paramedical Personnel and Laboratory .............................. (3-5)
- **Biol 150/150L** .... General Biology I & II and Laboratories .............................................. (8)
- **Biol 369** ........ Histology .............................................. (4)
- **CLS 340/340L** ...... Molecular Diagnostics and Laboratory .................................. (4)

12 hours from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Biol 341</td>
<td>Cell Biology</td>
<td>(4)</td>
</tr>
<tr>
<td>Biol 357</td>
<td>Genetics</td>
<td>(3)</td>
</tr>
<tr>
<td>Biol 364</td>
<td>Parasitology</td>
<td>(4)</td>
</tr>
<tr>
<td>Biol 370</td>
<td>Vertebrate Zoology</td>
<td>(2)</td>
</tr>
<tr>
<td>Biol 371</td>
<td>Anatomy and Adaptations Laboratory</td>
<td>(2)</td>
</tr>
<tr>
<td>Biol 470</td>
<td>Biometry</td>
<td>(3)</td>
</tr>
<tr>
<td>CLS 234, 234L</td>
<td>Human Parasitology</td>
<td>(3)</td>
</tr>
<tr>
<td>CLS 325, 325L</td>
<td>Hematology &amp; Laboratory</td>
<td>(5)</td>
</tr>
<tr>
<td>Other Biology-related courses may be acceptable</td>
<td></td>
<td></td>
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4 hours from:

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBio 202, 202L</td>
<td>Introduction to Medical Microbiology</td>
<td>(5)</td>
</tr>
<tr>
<td>MBio 302, 302L</td>
<td>General Microbiology and Laboratory</td>
<td>(4)</td>
</tr>
</tbody>
</table>

4 hours from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PPT 301</td>
<td>Mechanics of Human Physiology</td>
<td>(4)</td>
</tr>
<tr>
<td>Biol 442</td>
<td>Physiology of Organs and Systems</td>
<td>(4)</td>
</tr>
</tbody>
</table>

8 hours from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 121, 121L*</td>
<td>General Chemistry I and Laboratory</td>
<td>(4)</td>
</tr>
<tr>
<td>Chem 122, 122L*</td>
<td>General Chemistry II and Laboratory</td>
<td>(4)</td>
</tr>
<tr>
<td>Chem 116**</td>
<td>Introduction to Organic &amp; Biochemistry</td>
<td>(4)</td>
</tr>
<tr>
<td>Chem 240, 240L</td>
<td>Survey of Organic Chemistry and Laboratory</td>
<td>(5)</td>
</tr>
<tr>
<td>BMB 301</td>
<td>Biochemistry Lecture</td>
<td>(3)</td>
</tr>
</tbody>
</table>

* Math 103 or an appropriate score on the Placement Testing Program (PTP) is a required corequisite.
** Students who elect to take BMB 301 should NOT take Chem 116, but must take Chem 122 and 240.

2 hours from:

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLS 490</td>
<td>Financial &amp; Quality Management of the Clinical Laboratory</td>
<td>(2)</td>
</tr>
<tr>
<td>Mgmt 305</td>
<td>Managerial Concepts</td>
<td>(3)</td>
</tr>
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</table>

3 hours from:

<table>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSci 101</td>
<td>Introduction to Computers</td>
<td>(3)</td>
</tr>
<tr>
<td>CSci 120</td>
<td>Computer Programming I</td>
<td>(3)</td>
</tr>
<tr>
<td>CSci 170</td>
<td>Computer Programming II</td>
<td>(3)</td>
</tr>
<tr>
<td>Phys 211/211L</td>
<td>College Physics I and Laboratory</td>
<td>(4)</td>
</tr>
<tr>
<td>Phys 212/212L</td>
<td>College Physics II and Laboratory</td>
<td>(4)</td>
</tr>
</tbody>
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III. Cytotechnology Program, professional phase: (Senior year, 12 months)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
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<tr>
<td>Path 401</td>
<td>Diagnostic Cytology I</td>
<td>(15)</td>
</tr>
<tr>
<td>Path 402</td>
<td>Diagnostic Cytology II</td>
<td>(15)</td>
</tr>
<tr>
<td>Path 403</td>
<td>Diagnostic Cytology III</td>
<td>(10)</td>
</tr>
</tbody>
</table>

The Cytotechnology Program is part of the Pathology (Path) department. The Pathology courses for Cytotechnology majors are listed below:

#### 399. Special Topics. 1-5 credits. Lecture, discussion and readings on topics of current interest in the pathology laboratory.

#### 401. Diagnostic Cytology I. 15 credits. Full day, integrated lecture, tutorial, laboratory course introduces exfoliative cytopathology of the female genital tract. The student learns principles and microscopic skills involved in screening/diagnosing pap test samples in the medical laboratory. Prerequisites: 20 hours biologic sciences, 8 hours chemistry, 3 hours math, including Biology 101, 102, and 369, Anatomy 204 and departmental approval. F

#### 402. Diagnostic Cytology II. 15 credits. Prerequisites: Path 401 and departmental approval. Corequisites: CLS 340 and 340L. Full day, integrated lecture, tutorial, laboratory course introduces cytopathology of major body organs. The student learns principles and microscopic skills involved in preparing/diagnosing body fluid and fine needle aspiration samples in the medical laboratory. Prerequisites: Path 401 and departmental approval. S

#### 403. Diagnostic Cytology III. 10 credits. Full day, 12 week clinical practicum held at UND or at a clinical affiliate cytology laboratory. Course is centered on the reinforcement of principles and the practice of skills learned in Path 401 and Path 402. Prerequisite: Pathology 402 and Departmental approval. SS

### Economics

(Econ)

http://business.und.edu/dept/economics/

Bagheri, Biederman, Blackwell, da Silva, Flynn, Goenner, Hagen, O’Neill (Chair), Owens, and Simlai

Economics is the study of how scarce resources are mobilized to meet the economic goals of individuals, businesses, organizations, governments and societies. The study of Economics is typically divided into two parts: macroeconomics (or aggregate economic analysis) studies economics from a broad-based perspective, including problems and issues such as unemployment, inflation and economic growth; microeconomics studies economics in terms of individual components, including problems and issues such as product pricing,
competition, regulation and international trade. Students of Economics can expect to become familiar with key economic concepts and laws which give them an analytical perspective that is unique to this discipline, but is of great importance to individuals and to society.

The mission of the Economics Faculty falls into several important and interdependent areas. The faculty offers a curriculum that reflects the current state of knowledge and skills used by professional economists and that fosters an understanding of the workings of modern economies, whether at regional, national or international levels. The Economics Faculty carries out research objectives, consistent with those reported by the University and the College of Business and Public Administration, by completing research leading to publication in professional journals and other research outlets; and, as needed, by providing service-related and contracted research to the city, region and state. The Economics Faculty provides services to the college, university, community, region, the state and professional organizations. This includes: committee service, provision of appropriate expertise in matters relevant to the economics profession; memberships in civic organizations; memberships in professional organizations as well as other relevant service related activities.

All programs in Economics include the necessary undergraduate economics courses for students who intend to pursue graduate level study. In addition, the major in Business Economics and the major in Economics offer a quantitative track which is recommended for students preparing for graduate study in Economics or Actuarial Science. In addition to the aforementioned undergraduate degrees, the Economics faculty offers a Masters of Science in Applied Economics degree. Please see the graduate section of the catalog for more information.

College of Business and Public Administration

B.B.A. WITH MAJOR IN BANKING AND FINANCIAL ECONOMICS

The Economics Faculty together with other faculty in the College of Business and Public Administration offer a major in Banking and Financial Economics that is intended to prepare students for employment with financial institutions and government. The major is comprised of a comprehensive curriculum that provides a background in basic business, economic theory, the principles and practices of banks and other financial institutions, bank regulation, macroeconomic policy and international finance. Experience has shown the graduates of this program are prepared to immediately function in highly responsible positions in financial institutions and regulatory agencies.

All B.B.A. candidates must fulfill the College of Business and Public Administration degree requirements.

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing: 39 credit hours).

The following are required by CoBPA (12 credit hours)
Comm 110 .......... Fundamentals of Public Speaking ......................................... (3)
Math 103 ........... College Algebra ................................................................. (3)
Math 146* .......... Applied Calculus I .......................................................... (3)
Pols 115 .......... American Government I ........................................................ (3)

* Math 165, Calculus I, may be substituted for Math 146.

Also, one of the following as required by CoBPA (3 credit hours)
Anth 171 .......... Introduction to Anthropology ............................................. (3)
Soc 110 .......... Introduction to Sociology .................................................... (3)

II. College of Business and Public Administration Core Requirements (40 credit hours)
Acct 200 .......... Elements of Accounting I .................................................... (3)
Acct 201 .......... Elements of Accounting II ................................................... (3)
Acct 315 .......... Business in the Legal Environment ..................................... (3)
Econ 201 .......... Principles of Microeconomics ........................................... (3)
Econ 202 .......... Principles of Macroeconomics .......................................... (3)
Econ 210** ......... Introduction to Business and Economic Statistics ............... (3)
Econ 303 .......... Money and Banking ............................................................ (3)
Isys 117 .......... Personal Productivity with Information Technology ............. (1)
Isys 317 .......... Information Systems in Enterprise ....................................... (3)
Fin 310 .......... Principles of Finance ............................................................... (3)
Mgmt 300 .......... Principles of Management ................................................ (3)
Mgmt 301 .......... Operations Management ................................................ (3)
Mgmt 475 .......... Strategic Management ..................................................... (3)
Mktg 305 .......... Marketing Foundations ..................................................... (3)

* This course satisfies part of the ES Social Sciences requirement and carries a Q designation.
** This course satisfies part of the ES Math, Science, and Technology requirement and carries a Q designation.

III. Required Major Courses (27 credit hours):
Econ 305 .......... Principles of Banking I ..................................................... (3)
Econ 306 .......... Principles of Banking II .................................................... (3)
Econ 308 .......... Intermediate Microeconomic Theory .................................. (3)
Econ 309 .......... Intermediate Macroeconomic Theory and Policy ................ (3)
Econ 405 .......... Bank Regulation ............................................................... (3)
Econ 438 .......... International Money and Finance .................................... (3)
Fin 340 .......... Intermediate Financial Management ..................................... (3)
Fin 360 .......... Capital Market Financing and Investment Strategies ............ (3)
Fin 375 .......... Lending and Liquidity Management ...................................... (3)

* Acct 218 is waived as a prerequisite for Banking and Financial Economics majors.

IV. Elective Major Courses: Choose at least 12 credit hours from the following:
Acct 301 .......... Intermediate Accounting I ............................................... (3)
Acct 302 .......... Intermediate Accounting II .............................................. (3)
Econ 395** ......... Special Topics in Economics ......................................... (1-3)
Econ 397** ......... Cooperative Education ................................................ (1-4)
Econ 410 .......... Empirical Methods in Economics I .................................. (3)
Econ 411 .......... Empirical Methods in Economics II .................................. (3)
Econ 414 .......... Managerial Economics .................................................. (3)
Econ 416 .......... Mathematics for Economists .......................................... (3)
Econ 477** ......... Internship ...................................................................... (1-4)
Fin 321 .......... Real Estate Finance and Investment ..................................... (3)
Fin 324 .......... Real Estate Appraisal ............................................................. (3)
Fin 350 .......... Financial Statement Analysis .............................................. (3)
Fin 420 .......... Investment Analysis and Portfolio Management .................. (3)
Fin 450 .......... Financial Derivatives ............................................................ (3)
Fin 491** .......... Senior Topics in Finance .................................................. (1-3)

* Acct 218 is waived as a prerequisite for Banking and Financial Economics majors.

** No more than 3 hours of electives from Econ 395, Econ 397, Econ 497 and Fin 491 may count toward the elective major courses.

B.B.A. WITH MAJOR IN BUSINESS ECONOMICS

The major in Business Economics is offered through the College of Business and Public Administration. This program emphasizes the business firm — integrating economics with related areas in marketing, management, accounting, finance, and quantitative analysis. Students who complete a major in Business Economics possess a comprehensive background in the basic foundations of a business as well as the analytical skills in economics increasingly required to be successful in the business world at local, regional, national and international levels. All B.B.A. candidates must fulfill the College of Business and Public Administration degree requirements.

Required 125 credit hours (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing: 39 credit hours).

The following are required by CoBPA (12 credit hours)
Comm 110 .......... Fundamentals of Public Speaking ..................................... (3)
Math 103 .......... College Algebra ............................................................... (3)
Math 146* .......... Applied Calculus I .......................................................... (3)
Pols 115 .......... American Government I .................................................... (3)

* Math 165, Calculus I, may be substituted for Math 146.

Also, one of the following as required by CoBPA (3 credit hours)
Anth 171 .......... Introduction to Anthropology ........................................... (3)
Psy 111 .......... Introduction to Psychology .................................................. (3)
Soc 110 .......... Introduction to Sociology .................................................... (3)

II. College of Business and Public Administration Core Requirements (40 credit hours)
Acct 200 .......... Elements of Accounting I .................................................... (3)
Acct 201 .......... Elements of Accounting II ................................................... (3)
Acct 315 .......... Business in the Legal Environment ..................................... (3)
Econ 201 .......... Principles of Microeconomics ........................................... (3)
Econ 202 .......... Principles of Macroeconomics .......................................... (3)
Econ 210** ......... Introduction to Business and Economic Statistics ............... (3)
Econ 303 .......... Money and Banking ............................................................ (3)
Isys 117 .......... Personal Productivity with Information Technology ............. (1)
Isys 317 .......... Information Systems in Enterprise ....................................... (3)
Fin 310 .......... Principles of Finance ............................................................... (3)
Mgmt 300 .......... Principles of Management ................................................ (3)
Mgmt 301 .......... Operations Management ................................................ (3)
Mgmt 475 .......... Strategic Management ..................................................... (3)
Mktg 305 .......... Marketing Foundations ..................................................... (3)

* This course satisfies part of the ES Social Sciences requirement and carries a Q designation.
** This course satisfies part of the ES Math, Science, and Technology requirement and carries a Q designation.

III. Required Major Courses (27 credit hours):
Econ 305 .......... Principles of Banking I ..................................................... (3)
Econ 306 .......... Principles of Banking II .................................................... (3)
Econ 308 .......... Intermediate Microeconomic Theory ................................ (3)
Econ 309 .......... Intermediate Macroeconomic Theory and Policy ............... (3)
Econ 405 .......... Bank Regulation ............................................................... (3)
Econ 438 .......... International Money and Finance .................................... (3)
Fin 340 .......... Intermediate Financial Management ..................................... (3)
Fin 360 .......... Capital Market Financing and Investment Strategies ............ (3)
Fin 375 .......... Lending and Liquidity Management ...................................... (3)

* Acct 218 is waived as a prerequisite for Banking and Financial Economics majors.

IV. Elective Major Courses: Choose at least 12 credit hours from the following:
Acct 301 .......... Intermediate Accounting I ............................................... (3)
Acct 302 .......... Intermediate Accounting II .............................................. (3)
Econ 395** ......... Special Topics in Economics ......................................... (1-3)
Econ 397** ......... Cooperative Education ................................................ (1-4)
Econ 410 .......... Empirical Methods in Economics I .................................. (3)
Econ 411 .......... Empirical Methods in Economics II .................................. (3)
Econ 414 .......... Managerial Economics .................................................. (3)
Econ 416 .......... Mathematics for Economists .......................................... (3)
Econ 477** ......... Internship ...................................................................... (1-4)
Fin 321 .......... Real Estate Finance and Investment ..................................... (3)
Fin 324 .......... Real Estate Appraisal ............................................................. (3)
Fin 350 .......... Financial Statement Analysis .............................................. (3)
Fin 420 .......... Investment Analysis and Portfolio Management .................. (3)
Fin 450 .......... Financial Derivatives ............................................................ (3)
Fin 491** .......... Senior Topics in Finance .................................................. (1-3)

* Acct 218 is waived as a prerequisite for Banking and Financial Economics majors.

** No more than 3 hours of electives from Econ 395, Econ 397, Econ 497 and Fin 491 may count toward the elective major courses.
College of Arts and Sciences

B.A. WITH MAJOR IN ECONOMICS

The major in Economics provides a critical examination of how the economic system works in the United States and throughout the world. The introductory courses are surveys of economic problems, policies, and theory; the required courses in micro theory and macro theory give a deeper analytical foundation. Electives permit further study in a wide range of fields, including international trade and finance, public sector economics, economic development, economic history, capital theory and finance, labor economics, income distribution, financial economics, financial markets, and public policy analysis. The major in Economics provides a general background that is useful to those planning careers in law, government service, or business, as well as those planning careers as professional economists. Professional economists work as college professors, as researchers for government agencies, in businesses and consulting firms, and as administrators and managers in a wide range of fields.

Required 125 credits (36 of which must be numbered 300 or above and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing: 39 credit hours)

II. Required Major Courses (24 credit hours):

Econ 201* ........ Principles of Microeconomics .................................................... (3)
Econ 202* ........ Principles of Macroeconomics .................................................. (3)
Econ 210** ....... Introduction to Business and Economic Statistics ....................... (3)
Econ 203 ............. Money and Banking ............................................................... (3)
Econ 308 ............. Intermediate Microeconomic Theory .................................. (3)
Econ 338 .......... International Economics .......................................................... (3)
Econ 410 .......... Empirical Methods in Economics I ........................................... (3)

* This course satisfies part of the ES Social Sciences requirement and carries a Q designation.

** This course satisfies part of the ES Math, Science, and Technology requirement and carries a Q designation.

III. Required Major Courses (15 credit hours):

Econ 308 ............. Intermediate Microeconomic Theory .................................. (3)
Econ 309 ............. Intermediate Macroeconomic Theory & Policy ....................... (3)
Econ 338 .......... International Economics .......................................................... (3)
Econ 410 .......... Empirical Methods in Economics I ........................................... (3)
Econ 305 .......... Principles of Banking I ............................................................... (3)

Econ 203 ............. Money and Banking ............................................................... (3)
Econ 208 ............. Managerial Economics ........................................................... (3)
Econ 309 .......... Intermediate Macroeconomic Theory and Policy ....................... (3)
Econ 338 .......... International Economics .......................................................... (3)
Econ 410 .......... Empirical Methods in Economics I ........................................... (3)

* This course satisfies part of the ES Social Sciences requirement and carries a Q designation.

** This course satisfies part of the ES Math, Science, and Technology requirement and carries a Q designation.

III. Elective Major Courses: Choose from either Option A, Option B, or a 12 credit hour combination from Options A and B below.

Option A - Choose at least 12 credit hours from the following:

Econ 305 .......... Principles of Banking I ............................................................... (3)
Acct 201 .......... Elements of Accounting II ....................................................... (3)

Math 265 .......... Calculus III ............................................................................. (4)
Math 166 .......... Calculus II ............................................................................... (4)
Math 165 .......... Calculus I .................................................................................. (4)

Econ 338 .......... International Economics .......................................................... (3)
Econ 309 .......... Intermediate Macroeconomic Theory and Policy ....................... (3)
Econ 338 .......... International Economics .......................................................... (3)
Econ 410 .......... Empirical Methods in Economics I ........................................... (3)

* No more than 6 credit hours of electives from Econ 397, 495, 496, and 497 may count toward the elective major courses.

Option B (Quantitative Option)* - Choose 12 credit hours from the following:

Econ 411 .......... Empirical Methods in Economics II ........................................... (3)
Econ 416 .......... Mathematics for Economists ...................................................... (3)
Math 165 .......... Calculus I .................................................................................. (4)
Math 166 .......... Calculus II ............................................................................... (4)
Math 265 .......... Calculus III ............................................................................. (4)
Math 266 .......... Elementary Differential Equations ............................................ (3)
Math 327 .......... Applied Linear Algebra .............................................................. (3)
Math 465 .......... Operations Research ................................................................. (3)

* Students seeking to prepare for graduate school in Economics are advised to choose Option B.
105. Elements of Economics. 3 credits. Survey of Economic principles for students planning no further formal study of Economics. Analysis of factors influencing aggregate levels of output, employment, and prices; introduction to U.S. monetary system; price determination and resource allocation under competitive and monopolistic conditions. Review of selected contemporary economic issues. (No credit if Economics 201-202). Principles of Microeconomics and Macroeconomics, have been completed or audited. Not available to students in the College of Business and Public Administration. F, S.

201. Principles of Microeconomics. 3 credits. Open to freshmen. Pre- or corequisite: one of the following: Math 103, 146, 165 or 166. Nature, method, and scope of Economic analysis: economic scarcity, resources, specialization and division of labor, supply and demand, production and cost, technology, product and resource market structures, distribution of income, and international trade. F, S.

202. Principles of Macroeconomics. 3 credits. Prerequisite: Econ 201. Nature, method, and scope of economic analysis: aggregate levels of income and employment, inflation, monetary and fiscal policy, the role of the U.S. economy as part of a world economic system. F, S.

206. Survey of Economic Principles: Micro-Macro. 4 credits. Prerequisite: consent of instructor. Accelerated course in economic principles intended for students pursuing the MBA graduate degree. This course considers both micro and macro topics. Micro topics include: Economics and Economic Reasoning; The Economic Organization of Society; Supply-Demand Analysis; Elasticity; Individual Choice; Production and Cost Analysis; and Market Structures. Macro topics include: National Income Accounting; Economic Growth, Business Cycles and Inflation; Fiscal Policy; Monetary Economics; Monetary Policy; and the World Economy. On demand.

210. Introduction to Business and Economic Statistics. 3 credits. Prerequisite: one of the following: Math 103, 146, 165 or 166. Descriptive statistics; probability distributions; sampling distributions; statistical inference for means and proportions; hypothesis testing; simple regression and correlation; non-parametric statistics. F, S.

216. Mathematics and Statistics for MBA Students. 3 credits. Prerequisite: Approval of MBA director. To provide knowledge in mathematics and statistics needed for students in the MBA program. Topics include, among others, linear and quadratic functions, logarithmic and exponential functions, matrix algebra, limits, derivatives, linear and nonlinear programming, descriptive statistics, data collection, sampling, probability and mathematical expectation, hypothesis testing, statistical inference, and linear regression. SS.

303. Money and Banking. 3 credits. Prerequisite: Econ 201 and 202. Nature of our current Monetary system; functional analysis of commercial bank operations; limits to credit expansion; alternative theories of the value of money; monetary and fiscal policies for control of the business cycle; powers of the Federal Reserve System and the Treasury; mechanics of international payment; balance-of-payments and other problems. F, S.

305. Principles of Banking I. 3 credits. Prerequisite: Econ 303. This course introduces the students to basic principles of banking governing loans, investments, deposits, liabilities, and capital. Consideration is given to the areas of liquidity, profitability, and capital adequacy as they relate to regulatory standards. Additional topics include bank organization, performance, and scope of services. F.

306. Principles of Banking II. 3 credits. Prerequisite: Econ 305. A continuation of Econ 305. Principles of students will explore the application of theory to the financial decision making and management of banks. The main focus of the course is the assessment of bank risks and management of those risks. A feature of the course is the use of a bank simulation model to connect theory and practice. S.

308. Intermediate Microeconomic Theory. 3 credits. Prerequisite: Econ 201 and 202. Theory of demand, production, and cost; price determination under alternative market structures; general equilibrium and economic welfare; analysis of market failure; applications to public policy. (Core requirement for students planning advanced study in Economics.) F, S.

309. Intermediate Macroeconomic Theory and Policy. 3 credits. Prerequisite: Econ 201 and Econ 202. A framework for studying national income, employment, and the general price level is developed. Theoretical perspectives on the National Income and Product accounts, expenditure aggregates in the public and private sectors of the economy, and supply and demand for money, labor and other resources are surveyed. Macroeconomic theory is then applied to a study of monetary, fiscal, incomes, and other policies intended to influence unemployment, inflation, balance of international financial payments, and economic growth. (Core requirement for students planning advanced study in Economics.) S.

324. Public Finance. 3 credits. Prerequisite: Econ 201 and Econ 202. Growth and effects of the public sector of the economy emphasizing effects of taxation and spending or borrowing and debt management on efficiency and use of economic resources. F or S.

330. Business and Economic History. 3 credits. Prerequisites: Econ 105 or 201 or 202. An analysis of the growth and development of the American economy since its colonial origins. The framework of economic analysis applied to the patterns and trends. Specific topics include industrialization, capital accumulations, financial innovation, technological change, banking, the Great Depression and effects of entrepreneurial and governmental policies. F.

338. International Economics. 3 credits. Prerequisite: Econ 201 and 202. Economic basis for gain in international trade; capital and population movements; international disequilibrium and process of balance-of-payments adjustments; tariffs, underdeveloped countries. F, S.

341. Labor Economics and Labor Relations. 3 credits. Prerequisite: Econ 201 and 202. A survey of the nature and causes of the economic problems of the American wage and salary earner and of the attempts of wage earners and society, through organization, to alleviate these problems. The course comparatively surveys the history and systematic theories of labor movements and the market and institutional influences on wages and employment. Particular emphasis will be placed on the law of industrial relations, employment and income access, and the adjustment of labor disputes. F.

355. Government Regulation of Business. 3 credits. Prerequisite: Econ 201 and 202. An exploration of the many ways that federal and state governments regulate business activity. Government regulation falls into three broad areas: economic regulation; social regulation; antitrust laws. The historical development of regulation, from both a legal and economic perspective, will be discussed. Particular attention will be paid to the current trend toward deregulation of previously regulated industries such as airlines, telecommunications, etc. F, S.

380. Global Economic Development. 3 credits. Prerequisites: Econ 201 and 202. This course focuses on economic development issues at the global level. It covers both developing countries in the conventional sense and economies in transition from socialism to market economy. Development is broadly defined as the transition from one stage of development to another. Selected topics common among these countries (such as determinants of growth, modernization, technology, price liberalization, privatization, macro stabilization, trade policies, legal structure, organized crime, inequality, poverty, human capital, and global sustainability) are discussed to better understand the forces that shape the wealth and well being of nations and people in the world around us. On demand.

395. Special Topics in Economics. 1-3 credits. Prerequisite: Econ 201 and Econ 202. Specific topic will vary from year to year; some years an important development in economic theory, other years, a significant issue in economic policy. On demand.

397. Cooperative Education. 1-4 credits. Repeatable to 6 credits. Prerequisite: Permission of departmental Cooperative Education Coordinator to enroll. A practical work experience with an employer closely associated with the student's academic area. S-U grading only. F, S.

400. History of Economic Thought. 3 credits. Prerequisite: Econ 105 or Econ 201 and 202. Broad overview of the major schools of thought including Mercantilist, Physiocrat, Classical, Marxian, Socialist, Historical, Austrian, Neoclassical, Institutional, Keynesian, and Monetarist. The coverage includes value theory, income/expenditure theory, growth and development theory, scientific method, scope and public policy. S.

405. Bank Regulation. 3 credits. Prerequisite: Econ 303. The regulations imposed on the banking industry are examined at several levels — federal, state, and local. Both the historical development of banking regulation as well as current issues/controversies are discussed. In addition, the banker's perspective of regulatory compliance is explored. S.

409. Current Issues in Macroeconomic Policy. 3 credits. Prerequisite: Econ 303. This course focuses on the conduct of macroeconomic policy, especially as it pertains to the operations and functions of the nation's financial system. The two basic tools of macroeconomic policy — monetary policy and fiscal policy — are studied from historical, contemporary, and theoretical perspectives. Emphasis is placed on recent developments in the theory and practice of macroeconomic policy; special emphasis is placed on the role of monetary policy as it affects the operations of financial markets and financial institutions. S.

410. Empirical Methods in Economics I. 3 credits. Prerequisites: Econ 201, 202 and 210. This course is an introduction to econometrics, the joint area of economics and statistics dealing with the application of statistics to economic problems. The course objectives are to acquire a basic understanding of the theory and methods of econometrics and to gain practical experience in utilizing these methods. The students will use the tools developed in the course in homework and written assignments so that they can develop an insit to theory and its application. F.

411. Empirical Methods in Economics II. 3 credits. Prerequisite: Econ 410. A continuation of Econ 410, but with a major emphasis on business and economic forecasting. As with Econ 410, there is a heavy emphasis on solving practical problems of the major types common in the Economics profession. S.

414. Managerial Economics. 3 credits. Prerequisites: Econ 210, 308; Math 146 or equivalent. A survey of the current major theoretical developments in microeconomic and macroeconomic theory, and their application to economic analysis. Mathematical analysis of static and dynamic equilibrium models. Growth models, distribution, production functions, cycles, activity analysis, mathematical programming, and model building. On demand.

420. Economic Education. 3 credits. Prerequisite: Econ 105 or equivalent. Designed for students planning to teach secondary social studies. Curriculum materials.
and methods of teaching economics; techniques for integrating economics into social studies curriculum. On demand.

438. International Money and Finance. 3 credits. Prerequisite: Econ 303. Identification of key international financial concepts and analysis of their relationships in the international money and capital markets; determination of the balance of payments and exchange rates; and examination of alternative organizations of the international monetary system. F


495. Readings in Economics. 1-3 credits. Extensive reading in the student’s field of specialization; conference arranged with the instructor; written reports to be submitted. F,S,SS

496. Research in Economics. 1-3 credits. Research work and use of original documents; cataloging of material and preparing of special topics and bibliographies; familiarizing the student with government publications and other material available for study of economic problems. F,S,SS

497. Internship. 1-4 credits. Prerequisite: Permission of Department Committee on Internships. An internship is designed to provide the student with an opportunity for participating in a supervised work experience directly related to the field of training. Student will work closely with faculty adviser in planning the internship with an approved cooperating institution. S/U grading only. F,S,SS

Education and Human Development (EHD)

http://www.und.edu/dept/ehd/

Courses

200. Research in the University Library. 1 credit. Introduction to effective library-based research. Current technologies and traditional methods are emphasized. F,S

250A. Special Topics. (regular grading); 250B. Special Topics. (S/U grading). 1-3 credits in any one semester; repeatable to 12 credits. Specially arranged seminars or courses on contemporary topics not covered by regular departmental offerings. May be initiated by students with approval of dean and departments involved, provided appropriate faculty members are willing. F,S

390A. Special Topics (regular grading); 390B. Special Topics. (S/U grading). 2 credits. May be repeated. F,S

495. Readings in Economics. 1-3 credits. Extensive reading in the student’s field of specialization; conference arranged with the instructor; written reports to be submitted. F,S,SS

497. Internship. 1-4 credits. Prerequisite: Permission of Department Committee on Internships. An internship is designed to provide the student with an opportunity for participating in a supervised work experience directly related to the field of training. Student will work closely with faculty adviser in planning the internship with an approved cooperating institution. S/U grading only. F,S,SS

Electrical Engineering (EE)

http://www.ee.und.edu

Faruque, Fazel-Rezai, Kaabouch, Mardani, Miles, Noghanian, Ranganathan, Salehfar and Schultz (Chair)

The mission of the department is to provide campus and distance students with a strong foundation in the traditional and contemporary areas of electrical engineering, and to help our graduates learn the leadership, communication, multidisciplinary teamwork, and lifelong learning skills necessary for success in a global marketplace. The program provides students with the knowledge and opportunities that prepare them for industry and to pursue further education at the graduate level. The program also provides distance students with the ability to advance their careers as practicing engineers or managers. The essential studies component of the undergraduate program emphasizes the arts, humanities, and social sciences to provide breadth in education and well-rounded graduates.

The Bachelor of Science in Electrical Engineering (B.S.E.E.) educational objectives represent the career and professional accomplishments that the program is preparing our students to achieve, generally three-to-five years after graduation:

1. Provide campus and distance students with a strong foundation in the traditional and contemporary areas of electrical engineering.
2. Help our graduates learn the leadership, communication, multidisciplinary teamwork, and lifelong learning skills necessary for success in their careers.
3. Educate students in science and engineering so that they can identify, understand, and solve problems in society that meet desired customer needs.
4. Provide students with a breadth of knowledge in the arts, humanities, and social sciences, resulting in well-rounded graduates capable of taking leadership positions as professionals.
5. Provide students with the knowledge and opportunities that prepare them for industry, to further their careers as practicing engineers, business owners, or managers, and to pursue further education at the graduate level.

The B.S.E.E. program outcomes represent the abilities, knowledge, and understanding that the program is preparing its students to acquire immediately upon graduation from the University of North Dakota (identical to Engineering Accreditation Commission of ABET outcomes (a) through (k)):

(a) an ability to apply knowledge of mathematics, science, and engineering
(b) an ability to design and conduct experiments, as well as to analyze and interpret data
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
(d) an ability to function on multidisciplinary teams
(e) an ability to identify, formulate, and solve engineering problems
The department is committed to fostering a close student-faculty educational environment that facilitates competence, self-development, and self-confidence. This commitment extends to providing an excellent undergraduate electrical engineering program that encompasses both breadth and depth. The technical and essential studies components of the curriculum provide the students with opportunities for achieving technical competence and awareness of economic and ethical responsibilities. The technical curriculum includes: (1) basic engineering science; (2) traditional electrical engineering areas, such as linear electric circuits, analog/digital electronics, computer-aided design, control systems, electric energy conversion, electric and magnetic fields, and embedded systems; and (3) electives, by which junior- and senior-level students may select courses with a focus on a particular subject or related subjects in electrical engineering. These areas of concentration include applied electromagnetics, control systems and signal processing, embedded systems design, and renewable energy systems.

To prepare students for engineering practice, design and hands-on experience are emphasized throughout the curriculum and supported by diverse laboratory facilities to implement hardware and software prototypes. Students are introduced to subject-related computer-aided design tools in a number of required and elective courses in preparation for a capstone senior design experience. Every student is required to complete a comprehensive design project over their last two semesters. Computer applications, statistical methods, and written, oral, and interpersonal communication skills are emphasized across the curriculum, along with opportunities to enhance teamwork and lifelong learning skills. Cooperative education is encouraged to enhance students’ technical development, communication, and multidisciplinary teamwork skills, in addition to fostering an understanding of global engineering practice. Students are encouraged to promote the profession and develop leadership skills through involvement in honorary and professional student organizations, as well as through participation in extracurricular research and design projects.

The department has a strong student advising program, which facilitates individual contact with students to help them make sound academic decisions and to understand the purpose of their education and chosen profession. Additionally, relatively small class sizes help our electrical engineering students and faculty truly get to know one another, resulting in a personalized educational experience.

The B.S.E.E. program is delivered face-to-face to campus students, who are typically of traditional college age, as well as over the Internet via digitally-recorded video lectures to distance students, who are generally working professionals seeking an accredited electrical engineering degree. The Distance Engineering Degree Program (DEDP) is offered to students around the world through a long-standing collaboration between the School of Engineering & Mines and the Division of Continuing Education, in which the distance students receive an equivalent educational experience as compared to their campus counterparts. Distance Engineering Degree Program students enroll in the same required and elective lecture courses during the regular academic year as the campus students by watching digitally-recorded video lectures delivered over the Internet, but they are required to travel to campus during the summer months to complete accelerated laboratory sections. Academic advising, assistance from faculty, and the capstone senior design experience are fundamentally the same for both campus and distance students.

To allow qualified students to complete a graduate degree in one year beyond that required to receive the baccalaureate degree alone, the department offers combined B.S.E.E./Master of Science (M.S.) in Electrical Engineering and B.S.E.E./Master of Engineering (M.Engr.) degrees. See Combined Degree Program under the School of Engineering and Mines for more details.

In addition to the traditional B.S. in Electrical Engineering program that emphasizes the analysis and design of circuits and systems, the department offers three interdisciplinary focus areas to undergraduate students with interests in aerospace, biomedical engineering, and computer science. All four curricula are listed in their entirety as follows:

### School of Engineering and Mines

#### B.S. IN ELECTRICAL ENGINEERING

Required 136 credits (36 of which must be numbered 300 or above and 60 of which must be from a 4-year institution) including:

I. The University’s Essential Studies Breadth of Knowledge, Social-Cultural Diversity, and Special Emphasis Requirements (refer to the online Academic Catalog for a listing of acceptable Essential Studies courses).

II. The Following Curriculum:

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>EE 101</td>
<td>Introduction to Electrical Engineering</td>
<td>(1)</td>
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<tr>
<td>EE 201</td>
<td>Introduction to Digital Electronics</td>
<td>(2)</td>
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<tr>
<td>EE 202</td>
<td>Electrical Engineering Laboratory</td>
<td>(1)</td>
</tr>
<tr>
<td>Engr 101</td>
<td>Graphical Communication</td>
<td>(3)</td>
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<tr>
<td>Engr 201</td>
<td>Statics</td>
<td>(3)</td>
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<tr>
<td>Chem 121</td>
<td>General Chemistry I</td>
<td>(3)</td>
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<td>Chem 121L</td>
<td>General Chemistry Laboratory</td>
<td>(1)</td>
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<tr>
<td>Math 165, 166</td>
<td>Calculus I, II</td>
<td>(4)</td>
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<tr>
<td>Engl 110</td>
<td>College Composition I</td>
<td>(3)</td>
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<tr>
<td>Ecom 201</td>
<td>Principles of Microeconomics (SS)</td>
<td>(3)</td>
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<td>Humanities Elective (A&amp;H)</td>
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<tr>
<td>Social Sciences Elective (SS)</td>
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<tr>
<th>Sophomore Year</th>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>EE 206</td>
<td>Circuit Analysis</td>
<td>(3)</td>
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<tr>
<td>EE 304</td>
<td>Computer Aided Measurement and Controls</td>
<td>(3)</td>
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<tr>
<td>EE 306, 307</td>
<td>Circuits Laboratory I, II</td>
<td>(1)</td>
</tr>
<tr>
<td>EE 313</td>
<td>Linear Electric Circuits</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 265</td>
<td>Calculus III</td>
<td>(4)</td>
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<td>Math 266</td>
<td>Elementary Differential Equations</td>
<td>(3)</td>
</tr>
<tr>
<td>Phys 251, 251L</td>
<td>University Physics I &amp; Laboratory</td>
<td>(4)</td>
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<tr>
<td>Phys 252, 252L</td>
<td>University Physics II &amp; Laboratory</td>
<td>(4)</td>
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<tr>
<td>Engl 125</td>
<td>Business and Technical Writing</td>
<td>(3)</td>
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<td>Engineering Science Elective 4</td>
<td>(3)</td>
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<th>Junior Year</th>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>EE 308, 309</td>
<td>Junior Laboratory I, II</td>
<td>(2)</td>
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<tr>
<td>EE 314</td>
<td>Signals and Systems</td>
<td>(3)</td>
</tr>
<tr>
<td>EE 316</td>
<td>Electric and Magnetic Fields</td>
<td>(3)</td>
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<tr>
<td>EE 318</td>
<td>Engineering Data Analysis</td>
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<th>Senior Year</th>
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1. The University’s Essential Studies Breadth of Knowledge, Social-Cultural Diversity, and Special Emphasis Requirements (refer to the online Academic Catalog for a listing of acceptable Essential Studies courses).

II. The Following Curriculum

**Freshman Year**

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<td>Introduction to Digital Electronics</td>
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<td>EE 202</td>
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<td>Introduction to Aviation</td>
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<td>Calculus I, II</td>
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<td>Avit 221</td>
<td>Basic Attitude Instrument Flying</td>
<td>(3)</td>
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<td>Avit 323</td>
<td>Aerodynamics-Airplanes</td>
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<td>Avit 324</td>
<td>Aircraft Systems</td>
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<td>Math 265</td>
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**Sophomore Year**

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<td>EE 308</td>
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<td>Introduction to Digital Electronics</td>
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<td>EE 405</td>
<td>Control Systems I</td>
<td>(3)</td>
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<td>EE 409</td>
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<td>University Physics II, Laboratory</td>
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<td>Engl 125</td>
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**Electrical Engineering**

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<td>Signals and Systems</td>
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<td>EE 316</td>
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<tr>
<td>EE 401</td>
<td>Electric Drives</td>
<td>(3)</td>
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<td>EE 405</td>
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<td>EE 409</td>
<td>Distributed Networks</td>
<td>(3)</td>
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<td>EE 421</td>
<td>Electronics II</td>
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**Senior Year**

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<td>Senior Design II</td>
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<td>EE 306</td>
<td>Fluid Mechanics</td>
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<td>ME 341</td>
<td>Thermodynamics</td>
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<td>A&amp;E or Elective</td>
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<td>Basic or Applied Science Elective</td>
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<td>Electrical Engineering Electives</td>
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<td>Ethics Elective (A&amp;H or SS)</td>
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<td>Fine Arts Elective</td>
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<tr>
<td>Math 98</td>
<td>Senior Elective</td>
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**MINOR IN AVIATION—PROFESSIONAL FLIGHT**

Required: 14 Aviation credits from the B.S.E.E. program, plus the following 16 additional credits:

- AtSc 110 .... Meteorology (SS) .... (4)
- AtSc 251 .... Aviation Meteorology .... (4)
- Avit 208 .... Aviation Safety .... (3)
- Avit 222 .... FFR Regulations and Procedures .... (3)
- Avit 325 .... Multi-Engine Systems and Procedures .... (2)

1. May be waived for transfer students (substitute science credit required).
2. To meet the University’s Essential Studies Breadth of Knowledge requirements, all students must complete 3 credits of Arts & Humanities Electives (minimum of 2 departments, including 3 Fine Arts credits and 3 Humanities credits) and 9 credits of Social Sciences Electives (minimum of 2 departments). Refer to the online Academic Catalog for a listing of acceptable Essential Studies courses.
3. To meet the University’s Essential Studies Social-Cultural Diversity requirements, all students must complete 3 credits of Global (G) Diversity Electives and 3 credits of United States (U) Diversity Electives. Refer to the online Academic Catalog for a listing of acceptable Essential Studies G and U Diversity Electives.
4. To meet the University’s Essential Studies Breadth of Knowledge requirements, all students must complete 9 credits of Arts & Humanities Electives (minimum of 2 departments, including 3 Fine Arts credits and 3 Humanities credits) and 9 credits of Social Sciences Electives (minimum of 2 departments). Refer to the online Academic Catalog for a listing of acceptable Essential Studies courses.

**B.S. IN ELECTRICAL ENGINEERING WITH AN AEROSPACE FOCUS**

Required 138 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. The University’s Essential Studies Breadth of Knowledge, Social-Cultural Diversity, and Special Emphasis Requirements (refer to the online Academic Catalog for a listing of acceptable Essential Studies courses).

II. The Following Curriculum

**Freshman Year**

<table>
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<th>Second Semester</th>
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<td>Introduction to Electrical Engineering</td>
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<tr>
<td>EE 201</td>
<td>Introduction to Digital Electronics</td>
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<td>EE 202</td>
<td>Electrical Engineering Laboratory</td>
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<td>Avit 122</td>
<td>Introduction to Aviation</td>
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<td>Chem 121</td>
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<td>Math 165, 166</td>
<td>Calculus I, II</td>
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<td>College Composition I</td>
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<td>Econ 201</td>
<td>Principles of Microeconomics (SS)</td>
<td>(3)</td>
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<td>EE 206</td>
<td>Circuit Analysis</td>
<td>(3)</td>
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<tr>
<td>EE 304</td>
<td>Computer Aided Measurement and Controls</td>
<td>(3)</td>
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<tr>
<td>EE 306, 307</td>
<td>Circuits Laboratory I, II</td>
<td>(1)</td>
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<td>EE 313</td>
<td>Linear Electric Circuits</td>
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<td>Avit 221</td>
<td>Basic Attitude Instrument Flying</td>
<td>(3)</td>
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<td>Avit 323</td>
<td>Aerodynamics-Airplanes</td>
<td>(3)</td>
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<td>Avit 324</td>
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<td>Statics</td>
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**Sophomore Year**

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<td>EE 306, 307</td>
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<td>EE 313</td>
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<td>Avit 221</td>
<td>Basic Attitude Instrument Flying</td>
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<td>Avit 323</td>
<td>Aerodynamics-Airplanes</td>
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<td>Avit 324</td>
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<td>Engr 201</td>
<td>Statics</td>
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<td>Math 265</td>
<td>Calculus III</td>
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<td>Elementary Differential Equations</td>
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<td>Phys 252/252L</td>
<td>University Physics II, Laboratory</td>
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<td>Engl 125</td>
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**Junior Year**

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<td>EE 314</td>
<td>Signals and Systems</td>
<td>(3)</td>
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<td>EE 316</td>
<td>Electric &amp; Magnetic Fields</td>
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<td>EE 318</td>
<td>Engineering Data Analysis</td>
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<td>EE 321</td>
<td>Electronics I</td>
<td>(3)</td>
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<td>Electric Drives</td>
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<td>EE 405</td>
<td>Control Systems I</td>
<td>(3)</td>
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<td>Distributed Networks</td>
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<td>Electronics II</td>
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**Senior Year**

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<th>Second Semester</th>
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<td>EE 481</td>
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<td>EE 306</td>
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**B.S. IN ELECTRICAL ENGINEERING WITH A BIOMEDICAL ENGINEERING FOCUS**

Required 137 credits (36 of which must be numbered 300 or above and 60 of which must be from a 4-year institution) including:

I. The University’s Essential Studies Breadth of Knowledge, Social-Cultural Diversity, and Special Emphasis Requirements (refer to the online Academic Catalog for a listing of acceptable Essential Studies courses).

II. The Following Curriculum

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<td>Biol 151</td>
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</table>
B.S. IN ELECTRICAL ENGINEERING WITH A COMPUTER SCIENCE FOCUS

Includes Minors in both Computer Science and Mathematics.

Required 138 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. The University’s Essential Studies Breadth of Knowledge, Social-Cultural Diversity, and Special Emphasis Requirements (refer to the online Academic Catalog for a listing of acceptable Essential Studies courses).

II. The Following Curriculum:

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<th>Second Semester</th>
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<td>EE 201 ..........</td>
<td>Introduction to Digital Electronics ..........</td>
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<td>EE 202 ..........</td>
<td>Electrical Engineering Laboratory ..........</td>
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<tr>
<td>EE 101 ..........</td>
<td>Introduction to Electrical Engineering ..........</td>
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<tr>
<td>EE 313 ..........</td>
<td>Linear Electric Circuits ..........</td>
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<tr>
<td>EE 202 ..........</td>
<td>Electrical Engineering Laboratory ..........</td>
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<tr>
<td>EE 101 ..........</td>
<td>Introduction to Electrical Engineering ..........</td>
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<td>EE 313 ..........</td>
<td>Linear Electric Circuits ..........</td>
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<tr>
<td>EE 101 ..........</td>
<td>Introduction to Electrical Engineering ..........</td>
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<tr>
<td>Phys 251/251L ..</td>
<td>University Physics I, Laboratory ..........</td>
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<td>Phys 252/252L ..</td>
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**Sophomore Year**

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<th>First Semester</th>
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<tr>
<td>EE 101 ..........</td>
<td>Introduction to Electrical Engineering ..........</td>
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<tr>
<td>EE 201 ..........</td>
<td>Introduction to Digital Electronics ..........</td>
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<td>EE 202 ..........</td>
<td>Electrical Engineering Laboratory ..........</td>
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<td>EE 101 ..........</td>
<td>Introduction to Electrical Engineering ..........</td>
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<td>EE 313 ..........</td>
<td>Linear Electric Circuits ..........</td>
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<td>Introduction to Electrical Engineering ..........</td>
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**Junior Year**

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<tr>
<td>EE 304 ..........</td>
<td>Computer Aided Measurement and Controls ..........</td>
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<tr>
<td>EE 306, 309  ..</td>
<td>Junior Laboratory I, II ..........</td>
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<tr>
<td>EE 314 ..........</td>
<td>Signals and Systems ..........</td>
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<tr>
<td>EE 316 ..........</td>
<td>Electric and Magnetic Fields ..........</td>
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<tr>
<td>EE 318 ..........</td>
<td>Engineering Data Analysis ..........</td>
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<tr>
<td>EE 321 ..........</td>
<td>Electronics I ..........</td>
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<td>EE 401 ..........</td>
<td>Electric Drives ..........</td>
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<td>EE 409 ..........</td>
<td>Control Systems I ..........</td>
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<td>EE 409 ..........</td>
<td>Distributed Networks ..........</td>
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<td>EE 421 ..........</td>
<td>Electronics II ..........</td>
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<td>EE 452 ..........</td>
<td>Embedded Systems ..........</td>
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<td>Math 265 ..........</td>
<td>Calculus III ..........</td>
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<tr>
<td>EE 304 ..........</td>
<td>Computer Aided Measurement and Controls ..........</td>
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<td>EE 306, 309  ..</td>
<td>Junior Laboratory I, II ..........</td>
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<td>EE 314 ..........</td>
<td>Signals and Systems ..........</td>
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<td>Phys 252/252L ..</td>
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<tr>
<td>Engl 110 ..........</td>
<td>Technical &amp; Business Writing ..........</td>
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**Senior Year**

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<td>Chem 122 ..........</td>
<td>General Chemistry II ..........</td>
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<tr>
<td>Chem 122L ........</td>
<td>General Chemistry II Laboratory ..........</td>
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<tr>
<td>EE 306, 309  ..</td>
<td>Junior Laboratory I, II ..........</td>
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<td>EE 314 ..........</td>
<td>Signals and Systems ..........</td>
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<td>EE 316 ..........</td>
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<td>University Physics II, Laboratory ..........</td>
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<td>Engl 110 ..........</td>
<td>Technical &amp; Business Writing ..........</td>
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**Additional Recommended Pre-Medical Courses:**

- Anat 204L Anatomy for Paramedical Personnel Laboratory (2)
- Biol 315 Genetics—Recommended for MCAT (3)
- Biol 369/369L Histology and Histology Laboratory (2)
- Biol 420 Neuroscience (3)
- BMB 301 Biochemistry Lecture (3)
- Chem 341 Organic Chemistry I (4) and
  - Chem 341L Organic Chemistry I Laboratory (1)
  - Chem 341/341L required for UND Medical School
- Chem 342 Organic Chemistry II (4) and
  - Chem 342/342L required for UND Medical School
- MBio 302 General Microbiology Lecture (2) and
  - MBio 302L General Microbiology Laboratory (2)

1. May be waived for transfer students (substitute science credit required).
2. To meet the University’s Essential Studies Breadth of Knowledge requirements, all students must complete 9 credits of Arts & Humanities Electives (minimum of 2 departments, including 3 Fine Arts credits and 3 Humanities credits) and 9 credits of Social Sciences Electives (minimum of 2 departments). Refer to the online Academic Catalog for a listing of acceptable Essential Studies courses.
3. Must take PSyc 111 or Soc 110 as a Social Sciences Elective.
4. Senior standing with approval of adviser. EE 480, Senior Design I, meets the Essential Studies Special Emphasis requirements for Advanced Communication (A) and Senior Capstone (C).
5. EE 481, Senior Design II, meets the Essential Studies Special Emphasis requirement for Oral Communication (O).
6. To meet the University’s Essential Studies Social-Cultural Diversity requirements, all students must complete 3 credits of Global (G) Diversity Electives and 3 credits of United States (U) Diversity Electives. Refer to the online Academic Catalog for a listing of acceptable Essential Studies G and U Diversity Electives.

7. Recommended EE Elective: EE 550, Biomedical Instrumentation. Additionally, a maximum of three credits of EE 490, Problems, are allowed as an independent study.
8. The Ethics Elective is a 3-credit course that meets Essential Studies requirements in either the Arts & Humanities or the Social Sciences. Ethics Elective choices: Phil 379, Ethics in Engineering & Science (A&H), Humanities; CHE 340, The Role of Engineers and Applied Scientists in a Global Society (SS); and ME 370, Engineering Disasters & Ethics (SS).
4. To meet the University’s Essential Studies Social-Cultural Diversity requirements, all students must complete 3 credits of Global (G) Diversity Electives and 3 credits of United States (U) Diversity Electives. Refer to the online Academic Catalog for a listing of acceptable Essential Studies G and U Diversity Electives.

5. Senior standing with approval of adviser. EE 480, Senior Design I, meets the Essentials Studies Special Emphasis requirements for Advanced Communication (A) and Senior Capstone (C).

6. EE 481, Senior Design II, meets the Essentials Studies Special Emphasis requirement for Oral Communication (O)

7. Computer Science Elective choices: Any Computer Science course, 300 level or higher. A maximum of three credits of CSci 250, Advanced Programming Languages, is permitted.

8. Maximum of three credits of EE 400, Advanced EE Problems, allowed as an independent study, applicable to both EE and Technical Electives.


10. The Ethics Elective is a 3-credit course that meets Essentials Studies requirements in either the Arts & Humanities or the Social Sciences. Ethics Elective choices: Phil 370, Ethics in Engineering & Science (A&H, Humanities); ChE 340, The Role of Engineers and Applied Scientists in a Global Society (SS), and ME 370, Engineering Ethics (SS).

11. Math Elective choices: Math 327, Applied Linear Algebra; Math 461, Numerical Analysis I; and other Math courses 300 level or higher with approval of instructor and adviser.

12. Technical Elective choices: Computer Science, Engineering (including EE), Math, and Physics courses approved by adviser, normally 300 level or higher. CSci 260, Advanced Programming Languages, is permitted. EE 397, Cooperative Education, is only applied towards the Technical Elective with S/U grading, 3 credits maximum.

Courses

101. Introduction to Electrical Engineering. 1 credit. An introduction to the electrical engineering discipline. Recent technologies and practices in electronics, computers, controls, power systems, robotics, communication, and microwaves. F,S

201. Introduction to Digital Electronics. 2 credits. Prerequisite: EE 202. Introduces the fundamentals of digital circuits design. Logic gates; Boolean algebra; Karnaugh maps; Mathematical operations; Flip Flops; Counters. F,S

202. Electrical Engineering Laboratory. 1 credit. Prerequisite: EE 201. Introduction to design and implementation of digital electronic circuits. F,S

206. Circuit Analysis. 3 credits. Prerequisite: Math 165*. Introduces the fundamentals of electrical engineering, applying these concepts in developing the fundamentals of energy conversion, electronics and circuit theory. F,S

304. Computer Aided Measurement and Controls. 3 credits. Prerequisites: Math 165 and completing coursework, as detailed below with a cumulative GPA of 2.0 or above.

305. Circuits Laboratory I. 1 credit. Prerequisite: EE 206. Introduction to mathematics and principles of circuits analysis and to produce laboratory equipment. F,S

307. Circuits Laboratory II. 1 credit. Prerequisite: EE 306. Prerequisite: EE 313. Experimental circuit analysis and proper use of laboratory equipment. F,S

308. Junior Laboratory I. 2 credits. Prerequisite: EE 307. Prerequisite: EE 321. Prerequisite: EE 201. Principles of electronics application and design using theory studied in junior third-year electrical engineering courses.

309. Junior Laboratory II. 2 credits. Prerequisite: EE 308. Prerequisite: EE 421. Prerequisite: EE 321. The study of microcontroller hardware and software, with an emphasis on interfacing environments and controls. F,S

310. Cooperative Education. 1-3 credits. Repeatable. Prerequisites: Admission to the electrical engineering degree program. A practical work experience with an employer closely associated with the student’s academic area. Arranged by mutual agreement among student, department, and employer. F,S,S

311. Communications Engineering. 3 credits. Prerequisites: EE 316. Mathematically defined concepts and deterministic models and a study of various modulation systems. On demand.

401. Electrical Circuits. 3 credits. Prerequisite: EE 321. Principles, applications, and design of electronic equipment studied from viewpoint of complete systems. On demand.


422. Power Systems II. 3 credits. Prerequisite: EE 313. Electric power systems operation and control. On demand.


424. Electronic Circuits. 3 credits. Prerequisite: EE 321. Principles, applications, and design of electronic equipment studied from viewpoint of complete systems. On demand.

451. Computer Hardware Organization. 3 credits. Prerequisites: EE 201 and 304 or consent of instructor. Prerequisite: EE 201 and 304 or consent of instructor. The study of complete computer systems including digital hardware, software, and control methods necessary for realizing digital computers and analog systems. On demand.

452. Embedded Systems. 3 credits. Prerequisites: EE 201, EE 304 and EE 321. A study of microcontroller hardware and software, with an emphasis on interfacing with microcontrollers and other electronic devices such as transceivers, sensors, and actuators for communications and control within an embedded system. S


480. Senior Design I. 3 credits. Prerequisite: Consent of instructor. First course in the two-semester capstone design experience for the electrical engineering undergraduate. Prerequisite: Elective in advanced communication, and teamwork. Student teams will be required to select an engineering system to design, capture end-user requirements, and perform component trade studies, resulting in a written and oral critical design review at the end of the semester. EE 480 Senior Design I meets the Essentials Studies Special Emphasis requirements for Advanced Communication (A) and Senior Capstone (C).

481. Senior Design II. 3 credits. Prerequisite: EE 480. Second course in the two-semester capstone design experience for the electrical engineering undergraduate. Prerequisite: Elective in advanced communication, and teamwork. Student teams will be required to select an engineering system to design, capture end-user requirements, and perform component trade studies, resulting in a written and oral critical design review at the end of the semester. EE 480 Senior Design I meets the Essentials Studies Special Emphasis requirements for Advanced Communication (A) and Senior Capstone (C).


490. Electrical Engineering Problems. 1-9 credits. Repeatable to maximum of 9 credits. Prerequisite: Approval by departmental faculty member under whom the electrical engineering problem is studied. F,S

Courses

Engr 201 ............... Statics ..............................................................................(3)

EE 206 ............... Circuit Analysis .................................................................(3)

Engr 202 ............... Dynamics .....................................................................(3)

Engr 203 ............... Mechanics of Materials ......................................(3)

CE 306 ............... Fluid Mechanics ...............................................................(3)

ME 306 ............... Fluid Mechanics ...............................................................(3)

ME 341 ............... Thermodynamics .................................................................(3)
Electives Courses (8 credits):

Any regularly offered course at the 200 or higher level with the prefix Engr, CE, EE, GE or ME may be used as elective.

The minor program is administered through the SEM Dean’s Office.

Courses

100. Professional Assessment and Evaluation. 1 credit. Prerequisites: Work experience and/or technician school training plus completion of Chemistry I, Physics I and II, and Calculus I, II, and III. Required S-U grading. This course is designed for students with industrial experience. Students complete a portfolio documenting educational and work experiences for evaluation, and individualized curriculum plans are developed. Various academic programs in engineering are also introduced. Based on the assessment and evaluation, some engineering requirements may be waived.

101. Graphical Communication. 3 credits. Development of visualization, technical communication, and documentation skills. 3-D geometric modeling as applied to CADD applications using current methods and techniques commonly found in industry. Introduction to engineering, design and team problem solving. FS

200. Computer Applications in Engineering. 2 credits. Prerequisite: Math 107 or Mathematics Placement Test Protocol (PTP). The fundamentals of digital computer programming are presented with special emphasis on a high-level language and engineering applications. The fundamentals of PC-based software applications and operating systems are also presented. FS


202. Dynamics. 3 credits. Prerequisite: Engr 201. Simple particle and rigid body kinematics/kinetics. Vector approach to principles of dynamics. Newton’s laws of motion, work-energy, and impulse-momentum principles for particle and rigid body motion. FS

203. Mechanics of Materials. 3 credits. Prerequisite: Engr 201. Simple stress and strain; mechanical properties of materials, axial load, torsion, shear and bending moment, flexure and shear stresses in beams, combined stresses, stress transformation, statically indeterminate members and columns. FS

301. Technology and Innovation Case Studies. 3 credits. The qualities and attributes that lead to the successful development of new and innovative technologies will be presented in the form of case studies. This course will provide a basic understanding of the entrepreneurial process of innovation and technology-based venture creation. Effective leadership and entrepreneurial skills will be demonstrated. FS

400. Engineering Economy. 3 credits. Prerequisite: Econ 201. Simple stress and strain; mechanical properties of materials, axial load, torsion, shear and bending moment, flexure and shear stresses in beams, combined stresses, stress transformation, statically indeterminate members and columns. FS

501. Technology and Innovation Case Studies. 3 credits. The qualities and attributes that lead to the successful development of new and innovative technologies will be presented in the form of case studies. This course will provide a basic understanding of the entrepreneurial process of innovation and technology-based venture creation. Effective leadership and entrepreneurial skills will be demonstrated. FS

410. Technology Ventures. 3 credits. The primary focus will be on developing techniques to formulate the strategic framework required to develop high-tech ventures. Successful techniques to take technology-intensive opportunities from concept to commercialization will be explored. FS

460. Engineering Economy. 3 credits. Prerequisite: Econ 201. Simple evaluation of the economic merits of alternative solutions to engineering problems. Evaluations emphasize the time value of money. FS

English Language and Literature (Engl)

www.english.und.edu

Beard, Carson, Conway, Czerwiec, Dixon, Donaldson, Donehower, Flynn, Harris, Huang, Kitzes, Koepe, Koprince, Nelson, O’Donnell (Chair), Ommen, Robison, Sauer, Shafer, Weaver-Hightower and Wolfe

The English Major

Both literature in English and the English language are rewarding subjects of study in themselves. Language is the chief mode by which we perceive ourselves and the world; literature, like the other arts, is a way of finding coherence in experience, of giving it shape. The place of English studies among the liberal arts makes them a good foundation for careers of humane work in writing, teaching, publishing, business, librarianship, and the professions of law, medicine, the ministry, and diplomacy, among other fields.

The English major is designed to provide students with a common grounding in the methods of the discipline. These are diverse and include linguistic analysis, rhetorical analysis, and a variety of literary analytical techniques, taught in English 271 and 272. Through survey courses and courses in literature of an earlier historical period, majors gain a sense of the broader cultural, historical, and literary contexts in which acts of reading and writing take place. In addition, majors gain significant practice in disciplined reading, writing, and textual analysis, especially in 400-level courses.

While requirements for the major and suggested programs of study are described here, students are strongly encouraged to plan their major coursework in consultation with their English department advisers. Advisers can assist students in tailoring programs of study to students’ individual needs and plans.

B.A. WITH MAJOR IN ENGLISH

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

Major Requirements—36 credits, 20 of which must be at the 300- or 400-level.

The following courses are required:

1. Engl 271, Reading and Writing About Texts: A writing-intensive introduction to English Studies offering practice in the conventions of analyzing texts and of writing literary analysis. (3 credits)

2. Engl 272, Introduction to Literary Criticism: A writing-intensive course in which students are introduced to various schools of literary criticism. (3 credits)

3.4. One of the two-course 300-level surveys (6 credits):

   Engl 301 and 302, Survey of English Literature
   Or Engl 303 and 304, Survey of American Literature

5. One of the following courses that focus on literature of an earlier historical period (3 credits):

   Engl 241 World Literature I
   Engl 301 Survey of English Literature
   (in addition to 303-304 for requirement #4)
   Engl 303 Survey of American Literature
   (in addition to 301-302 for requirement #3)
   Engl 315 or 316 Shakespeare

   Engl 401 Studies in Medieval Literature
   Engl 402 Studies in Early Renaissance Literature
   Engl 403 Studies in Colonial American Literature
   Engl 404 Studies in Late Renaissance Literature
   Engl 405 Studies in Restoration and 18th Century Literature
   Engl 406 Studies in 19th Century Literature
   Engl 415 Special Topics in Literature (when topic is appropriate; consult your adviser)

6. At least two 400-level courses; 400-level courses require students to develop and complete significant independent research, writing, and/or professional projects.

Majors may complete the remaining English credits in any way they wish, with two stipulations:

- Engl 421 and Engl 422, the methods courses for English Education majors, may not count towards the English major.
- Twenty credits of English major coursework must be at the 300/400 level.

7. Level IV proficiency in a language other than English.

The English Department encourages majors to take an active role in choosing courses that develop their individual interests and capacities. To help majors tailor course choices to specific interests, here are three sample plans that may help in designing a program of study beyond the major requirements:

Scenario One: You are interested in writing and publishing. Include courses from this list: Engl 226, Introduction to Creative Writing; Engl 306, Creative Writing: Fiction; Engl 307, Creative Writing: Poetry; Engl 308, The Art of Writing Non-Fiction; Engl 408, Advanced Composition; Engl 413, The Art of Writing: Fiction; and Engl 414, The Art of Writing: Poetry. You may also consider pursuing a Certificate in Writing and Editing or taking any of the courses included in the Certificate: Engl 425, 426, 427, 428, 429.
Scenario Two: You would like to focus on linguistics (the study of language, including teaching English as a second language, computer languages, translation, etc.) Include courses from this list: Engl 209, Introduction to Linguistics; Engl 309, Modern Grammar; Engl 370, Language and Culture (topics rotate and may be repeated with different topics); Engl 417, Special Topics in Language (topics rotate and may be repeated with different topics); Engl 418, Second Language Acquisition; Engl 419, Teaching English as a Second Language; Engl 442, History of the English Language. Note: Related language and linguistics courses are taught in the summer through the Summer Institute of Linguistics. A maximum of 10 credits of these courses may be applied to the English major. Students considering graduate work in language and linguistics are urged to study more than one foreign language.

Scenario Three: You are considering attending graduate school in English, in another discipline, or law school. Include courses from this list: Engl 372, Literary Theory (topics rotate and may be repeated with different topics); Engl 320/321/322/330/331/332, studies in particular genres (topics rotate and may be repeated with different topics); Engl 401/403/404/405/406/407, advanced study in particular genres or periods (topics rotate and may be repeated with different topics); Engl 408, Advanced Composition; Engl 415, Special Topics in Literature (topics rotate and may be repeated with different topics).

B.A. WITH MAJOR IN ENGLISH

Teacher Licensure

Through a partnership with the College of Education and Human Development, and the Department of Teaching and Learning, students may seek secondary licensure in English. The following program of study must be completed:

I. The English major (described above), including level-four proficiency in a foreign language, 3 hours of speech, and 3 hours of developmental reading (T&L 416: Adolescent Literacy Development). (For Middle School licensure, 6 hours of developmental reading are required, including T&L 409.) English 421 and 422 do not count toward the 36-hour English major.

Students are advised to create a major in which courses that satisfy the demands of a career in secondary teaching are balanced against the broader range of courses offered by the Department.

Required in the major: English 309, English 359, and either English 308 or 408.

Recommended in the major: English 209, 301, 302, 303, 304, 315, 316, 357, 359 and 365.

II. Admission to the Secondary Program, normally while taking T&L 250. (See College of Education and Human Development for admission and licensing requirements).

III. The Program in Secondary Education, to include:

T&L 350: Introduction to Education
T&L 339: Technology for Teachers
T&L 345: Curriculum Development and Instruction
T&L 350: Development and Education of Adolescents
T&L 416: Adolescent Literacy Development
ENGL 421: Methods and Materials of Teaching Middle and Secondary School Literature and Reading (spring only)
ENGL 422: Methods and Materials of Teaching Middle and Secondary School Literature and Reading (fall only)
T&L 432: Classroom Management
T&L 433: Multicultural Education
T&L 486: Field Experience (taken concurrently with English 421 and 422; 30 hours per semester)
T&L 487: Comprehensive Exam; normally taken during the last semester of graduation
T&L 488: Senior Seminar

English majors seeking secondary licensure must have an adviser in both the English Department and the Department of Teaching and Learning.

Students planning to teach in Minnesota are required to take one course in Middle Level Education.

IV. Optional

T&L 386: Field Experience
T&L 390: Special Topics

MINOR IN ENGLISH

Required: 20 hours, including:

Engl 271: Reading and Writing About Texts (3)
Engl 272: Introduction to Literary Criticism (3)
English electives numbered 300 or above (14-15)

Students seeking secondary certification in another discipline who wish to achieve a minor in English should take the following courses as part of the minor: English 309 and either English 308 or 408.

CERTIFICATE IN WRITING AND EDITING

The ability to present ideas and concepts articulate and in a professional style is highly valued by employers, no matter what the medium or context - print or digital; business, commerce, or the academy. Courses are designed with three goals for student learning:

• to introduce the role of the processing of information in our current culture, both in print and electronic media;

• to offer hands-on experience in the production of texts in academic and commercial contexts;

• to promote the clear and concise dissemination of ideas and information.

Those students going on to academic careers will have been involved in an advanced, specialized aspect of publication and authorship in Scholarly Editing, for example. Digital Humanities, offered in cooperation with the staff of the Chester Fritz Library, provides both theory and practice in digitizing archival materials.

The certificate is comprised of 16 credit hours and may be earned in any major or on its own. Because the courses are not consecutive or sequential, the program is flexible, making it possible to complete the work in two semesters. The following courses are required for the certificate:

English 425, Introduction to Editing and Publishing
English 426, Professional Writing and Editing
English 427, Scholarly Editing
English 428, Digital Humanities
English 429, Studies in Writing and Editing

In addition, at least one credit of internship is required. A similar or related course (e.g., graphic arts, translation, reviewing, art of the book) may substitute for one of the five required courses, upon approval of the department.

Courses

110. College Composition I. 3 credits. Immersion in college-level critical reading and expository writing, emphasizing revision and careful preparation of manuscripts. Does not apply to English major or minor. F,S

120. College Composition II. 3 credits. Prerequisite: Engl 110. Continues the work of College Composition I but emphasizing the production of college-level research and writing. Does not apply to English major or minor. F,S

125. Technical and Business Writing. 3 credits. Prerequisite: Engl 110. Continues the work of College Composition I but emphasizing the production of college-level research and writing applicable to business and technical fields. Does not apply to English major or minor. F,S

209. Introduction to Linguistics. 3 credits. An introduction to the nature of language, phonology, grammar, semantics, and historical, geographical, social, and developmental aspects of language. F,S

225. Introduction to Film. 3 credits. The study of film drama, concentrating on appreciation and evaluation of motion pictures. F,S

226. Introduction to Creative Writing. 3 credits. An introduction to the types and basic principles of creative writing, taught through a combination of class discussion and practice-writing. F,S

227. Introduction to Literature and Culture. 3 credits. A course with alternating topics that asks students to read literary texts of a variety of genres. The course may emphasize form and texts from various historical periods as it introduces students to the pleasures of analyzing text and culture. Repeatable when topics vary. F, S

228. Diversity in Global Literatures. 3 credits. This course will explore global literatures with a special emphasis on concepts like culture, difference, and diversity. The course will analyze global literature in cultural and historical contexts, and will emphasize the complex ways that literature is influenced by issues of social power (especially those that affect significant categories through which social inequalities are negotiated—like gender, race, class, and sexual orientation). F

229. Diversity in U.S. Literatures. 3 credits. This course will explore U.S. literatures with a special emphasis on concepts like culture, difference, and diversity. The
Entrepreneurship (ENTR)

http://business.und.edu/entr/

Pate (Chair), Silvernagel and Stamp

Entrepreneurship is a multidisciplinary program within the College of Business and Public Administration. This program is primarily directed toward students who want to acquire the skills and experience to start new for-profit and not-for-profit ventures. The entrepreneurship faculty, along with faculty from economics, management, marketing, accounting, finance, and industrial technology, offer various courses and programs for both business and non-business majors.

The College offers a sixteen-credit entrepreneurship certificate program for non-majors. This program will appear on student transcripts and provide official recognition for completion of this entrepreneurship educational experience. This course sequence will provide opportunities for non-business majors to learn about business and administrative functions and to provide career enhancement. Students will better understand how the business functions will play a role in their future endeavors and how they can succeed in these efforts. There is also a three-course entrepreneurship track offered for business majors.
A major in entrepreneurship is also available to business majors. The major is designed to provide students the entrepreneurial skills for either working within an existing entrepreneurial business or establishing their own new ventures. A principal element of the major is the development of a venture plan in Ent 385-Venture Initiation that is refined in the required major courses, ultimately resulting in a plan that is sophisticated enough to be financed and initiated by the student.

The Entrepreneurship programs encourage students to engage in “hands on” learning projects. In the Entrepreneurship Internship course, required of all Entrepreneurship majors, students have an opportunity to work directly with a practicing entrepreneur. They may also choose to pursue starting their own business through the Mueller Internship program. The Dakota Venture Group (DVG) is also available to Entrepreneurship students and others from across the campus. This is an entirely student-managed venture group that reviews proposals for venture capital funding. It is unique because DVG is currently the only fund where students complete all due diligence, make the final investment decision, and negotiate the deal’s term structure. These two examples of “hands on” learning and others in the program have contributed to a program ranking by Princeton Review/Entrepreneur magazine in the top 15 in the country for 3 years running.

College of Business and Public Administration

B.B.A. WITH MAJOR IN ENTREPRENEURSHIP

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The College of Business and Public Administration Requirements (see BPA listing) and including:

Pre-Business Core (Required 31 hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acct 200, 201</td>
<td>Elements of Accounting I and II</td>
<td>(6)</td>
<td></td>
</tr>
<tr>
<td>Econ 201</td>
<td>Principles of Microeconomics</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Isys 117</td>
<td>Introduction to Business and Economics Statistics</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Math 103, 146</td>
<td>College Algebra, Applied Calculus I</td>
<td>(6)</td>
<td></td>
</tr>
<tr>
<td>Pols 115</td>
<td>American Government I</td>
<td>(3)</td>
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<tbody>
<tr>
<td>Anth 171</td>
<td>Introduction to Cultural Anthropology</td>
<td>(3)</td>
<td></td>
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<tr>
<td>Psy 131</td>
<td>Introduction to Psychology</td>
<td>(3)</td>
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<tr>
<td>Soc 130</td>
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</table>

Business Core (Required 24 hours):

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<th>Credits</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>Isys 317</td>
<td>Information Systems in Enterprise</td>
<td>(3)</td>
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</tr>
<tr>
<td>Mkrt 305</td>
<td>Marketing Foundations</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Mgmt 300</td>
<td>Principles of Management</td>
<td>(3)</td>
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</tr>
<tr>
<td>Fin 310</td>
<td>Principles of Financial Management</td>
<td>(3)</td>
<td></td>
</tr>
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<td>Econ 303</td>
<td>Money and Banking</td>
<td>(3)</td>
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<td>Acct 315</td>
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<tr>
<td>Mgmt 301</td>
<td>Operations Management</td>
<td>(3)</td>
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<tr>
<td>Mgmt 475</td>
<td>Strategic Management</td>
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Two elective courses selected from the following (Required 6 hours):

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<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mkrt 330</td>
<td>Marketing Research</td>
<td>(3)</td>
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</tr>
<tr>
<td>Mgmt 302</td>
<td>Human Resource Management</td>
<td>(3)</td>
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</table>

Certificate for Non-Business Majors:

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<th>Course</th>
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<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ent 201</td>
<td>The Entrepreneur and the Enterprise</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Ent 301</td>
<td>Accounting and Financial Concepts for Entrepreneurs</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Ent 302</td>
<td>Marketing and Management Concepts for Entrepreneurs</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Ent 366</td>
<td>Imagination, Creativity and Entrepreneurial Thinking</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Ent 385</td>
<td>Venture Initiation</td>
<td>(3)</td>
<td></td>
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</tbody>
</table>

Ent 385 .............. Venture Initiation ................................................... (3)
Ent 387 .............. Venture Growth ....................................................... (3)
Ent 497 .............. Entrepreneurship Internship ................................... (3)

Entrepreneurship Track for Business Majors:

Courses

200. Concept Generation and Technology Entrepreneurship. 1-3 credits, non-repeatable. Technical Entrepreneurship is an introductory course for non-business majors to explore important foundational concepts of entrepreneurship, including technical feasibility, marketability, intellectual property (IP) protection, technology transfer, and venture initiation. This course is team-taught by one business school faculty memeber and one faculty member from a technology-oriented discipline. F/S

201. The Entrepreneur and the Enterprise. 3 credits. Prerequisites: Ent 200 or instructor consent. Introductory course that explores the relationship between ideas, entrepreneurs, markets, and enterprise. Topics include: What is an entrepreneur?, opportunity discovery, market feasibility, enterprise economics and profitability. F

301. Accounting and Financial Concepts for Entrepreneurship. 3 credits. Prerequisite: Ent 201 or permission. The objective of this course is to develop an entrepreneurial understanding of the development and use of financial information. Topics include cash flows, the accounting cycle, financial statements, capital and master budgets, cost-volume-profit analysis, financial instruments, and risk and return issues, among others. Course will not count towards graduation if taken by a College of Business and Public Administration student. F/S

302. Marketing and Management Concepts for Entrepreneurship. 3 credits. Prerequisite: Ent 201 or permission. This course is an introduction to the nature, significance and role of marketing and management in today’s society. The main objective is to explore business functions from both management and marketing perspectives. By combining the two disciplines, this course provides the prerequisite understanding needed by non-business undergraduate students pursuing further education in business. It will point out the skills that managers must apply to meet crucial goals. Course will not count towards graduation if taken by a College of Business and Public Administration student. F

366. Imagination, Creativity and Entrepreneurial Thinking. 3 credits. Non-Entrepreneurship majors must have instructor approval. Explores the creative process and helps students identify their own creative problem-solving styles. Students develop innovative solutions to a wide range of problems that arise in the process of pursuing entrepreneurial ventures. Attention is devoted to the need for creative approaches to opportunity identification and business concept formulation when developing new products, services, and processes. F/S

385. Venture Initiation. 3 credits. Prerequisites: Ent 201, 301, and 302 or Fin 310, Mgmt 300 and Mkrt 305. Junior or Senior Standing. This course is concerned with the issues surrounding the creation of a new economical entity. The focus of the course is the development of a venture plan. F/S

387. Venture Growth. 3 credits. Prerequisite: Ent 385. This course includes an overview of the issues faced by entrepreneurs in new ventures that have passed through an initial start-up phase and are now facing a growth or emerging phase and existing organizations attempting to become more entrepreneurial/intrapreneurial. This course focuses on applying general management and entrepreneurship principles to problems encountered by emerging ventures. Information gained from previous course-work, readings, class discussion, guest speakers, and research on entrepreneurs will be used to aid case study solutions. The course will combine individual activities and group work. S

395. Special Topics. 1-4 credits, repeatable to 9. Prerequisite: instructor consent. Specialy arranged seminars, courses, or independent study on a variety of topics not covered by regular program offerings. May be initiated by students with approval of the dean and department(s) involved. F/S

405. New Product Development. 3 credits. Prerequisites: Ent 385; Junior or Senior Standing. This course is concerned with the generation of product ideas and concepts and the design and development of products and services which meet market needs. Particular attention is paid to new product development as a multi-functional team effort. F

410. Entrepreneurial Finance. 3 credits. Prerequisites: Ent 385 and Fin 310; Junior or Senior Standing. This course is concerned with the financial functions of a new or entrepreneurial venture. The primary focus is on the function of the financial plan in the overall venture plan as well as sources of venture capital and cash flow management. S

497. Entrepreneurship Internship. 3 credits. S/U grading only. Prerequisite: Ent 385. Compensated practical work experience with an entrepreneurial firm. F/S/S

Family Medicine (FMed)

http://www.med.und.nodak.edu/depts/fammed/

Beattie (Chair), Greek, Hunt, Mann, Paine, Poolman, Rambough, Rudd, Seeger, Tsuchiya, Westereng, and Ziegler

The Department of Family Medicine offers the B.S. in Athletic Training degree under the auspices of the Division of Sports Medicine. This degree program was formally approved by the North Da-
The following are essential professional courses to become an entry-level athletic trainer:

II. The following curriculum:
I. Essential Studies Requirements (see University ES listing).

B.S. IN ATHLETIC TRAINING
Required 127 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).
II. The following curriculum:

Pre-Admission Courses
The student must earn C or better in the following courses to be admitted to the program.
Biol 150/150L General Biology I and Laboratory .............. (4)
The student must earn B or better in the following courses to be admitted in the program.
FMed 101 Orientation to Athletic Training ...................... (1)
FMed 207 Prevention and Care of Athletic Injuries ............ (2)
FMed 207L Prevention and Care of Athletic Injuries Lab ...... (1)

At the time of application to the Athletic Training Program, the student must have completed or be enrolled in all of the above courses. In addition, the student must show proof of the First Aid and CPR certifications or enrollment in:
PXW 310 First Aid and CPR ........................................... (2)

Core Courses
The following core courses are required for the B.S. in Athletic Training:

**Chem 121, 121L General Chemistry I/Laboratory ............ (4)**
**Chem 110 Fundamentals of Public Speaking ................. (3)**
**Engl 110 College Composition I ............................... (3)**
**Engl 120 College Composition II .............................. (3)**
Med 205 Medical Terminology .................................... (1)

**Phys 161, 161L Introductory College Physics I/Laboratory ... (4)**
**Phys 162, 162L Introductory College Physics II/Laboratory... (4)**
**Psych 111 Introduction to Psychology .................. (3)**
**Psych 241 Statistics for Behavioral Science ............... (4)**

**Soc 110 Introduction to Sociology ......................... (3)**

**Psych 250 Developmental Psychology ................... (4)**

**Soc 110 Introduction to Sociology ......................... (3)**

**Arts & Humanities Requirement .............................. (9)**

Electives ........................................................................ (13)

** indicates course satisfies Essential Studies Requirements.

Professional Courses
The following are essential professional courses to become an entry-level athletic trainer:

Anat 204 & 204L Anatomy for Paramedical Personnel and Lab .... (5)

FMed 208 Procedures in Athletic Training ................... (1)
FMed 208L Laboratory Procedures in Athletic Training ........ (1)
FMed 200 Understanding Medicine ............................... (3)
FMed 211 Beginning Practicum I .................................. (1)
FMed 213 Beginning Practicum II .................................. (1)
FMed 311 Intermediate Practicum I ............................. (2)
FMed 312 Medical Aspects of Sports ......................... (2)
FMed 313 Intermediate Practicum II ............................. (2)

FMed 320 Athletic Training Modalities .................. (2)
FMed 320L Athletic Training Modalities Lab .................. (1)
FMed 321 Athletic Training Rehabilitation Techniques .... (2)
FMed 321L Athletic Training Rehabilitation Techniques Lab ... (1)

FMed 434 Organizational Admin. in Athletic Training ... (2)
FMed 411 Advanced Practicum I ................................. (2)
FMed 413 Advanced Practicum II .................................. (2)
FMed 481 Athletic Injury Assessment ......................... (4)
FMed 491 Seminar in Athletic Training ....................... (2)
FMed 457 Internship in Athletic Training .................... (3)
Natr 240 Fundamentals of Nutrition ............................ (3)
PXW 332 Biomechanics ........................................... (3)
PXW 402 Exercise Physiology ................................. (1)
PXW 403 School Health Education ............................ (2)
PPT 301 Human Physiology ......................................... (4)
PPT 315 Human Pharmacology .................................... (3)

Courses

101. Orientation to Athletic Training, 1 credit. Overview of the field of athletic training. Survey of the role of the athletic trainer. Films, lectures, and observation in clinical settings. F,S

200. Understanding Medicine, 3 credits. An overview of the broad parameters of family medicine. Guest speakers are brought in to discuss various facets of medicine. S


207L. Laboratory Prevention and Care of Athletic Injuries, 1 credit. Corequisite: FMed 207. A practical laboratory to develop athletic taping skills taught in FMed 207. F, S

208. Procedures in Athletic Training, 1 credit. Prerequisites: FMed 207, 207L. Corequisites: FMed 208 and 208L. This course serves as an orientation class for incoming sports health majors. Policies and procedures as well as record keeping are covered. F

211. Beginning Clinical Practicum I in Athletic Training, 1 credit. Prerequisites: FMed 207, 207L. An introductory clinical experience into the care and treatment of athletic injuries. F

208L. Laboratory Procedures in Athletic Training, 1 credit. Prerequisite: FMed 207, 207L, Anat 204, 204L. Corequisite: FMed 208L. A course designed to allow students to gain practical experiences in injury management, modality usage and record keeping skills taught in FMed 208. F

213. Beginning Clinical Practicum II in Athletic Training, 1 credit. Prerequisites: FMed 208, 208L. A clinical course designed to allow the student to develop specified clinical competencies in a directed, progressive manner. S

311. Intermediate Clinical Practicum I in Athletic Training, 2 credits. Prerequisite: FMed 213. A clinical course designed to allow the student to develop specified clinical competencies in a directed progressive manner. F

312. Medical Aspects of Sports, 2 credits. Prerequisite: Permission of instructor. A course designed to introduce students to various medical specialties and medical problems and their effects on athletic participation. F

313. Intermediate Clinical Practicum II in Athletic Training, 2 credits. Prerequisite: FMed 481. Corequisites: FMed 320, 321, 321L. A clinical course designed to allow students to develop specified clinical competencies in a directed progressive manner S

320. Athletic Training Modalities, 2 credits. Prerequisite: FMed 481. A course designed to present the theoretical and applied principles and techniques for the application of modalities in sports injury care. S

320L. Laboratory Athletic Training Modalities, 1 credit. Prerequisite: FMed 481. Corequisite: FMed 320. A course designed to practice the theoretical and applied principles and techniques for the application of modalities in sports injury care. S

321. Athletic Training Rehabilitation Techniques, 2 credits. Prerequisite: FMed 481. Corequisite: FMed 321L. A course designed to explain the principles and techniques of rehabilitation as they apply to athletic injuries. S

321L. Laboratory Athletic Injury Rehabilitation Techniques, 1 credit. Prerequisite: FMed 481. Corequisite: FMed 321L. A course designed to allow students practical skills to perform rehabilitation techniques utilized in athletic injury care as taught in FMed 321L. S

343. Organizational Administration of Athletic Training, 2 credits. Prerequisite: Senior standing or consent of the instructor. A course designed to acquaint students with the theories and principles of administration. Administrative functions as they relate to the athletic trainer will be explained. S

411. Advanced Clinical Practicum I in Athletic Training, 2 credits. Prerequisite: FMed 313. A clinical course designed to allow the student to develop specified clinical competencies in a directed progressive manner. F

413. Advanced Clinical Practicum II in Athletic Training, 2 credits. Prerequisite: FMed 313. A clinical course designed to allow the student to develop specified clinical competencies in a directed progressive manner. S

481. Athletic Injury Assessment, 4 credits. Prerequisite: FMed 213. A course designed to instruct the student in the theories and skills of injury evaluation. F

491. Seminar in Athletic Training, 2 credits, repeatable to 4 credits. Permission of instructor. Advanced work in athletic training to include surgical and conservative injury management, rehabilitation and injury. F

493. Directed Studies in Athletic Training, 1-4 credits. (Repeatable to maximum of 6 credits.) Prerequisites: Upper level status in athletic training or other allied health field, PT students, fourth year medical students, or instructor permission. An in-depth study in a subject area selected by the student under tutorial supervision. F,S

497. Internship in Athletic Training, 3 credits. Prerequisite: FMed 313. Off-campus athletic training experience designed to expose the student to alternate concepts of care. Repeatable up to 6 credits with instructor permission. F,S,SS
Finance (Fin)

http://business.und.edu/dept/finance/

Beneda (Chair), Dennis, Haskins, Lee, Nelson and Smith

The Department of Finance offers two programs of study: 1) Investments and 2) Managerial Finance and Accounting. The Investments major offers a focus on investing, professional asset management, and risk management. This major is designed to provide students with an appropriate balance between theoretical knowledge and specific decision-making skills. Foundation courses cover modern finance theory and modeling, including valuation of both financial and real assets. Utilizing the resources available in the Lanterner Investment Center, a state-of-the-art “trading room” environment, students expand their knowledge of investment-related topics, including equities, fixed income instruments, financial derivatives, foreign exchange transactions, and many more.

The Managerial Finance and Accounting degree combines the essential attributes of traditional accounting and managerial finance programs into a combined major that meets the needs of those individuals desiring careers in corporate finance or accounting. Traditionally, accountants recorded transactions and other economic data and reported the results in the form of financial statements and internal managerial reports. Financial managers have typically forecasted, planned, and analyzed accounting data and presented the accounting data in formats convenient for decision making. There were some distinctions as well as overlaps in knowledge and skills needed in the two disciplines in the past. Recently, business has undergone a shift in responsibilities within the areas of accounting and finance. Specifically, the areas of financial and managerial accounting and the various topics in corporate finance such as corporate finance theory, financial statement analysis and investments have become interdependent for those seeking career opportunities in internal management and control, treasury management, and strategic financial management. The required major courses for this major include (plus three electives):

**B.B.A. WITH MAJOR IN INVESTMENTS**

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The College of Business and Public Administration Requirements, see College listing and including:

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<tr>
<td>Math 146</td>
<td>Applied Calculus I</td>
<td>(3)</td>
</tr>
<tr>
<td>Mgmt 300</td>
<td>Principles of Management</td>
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III. The Following Major Courses:

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<tr>
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<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Acct 218</td>
<td>Advanced Spreadsheet Applications</td>
<td>(3)</td>
</tr>
<tr>
<td>Acct 301</td>
<td>Intermediate Accounting I</td>
<td>(3)</td>
</tr>
<tr>
<td>Acct 340</td>
<td>Intermediate Accounting II</td>
<td>(3)</td>
</tr>
<tr>
<td>Acct 349</td>
<td>Accounting for Production</td>
<td>(3)</td>
</tr>
<tr>
<td>Acct 350</td>
<td>Intermediate Financial Management</td>
<td>(3)</td>
</tr>
<tr>
<td>Acct 420</td>
<td>Investment Analysis and Portfolio Management</td>
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II. The College of Business and Public Administration Requirements, see College listing and including:

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</table>

**Courses**

216. Insurance and Risk Management. 3 credits. The purpose of this course is to provide an introductory, consumer-oriented overview of risk and insurance. Students begin by examining the basic concepts of risk and insurance, insurance fields and functions, regulation, underwriting and the legal framework. Three broad classes of insurance will be addressed: life and health, property and liability, and auto. Other topics include risk management, loss control, risk retention/reduction decisions, loss adjustment, claim settlement, investment functions, disability insurance, retirement programs, negligence and legal liability. F

220. Personal Investing. 3 credits. Investment concepts for individual investors who are or will be, actively developing and monitoring their own investment portfolios. Covers basic analysis techniques, investment vehicles, strategies for implementing investment goals in a portfolio context, risk-return tradeoffs, and sources of investment information. Not available to students who have successfully completed Fin 420 or its equivalent. F/S

230. Principles of Real Estate. 3 credits. Principles of real property with an emphasis on home ownership. Real property rights, the process for transferring those rights, the impact of taxation, and concepts of city development. Career options in real estate, including brokerage, appraisal, and property management. F/S

251. Personal Finance. 3 credits. The personal financial planning and management process: goal identification and budgeting; minimizing tax liability; uses and costs of various forms of credit; buying, selling and or leasing real estate, automobiles and other major items; life, health, property and income insurance; various investment options; the retirement planning process; and estate planning options. The role of financial planning professionals and financial planning as a career option are also discussed. F/S
310. Principles of Financial Management. 3 credits. Prerequisites: Acct 201, ISys 117, Econ 210; Sophomore, Junior or Senior Standing; minimum total of 59 credit hours; declared and pre-CoBPA majors only. This course introduces students to asset management, cost of capital, dividend policy, valuation, capital structure planning, and working capital management. Forms of business organizations and tax environment are surveyed. Management implications of current developments in national and international capital markets are reviewed. F,SS

321. Real Estate Finance and Investment. 3 credits. Prerequisites: Fin 310 and Sophomore, Junior or Senior Standing. Nature of real estate finance, financial sources, real estate development, real estate financial instruments, new processing defaults and foreclosures in real estate finance, fundamentals of real estate investment analysis. F

324. Real Estate Appraisal. 3 credits. Prerequisite: Sophomore, Junior or Senior Standing. Nature of value; appraisal process; analysis of neighborhoods, land and improvements; cost, market data and income approach to value; appraisal report; code of ethics. F

340. Intermediate Financial Management. 3 credits. Prerequisites: Fin 310 and Sophomore, Junior or Senior Standing; declared CoBPA majors only. Integrated coverage of topics in finance theory. This course continues to develop student understanding of corporate finance topics which were introduced in Fin 310. These topics include capital structure, project analysis, capital structure planning, working capital management, and cash flow analysis. The course also introduces students to risk analysis, the capital asset pricing model, and investment analysis. F,SS

350. Financial Statement Analysis. 3 credits. Prerequisites: Acc 301 and Fin 310; Sophomore, Junior or Senior Standing; declared CoBPA majors only. Students interpret financial statements, and forecast financial statements used in capital budgeting and performance; and analyze risk and firm value based on reported financial statements. Analysis incorporates accounting, financial, and economic models and data; and describes various reporting regulations, principles, rules, standards, and interpretations. The course includes an investigation of current issues and debates in financial statement analysis. S

360. Capital Market Financing and Investment Strategies. 3 credits. Prerequisites: Acc 218 and Fin 310; Sophomore, Junior or Senior Standing; declared CoBPA majors only. Covers analysis and procedures for implementing particular financing and investment plans in financial markets. Includes financing and investment through commercial banks, investment banks, pension funds, venture capital sources, insurance companies and limited partnerships. S

370. Student Investment Fund I. 1 credit. Repeatable up to a maximum of 3 credits for non-Investments majors. For those who are not Investments majors, approval of Instructor is required. This is an introductory course to the Student Managed Investment Fund. Students enrolled in the course will not make investment decisions, but will be required to evaluate the investment decisions made by the student fund managers. F,S

375. Lending and Liquidity Management. 3 credits. Prerequisites: Fin 310; Junior or Senior standing; declared CoBPA majors only. This course analyzes the short-term sources and uses of funds with primary emphasis on the management of liquidity in the context of a financial institution. The course also examines the risks and returns in a loan portfolio, particularly loans by financial institutions. F

400. Cooperative Education. 1 to 3 credits. May be repeated to a total of 6 credits. Prerequisites: Acc 200, 201; ISys 117; Econ 201, 202, and 210; approval by Department. On-the-job compensated work experience in various areas of Finance. S/U grading only. F,SS

420. Investment Analysis and Portfolio Management. 3 credits. Prerequisites: Fin 340 and 360; Junior or Senior Standing; declared CoBPA majors only. Comprehensive study of methods used to evaluate securities. Includes formulation of investment strategy and analysis, design of portfolios for classes of individual investors and institutions, fundamental analysis and portfolio performance evaluation. Extensive use of financial databases and software. F,S

430. International Financial Management. 3 credits. Prerequisites: Fin 310 and Junior or Senior Standing; declared CoBPA majors only. Financial management implications of exchange risk exposure, accounting conventions and international constraints on capital flows. Other topics include multi-national investment management and related financing problems, taxation and working capital management. S

440. Valuing Real Assets and Financial Strategy. 3 credits. Prerequisites: Fin 340; declared CoBPA majors only. This course addresses a variety of issues related to valuing real assets, with a large emphasis on using real option valuation techniques such as binomial modeling. Cutting edge software packages are used in a variety of projects and case studies. There is additional emphasis on using real data, such as foreign exchange rates, U.S. and foreign interest rates, reported financial indicators, and actual financial statements. Several databases may also be used for obtaining data. F,S

450. Financial Derivatives. 3 credits. Prerequisites: Fin 340 and 360; declared CoBPA majors only. Detailed analysis of major elements affecting market prices of options and futures contracts and analysis of optimal investment strategies involving these and other derivative instruments. F,S

460. Managing Financial Institutions. 3 credits. Prerequisites: Fin 310 and Junior or Senior Standing; declared CoBPA majors only. Principles of asset/liability and portfolio management as they apply to the balance sheets and income statements of financial institutions. Includes management of assets and liabilities in the context of interest rate risk. Considers gap management, duration, financial futures, interest rate swaps, and securitization with the goal of profit maximation. F,S

470. Student Investment Fund II. 3 credits. Repeatable to a maximum of 6 credits. Prerequisites: Fin 310, 340 and 370 and declared CoBPA majors only. The Student Managed Investment Fund is a sequence of courses where a select group of students manage a live portfolio. The course examines the issues involved in the management and investment strategies of a portfolio of financial assets. It focuses on asset allocation, portfolio monitoring and evaluation, portfolio rebalancing, and investment analysis. The students selected to manage the fund are responsible for the investment decisions involving the composition of the portfolio under the supervision of Finance department faculty. Student members establish the stock selection criteria, research the prospective stocks, generate reports, and make decisions to invest or liquidate, and execute the trades. Verbal presentations are required. F,S

475. Futures in Financial Management. 3 credits. Prerequisites: Fin 340 and 360; Junior or Senior standing; declared CoBPA majors only. Introduces students to construction and utilization of financial management decision models using case study examples. Topics evaluated include working capital management, capital budgeting, cost of capital, capital structure, dividend policy, valuation, risk-return, and special topics of financial management. Students are required to develop original simulation models, prepare formal case reports, and orally and visually present their results. F

491. Senior Topics in Finance. 3 credits, repeatable to 6 credits. Prerequisites: Fin 310; consent of instructor; Junior or Senior Standing; declared CoBPA majors only. Multiple sections covering different topics may be offered in any one semester. Designed for Financial Management majors. Provides opportunities for in-depth study beyond that of regularly scheduled courses. May be seminars, workshops, or lectures. F,S,SS

492. Readings and Research in Finance. 1 to 3 credits. Prerequisite: Fin 310 and approval by department. Designed for students with an interest in finance topics not covered in regularly scheduled courses. F,S

493. Independent Study in Finance. 1 to 3 credits. Prerequisites: Acc 200, 201; ISys 117; Econ 201, 202, 210; and approval by department. Guided practical experience in managerial finance, investment management, real estate, and insurance with public and private sector enterprises. S/U grading only. F,SS

Fine Arts (FA) Courses

150. Introduction to the Fine Arts. 3 credits. Introduction to the fundamental principles of the Fine Arts — Visual Arts, Music, Theatre, and Dance — followed by examples of the interaction of the arts in selected cultures from history and around the world and at a variety of campus arts events, in order to increase appreciation of the importance of the fine arts to the individual and community. F,S

Forensic Science

http://www.und.edu/dept/forensic/ Stubblefield

The undergraduate major in Forensic Science is designed to provide students from varied backgrounds and academic interests with a curriculum in the general forensic sciences. This curriculum will serve as a preparation for a baccalaureate-level career in criminalistics and law enforcement or as preparation for post-graduate education in the forensic sciences. This interdisciplinary program draws on resources from the departments of Anatomy, Anthropology, Biochemistry and Molecular Biology, Biology, Chemistry, Clinical Laboratory Sciences, School of Communication, Criminal Justice, Mathematics, Philosophy and Religion, Physics, Psychology, and Sociology to provide students with sufficient background and baccalaureate-level preparation for several fields of the forensic sciences. To accommodate this breadth of fields and the variety of career outcomes that resolve from them, the Forensic Sciences curriculum is divided into two tracks, Evidence Technician and Evidence Analyst.

The Evidence Technician track is recommended for those interested in law enforcement careers involving evidence processing at crime scenes and only limited laboratory analysis. Students interested in acquiring a background in scientific analysis of evidence as a supplement to another major may prefer this track.

The Evidence Analyst track is recommended for those desiring a career in forensic laboratory analysis and access to careers that require similar analytical skills. Students interested in pursuing simulation science majors may also prefer this track. This track has a biology and molecular biology emphasis; students interested in chemistry should talk to the program director about course substitutions.
Admission requirements: Students may declare either track of the Forensic Science major at any time after admission to the University, provided that he or she has an overall grade point average (GPA) of 2.2 or higher. After joining the program, a 2.2 GPA must be maintained in the major and overall. Failure to maintain the appropriate GPA for two consecutive semesters will result in dismissal from the program.

College of Arts and Sciences

B.S. WITH A MAJOR IN FORENSIC SCIENCE

Required: 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. Evidence Technician Track: the following curriculum:

69 Major Credits including:

Required Courses (60 credits):

- Anth 345 Forensic Science ................................................. (3)
- Anth 346 Analysis of Forensic Evidence ............................ (3)
- Comm 110 Fundamentals of Public Speaking .................... (3)
- CJ 201 Introduction to Criminal Justice ............................ (3)
- CJ 210 Introduction to Policing ......................................... (3)
- CJ 352 Criminal Investigation ........................................... (3)
- CJ 353 Law for Criminal Justice System ......................... (3)
- Biol 150/150L General Biology I and Lab ............................... (4)
- Biol 151/151L General Biology II and Lab ............................. (4)
- Chem 121/122 General Chemistry I and II ............................ (2)
- Chem 240/240L Survey of Organic Chemistry and Lab ..... (5)
- Chem 333 Analytical Chemistry ....................................... (4)
- Phys 161/161L Introductory College Physics I and Lab .... (4)
- Phys 162/162L Introductory College Physics II and Lab .... (4)

3 credits from:

- Biol 470 Biometry ......................................................... (3)
- Soc 326 Sociological Statistics ......................................... (3)

3 credits from:

- Phil 215 Contemporary Moral Issues ................................ (3)
- Anth 270 Introduction to Forensic Anthropology ............... (3)
- Anth 439 Human Osteology ........................................... (4)
- Anth 441 Forensic Anthropology Field School ................ (3)
- Anth 497 Forensic Science Internship ............................ (1-12)
- Biol 315 Genetics ....................................................... (3)
- Biol 336 Systematic Botany ............................................ (4)
- Biol 363 Entomology .................................................... (4)
- Psy 270 Abnormal Psychology ........................................ (3)

ELECTIVES (9 credits):

- Anth 204 Anatomy for Paramed Personnel ..................... (3)
- Anth 270 Introduction to Forensic Anthropology ............... (3)
- Anth 439 Human Osteology ........................................... (4)
- Anth 441 Forensic Anthropology Field School ................ (3)
- Anth 497 Forensic Science Internship ............................ (1-12)
- Biol 336 Systematic Botany ............................................ (4)
- Biol 363 Entomology .................................................... (4)
- Psy 270 Abnormal Psychology ........................................ (3)
- CLS 301 Immunology .................................................... (2)

III. Evidence Analyst Track: the following curriculum:

95 Major Credits including:

Required Courses (86 credits):

- Anth 345 Forensic Science ................................................. (3)
- Anth 346 Analysis of Forensic Evidence ............................ (3)
- Comm 110 Fundamentals of Public Speaking .................... (3)
- CJ 201 Introduction to Criminal Justice ............................ (3)
- CJ 210 Introduction to Policing ......................................... (3)
- CJ 352 Criminal Investigation ........................................... (3)
- CJ 353 Law for Criminal Justice System ......................... (3)
- Biol 150/150L General Biology I and Lab ............................... (4)
- Biol 151/151L General Biology II and Lab ............................. (4)
- Biol 315 Genetics ....................................................... (3)
- Biol 333 Population Biology ............................................ (4)
- Biol 410 Molecular Biology Techniques ............................ (4)
- BM 150/150L Biochemistry and Molecular Biology .......... (4)
- Chem 121/121L General Chemistry I and Lab .................... (4)
- Chem 122/122L General Chemistry II and Lab .................... (4)
- Chem 333 Analytical Chemistry ..................................... (4)
- Chem 341/341L Organic Chemistry and Lab ..................... (5)
- Chem 342/342L Organic Chemistry II and Lab .................... (5)
- Math 165 Calculus I ..................................................... (4)
- Math 166 Calculus II .................................................... (4)

3 credits from:

- Biol 470 Biometry ......................................................... (3)
- Soc 326 Sociological Statistics ......................................... (3)

3 credits from:

- Phil 215 Contemporary Moral Issues ................................ (3)
- Phil 370 Ethics in Engineering and Science ...................... (3)
- Phil 372 Ethics in Health Care .......................................... (3)

5 credits from:

- Phys 161/161L Introductory College Physics I and Lab ........ (4)
- Phys 162/162L Introductory College Physics II and Lab ........ (4)
- OR
- Phys 211/211L College Physics I and Lab ........................... (4)
- Phys 212/212L College Physics II and Lab .......................... (4)

ELECTIVES (9 credits):

- Anth 204 Anatomy for Paramed Personnel ..................... (3)
- Anth 270 Introduction to Forensic Anthropology ............... (3)
- Anth 439 Human Osteology ........................................... (4)
- Anth 441 Forensic Anthropology Field School ................ (3)
- Anth 497 Forensic Science Internship ............................ (1-12)
- Biol 336 Systematic Botany ............................................ (4)
- Biol 363 Entomology .................................................... (4)
- Psy 270 Abnormal Psychology ........................................ (3)
- CLS 301 Immunology .................................................... (2)

General Studies

T. Rand, Adviser

The Bachelor of General Studies (B.G.S.) degree will offer an option for advanced level students for whom a more traditional academic program proves not to be feasible. The B.G.S. will also offer a general degree opportunity to non-traditional and distance learners studying with the Division of Continuing Education. In all cases, students must have their course of study approved by a General Studies committee or a representative of the Dean of the College of Arts & Sciences.

College of Arts and Sciences

B.G.S. WITH MAJOR IN GENERAL STUDIES

Required: 125 credits (60 of which must be from a 4-year institution and 36 of which must be numbered 300 and above) including:

I. Essential Studies Requirements (see University ES listing).

II. A curriculum approved by the College of Arts & Sciences.

Geography

(Geog)

http://www.unl.edu/dept/Geog/mainpage.htm

Hansen, Jung, Munski, Rundquist (Chair), Todhunter, Vandeseg and Wang

The Department of Geography offers major and minor programs in the College of Arts and Sciences. The principal programs of study include human geography, physical geography, geographic education and geographic techniques. The undergraduate specialization in community and urban development provides the background education and training necessary for students to enter the field of rural and urban development. The undergraduate specialization in environmental geography prepares students for a career in environmental management. The undergraduate major provides a broad liberal arts education and prepares students for graduate study or for a professional career in government, industry, or education in a wide variety of fields related to urban and regional planning, economic development, environmental management, mapping, geographic information systems, or geographic education.

The Geography minor is flexible and allows students to take related coursework in anthropology, atmospheric science, aviation, biology, business, communications, education, geology, history, international business, meteorology, public administration, recreation and tourism studies, sociology or space studies.
The Department of Geography houses a state-of-the-art computer laboratory for work related to geographic information systems, remote sensing, digital image processing, mapping, spatial analysis and field methods. It also maintains a Census Data Center for information related to the Northern Plains. The Department has a wide array of field equipment, with a focus on tools needed for water sampling, soil sampling, and field spectroscopy.

College of Arts and Sciences

B.S. WITH A MAJOR IN GEOGRAPHY

Required: 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The following core curriculum courses for A, B, and C options (19 credits):

- Geog 121/L Global Physical Environment/Lab ................. (4)
- Geog 151 Human Geography ............................................. (3)
- Geog 461 World Regional Geography ................................. (3)
- Geog 377/L Quantitative Applications in Geography/Lab ...... (3)
- Geog 471/L Cartography and Visualization/Lab ................. (3)
- Geog 474/L Introduction to Geographic Information Systems (3)

III. Select one of the following options:

A: Community and Urban Development Emphasis

This program provides an overview of geography as well as a thorough introduction to community and urban development. It is intended for students wishing to pursue graduate work or entry-level jobs in community development, economic development, urban planning, land use planning, transportation, and tourism.

Required (9 credits):

- Geog 352 Economic Geography .......................................... (3)
- Geog 457 Urban Geography and Planning ......................... (3)
- Geog 458 Community Development ..................................... (3)
- Electives chosen in consultation with the faculty adviser (8 credits):
  - Geog 262 Geography of North America I ......................... (3)
  - Geog 300 Special Topics in Geography ............................. (1-3)
  - Geog 322 Environmental Hazards ..................................... (3)
  - Geog 354 Conservation of Resources ............................... (3)
  - Geog 374/L Environmental Remote Sensing/Lab ............... (3)
  - Geog 378 Global Positioning Systems: Applications & Theory (2)
  - Geog 397 Cooperative Education .................................... (1-3)
  - Geog 452 Selected Topics in Economic Geography (3-9)
  - Geog 453 Historical Geography ........................................ (3)
  - Geog 455 Geopolitics ....................................................... (3)
  - Geog 459 Population Geography ........................................ (3)
  - Geog 463 Regional Geography ............................................ (2-3)
  - Geog 476 Selected Topics in GIS ....................................... (3)

Required in other departments (12 credits):

- Any combination of courses from the following fields: Economics, Finance, Public Administration, Anthropology, Sociology, History, and other social sciences.

B: Environmental Geography Emphasis

This program provides an overview of geography and an introduction to the concepts and methods used in environmental management. It is intended for students wishing to pursue graduate work or a professional career in government, industry, or education in a wide variety of environmental fields.

Elective systematic courses chosen in consultation with the faculty adviser (at least 11 credits):

- Geog 134/L Introduction to Global Climate/Lab ................... (4)
- Geog 334 Climatology ....................................................... (3)
- Geog 332 Environmental Hazards ....................................... (3)
- Geog 354 Conservation of Resources .................................. (3)
- Geog 421 Selected Topics in Physical Geography .................. (3-9)
  Other electives chosen in consultation with the faculty adviser (6 credits):
  - Geog 271 The Power of Maps .......................................... (3)
  - Geog 352 Economic Geography ........................................ (3)
  - Geog 374/L Environmental Remote Sensing/Lab ............... (3)
  - Geog 378 Global Positioning Systems: Applications & Theory (2)
  - Geog 397 Cooperative Education .................................... (1-3)
  - Geog 457 Urban Geography and Planning ......................... (3)
  - Geog 458 Community Development ..................................... (3)
  - Geog 459 Population Geography ........................................ (3)
  - Geog 475 Digital Image Processing ................................. (3)
  - Geog 476 Selected Topics in GIS ....................................... (3)

Required in other departments (12 credits):

- Any combination of courses from the following fields: Atmospheric Science, Biology, Chemistry, Computer Science, Civil Engineering, Geology and Geophysical Engineering, Math, and Physics.

C: Geographic Education Emphasis (Teacher Licensure)

Through a partnership with the College of Education and Human Development and the Department of Teaching and Learning, students may seek secondary licensure in Geography. This program provides a comprehensive background in geography. It is designed for the student with the geography education necessary for a middle school or secondary school teaching career. The following program of study must be completed:

I. Essential Studies Requirements (see University ES listing).

II. Geographic Education Program of Study:

A. Geographic Education Core (26 credits):

- Geog 121/L Global Physical Environment/Lab .................... (4)
- Geog 151 Human Geography ............................................. (3)
- Geog 321 World Regional Geography ................................... (3)
- Geog 352 Economic Geography .......................................... (3)
- Geog 354 Conservation of Resources .................................. (3)
- Geog 377/L Quantitative Applications in Geography .......... (3)
- Geog 476 Environmental Remote Sensing/Lab ................. (3)
- Geog 419 Methods & Materials in Geographic Education (3)

B. Electives (10 credits):

- Students must choose a minimum of 10 credits from a combination of the following concentrations, selected with approval of the geography adviser responsible for teacher education.

  1. Human Geography:

- Geog 300 Special Topics in Geography ................................ (1-3)
- Geog 452 Selected Topics in Economic Geography (3-9)
- Geog 453 Historical Geography ........................................ (3)
- Geog 455 Geopolitics ....................................................... (3)
- Geog 457 Urban Geography and Planning ......................... (3)
- Geog 458 Community Development ..................................... (3)
- Geog 459 Population Geography ........................................ (3)

  2. Physical Geography:

- Geog 134/L Introduction to Global Climate/Lab .................... (4)
- Geog 300 Special Topics in Geography ................................ (1-3)
- Geog 322 Environmental Hazards ....................................... (3)
- Geog 334 Climatology ....................................................... (3)
- Geog 421 Selected Topics in Physical Geography ............... (3-9)

  3. Regional Geography:

- Geog 262 Geography of North America I .......................... (3)
- Geog 263 Geography of North Dakota ................................ (3)
- Geog 362 Geography of Canada ........................................... (3)
- Geog 462 Geography of North America II ......................... (3)
- Geog 463 Regional Geography ............................................ (2-9)

  4. Geographical Techniques:

- Geog 374/L Environmental Remote Sensing/Lab ............... (3)
- Geog 478 Cartography and Visualization/Lab ..................... (3)
- Geog 474/I Introduction to GIS ........................................... (3)

III. Admission to the Secondary Program, normally while taking T&L 250. (See College of Education and Human Development for admission and licensing requirements.)

IV. The program in Secondary Education, to include:

- T&L 250 Introduction to Education ....................................... (3)
- T&L 339 Technology for Teachers ......................................... (3)
- T&L 345 Curriculum Development and Instruction ................ (3)
- T&L 350 Development and Education of Adolescents ......... (3)
- T&L 386 Field Experience (Optional) .................................... (1)
- Geog 419 Methods and Materials of Teaching Middle and Secondary School Geographic Education (3)
- T&L 432 Classroom Management ......................................... (3)
- T&L 433 Multicultural Education ........................................... (3)
- T&L 486 Field Experience ................................................... (3-9)
- T&L 487 A full semester of student teaching, normally taken during the semester of graduation (16)
- T&L 488 Senior Seminar ..................................................... (1)

*T&L 390, Special Topics, may be taken as an elective.

MINOR IN GEOGRAPHY

Required 20 credits including:

- Geog 121/L Global Physical Environment/Lab .................... (4)
- Geog 151 Human Geography ............................................. (3)
- Geog 161 World Regional Geography ................................. (3)
- Geog 271 The Power of Maps .......................................... (3)
- Geog 352 Economic Geography ........................................ (3)
- Geog 354 Conservation of Resources ................................ (3)
- Geog 377/L Quantitative Applications in Geography .......... (3)
- Geog 476 Environmental Remote Sensing/Lab ................. (3)
- Geog 419 Methods & Materials in Geographic Education (3)
- Geog 478 Global Positioning Systems: Applications & Theory (2)

Students must choose a minimum of 10 credits from one or a combination of the following concentrations, selected with approval of a geography adviser.
Courses

The geography courses that may be used to satisfy the 4-credit Essential Studies laboratory science requirement are Geography 121 and 121L. Geography courses that may be used to satisfy the 9-credit Essential Studies social science requirement include: Geography 151, 161 and 262.

121. Global Physical Environment. 3 credits. A study of the pattern of distribution of the physical elements of the global environment. The origin and characteristics of the terrestrial grid, earth-space relations, climate, landforms, vegetation, and soils. F,S,SS.

121L. Global Physical Environmental Laboratory. 1 credit. A basic environmental science laboratory to complement Geography 121. F,S,SS.

134. Introduction to Global Climate. 3 credits. An introduction to the global climate system with a focus on climate processes, weather and climate elements, and climate change. Emphasis is placed upon the factors that control climate and climate distributions. S

134L. Introduction to Global Climate Laboratory. 1 credit. Prerequisite or corequisite: Geog 134. A basic physical science laboratory focused upon specific atmospheric-climatic phenomenon; wet and dry lab experiments, plus written lab exercises. S

151. Human Geography. 3 credits. A systematic analysis of people's cultural regions including settlement patterns and change via migration and diffusion. F

161. World Regional Geography. 3 credits. Development of the concept of region with analysis of the relationship of physical and cultural features to the contemporary world situation. F,S.

262. Geography of North America I. 3 credits. A spatial approach to the development of Canada and the United States which emphasizes the transformation of the cultural landscape by exploring the contributions of the diverse peoples who inhabit the two nations. F

263. Geography of North Dakota. 3 credits. Study of the interrelationships that exist between North Dakota's physical and cultural environments. Specific topics include physiography, climate, flora, prehistoric occupation, historic development, demography, and economic structures. S

271. The Power of Maps. 3 credits. Maps are essential and powerful tools for those who study geographical phenomena. Improvements in GIS and the World Wide Web (WWW) have empowered more people to make and use maps in highly varied and creative ways. This course serves as an introduction to maps and cartography, with emphasis on their role in GIS and on the WWW. Course content includes the characteristics of geographic data, the map abstraction and generalization process, map types and uses, and map interpretation. The course covers technical and social issues relevant to mapping as well as map application. S

300. Special Topics in Geography. 1-3 credits. Repeatable to six credits. Topic of course will change from semester to semester but will typically emphasize recent developments in geography. F,S,SS.

319. Geography for Teachers. 2 credits. Geographical concepts and basic philosophy including a survey of the literature which forms the basis for analysis and application of current techniques in the field of geography. F, S

319L. Geography for Teachers Lab. 1 credit. Prerequisite: Undergraduates pursing certification for teaching social studies or for teaching geography, or by instructor permission. Corequisite: Geog 319. Applications of map reading and interpretation with emphasis upon geospatial technologies specific to K-12 classrooms with emphasis upon laboratory work and field site visits to local schools to practice those skills and techniques in appropriate educational settings. F

322. Environmental Hazards. 3 credits. Prerequisites: Geog 121 and 161 or consent of instructor. An overview of the field of environmental hazards emphasizing risk assessment, hazard impacts, human vulnerability, and hazard mitigation. F/2

334. Climatology. 3 credits. Prerequisite: Geog 134 or AEC 110. An overview of the field of climatology, emphasizing surface transfers of energy and water, the general circulation of the atmosphere, and climate change. S/2

352. Economic Geography. 3 credits. Prerequisites: Sophomore standing or consent of instructor. A study of the local, national, and global economic life describing and explaining the geographic factor involved in the production, distribution, and consumption of the major commodities and resources of the world. Special emphasis is placed upon the global issue of the underdeveloped or Third World countries and theories, which have been developed to explain spatial structure. F

354. Conservation of Resources. 3 credits. Geographic principles applied to the analysis of resources and their efficient utilization. Emphasis is on properly balanced development. F

362. Geography of Canada. 3 credits. A regional and topical analysis of the physical, cultural and economic features of Canada. S

374. Environmental Remote Sensing. 2 credits. Corequisite: Geog 374L. A thorough examination of optical, infrared, and microwave methods for remote observation of Earth systems with that focus on the use of aerial and satellite data for addressing environmental problems. The course includes an overview of modern remote sensing systems for data collection at a variety of scales, as well as an introduction to digital image processing. F

374L. Environmental Remote Sensing Laboratory. 1 credit. Corequisite: Geog 374L. A systematic coverage of visual and digital laboratory techniques used to interpret aerial photography and satellite imagery. Students gain hands-on experience assessing environmental problems using remotely sensed data. F

377. Quantitative Applications in Geography. 2 credits. Prerequisite: Math 103 or consent of instructor. Application of statistical and mathematical techniques to research topics in geography. F

377L. Spatial Analysis Laboratory. 1 credit. Prerequisite: Math 103. Corequisite: Geog 377. Practical applications of statistical and mathematical techniques for geographic problems. Students work on projects which involve solving problems by spatial-oriented computations. Use of relevant statistical programs on computers are emphasized. F

378. Global Positioning Systems: Applications and Theory. 2 credits. This course covers the equipment, procedures, and techniques related to GPS technology, as well as its integration with Geographic Information Systems. Foci include the fundamentals of satellite navigation, the history of GPS, and applications related to mapping and analysis in the environmental sciences. Strong emphasis is placed on providing hands-on experience. S/2

386. GEOG ED Field Placement. 1-3 credits. Prerequisites: Geography major or minor or Teaching & Learning major or consent of the supervising faculty member. A variable credit course with amount of credits depending upon the extent of the geographic education work of the student in a K-12 school setting. Recommended for secondary education social studies majors interested in how geography is taught at the high school level and/or for elementary/ middle school social studies majors interested about how federal legislation is affecting teaching grades K-8. F, S, or SS.

397. Cooperative Education. 1-6 credits. May be repeated to a maximum of 6 credits. Prerequisite: 60 credits completed, minimum GPA of 2.75. A practical work experience with an employer closely associated with geography. S-U grading only. F,S,SS.

419. Methods and Materials of Teaching Middle and Secondary School in Geographic Education. 3 credits. Prerequisites: T&L 325 and T&L 345. Corequisite: T&L 486. Focus on teaching methods, strategies and the materials used in teaching middle and secondary school geographic education. S

421. Selected Topics in Physical Geography. 3 credits. Prerequisites: Geog 121, or consent of instructor. An examination of an advanced physical geography topic chosen from field methods, biogeography, human geography, fluvial processes, human impacts on the environment, physiography, or others. Repeatable to nine credits if different topics are examined. F, S, F

424. Selected Topics in Economic Geography. 3 credits. Prerequisites: Geog 151 or consent of instructor. Selected topics in economic geography including but not limited to industrial location, transportation, rural economic development, and others. Repeatable to nine credits if different titles are examined. S, On demand.

431. Historical Geography. 3 credits. Exploring the spatial process, landscape change is examined over time in various regions of the world using a variety of scales of study. Emphasis is placed upon the relationship of historical geography to historic preservation and tourism. SS, On demand.

450. Geopolitics. 3 credits. Geographic analysis of the global political system and the significance of the nation-state, intergovernmental organizations, globalization, free trade, and terrorism with consideration of the broad political, social cultural, and economic contexts of world disputes. On demand.

457. Urban Geography and Planning. 3 credits. This course examines the interrelated workings of cities from political, economic, and social perspectives. Geographic approaches to urban analysis are discussed, as are various methods for contemporary urban planning. Students learn to view the city as a geographic phenomenon created by human effort. S

458. Community Development. 3 credits. Prerequisite: Geog 151 or consent of instructor. A historical evolution, conceptual framework, and implementation of community development. Students will be introduced to a broad range of community development issues from a geographical perspective with emphasis on local and statewide scales of study. F

459. Population Geography. 3 credits. Prerequisite: T&L 325. This course examines the historical evolution, conceptual framework, and implementation of community development. The course focuses on understanding and critically assessing global, regional, national, and local population trends and issues. Topics include the impact of population growth, spatial diffusion processes, migration trends and theories, aging of societies, and population policies. S, SS.

462. Geography of North America II. 3 credits. Prerequisite: Geog 262 or consent of instructor. A regional analysis of the physical, cultural, and economic features of a selected region or group of regions within North America. May be repeatable to six credits if a different region is examined. On demand.

463. Regional Geography. 2-3 credits. A regional and topical analysis of the physical and cultural features with emphasis on one continent or region. May be repeated up to nine credits provided different regions and approaches are involved. S

471. Cartography and Visualization Laboratory. 1 credit. Corequisite: Geog 471. This course covers the art, science, and technology of cartography and visualization. It familiarizes students with basic cartographic principles and with GIS, both of which are applicable to a wide range of professional fields and academic disciplines. Students learn how maps are designed and used to accurately represent and effectively communicate spatial phenomena and relationships. The course also includes a discussion of selection of proper thematic mapping techniques.

471L. Cartography and Visualization Laboratory Laboratory. 1 credit. Corequisite: Geog 471L. Students apply concepts learned in Geog 471 to produce accurate, appropriate and well-designed maps using GIS software. Lab activities hone the ability of students to be informed producers and consumers of maps and provide hands-on experience that demonstrates how maps function as a medium of communication.

474. Introduction to Geographic Information Systems (GIS). 2 credits. Prerequisites: Geog 471 or 471L or equivalent or instructor consent. Corequisite: Geog 474L. An introductory course that examines the digital representation, manipulation, and analysis of geographic data, with emphasis on the analytical capabilities that GIS brings to bear on the solution of geographic problems. F, S
The Department of Geology and Geological Engineering offers Bachelor of Science degrees in Geology, Geological Engineering, and Environmental Geoscience, the Master of Arts and Master of Science degrees in Geology, the Master of Science degree in Geological Engineering, and the Doctor of Philosophy degree in Geology. The goals of the undergraduate programs are to provide professional preparation for majors in the geosciences and engineering and to provide guidance to non-majors seeking to gain a greater understanding of Earth and planetary environments and resources. Four active student organizations, Sigma Gamma Epsilon (the national earth science honorary society), The Association of Engineering Geologists, The Association of Undergraduate Geologists, and INGEOS (Indians into Geosciences) provide academic and social opportunities for students including: guest speakers, field trips, research experience, scholarships, and thesis research support.

**Facilities**

The Department of Geology and Geological Engineering is housed in Leonard Hall, a facility specifically designed for Geology and Geological Engineering. Leonard Hall facilities are superior to those in most geoscience departments at universities similar in size and mission to UND and include a variety of equipment for teaching and research in field and laboratory areas such as hydrogeology, geophysics, stratigraphy, paleontology, mineralogy, petrology, and geological engineering. The North Dakota Geological Survey’s Core and Sample Library is located directly across the street from Leonard Hall and houses approximately 80 miles of cores and approximately 40,000 boxes of drill cuttings of the Williston Basin as well as an extensive collection of water well samples and cores. The F. D. Holland Geology Library, located on the third floor of Leonard Hall, is one of the largest geoscience libraries in the upper Midwest. For more information about our department and facilities, please visit our website at: www.geology.und.edu.

**Undergraduate Programs**

Four degrees are offered: the Bachelor of Science in Geology and the Bachelor of Arts with a Major in Geology in the College of Arts and Sciences, and the Bachelor of Science in Geological Engineering and the Bachelor of Science in Environmental Geoscience in the School of Engineering and Mines.

**College of Arts and Sciences**

**B.S. IN GEOLOGY**

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. **Essential Studies Requirements** (see University ES listing).

II. The Following Curriculum:

- **48-49 major hours, including:**
  - **Geol 101 & 101L** Introduction to Geology and Laboratory .......... (4)
  - **Geol 102 & 102L** The Earth Through Time and Laboratory .................. (4)
  - **Geol 311** Geomorphology ......................................................... (4)
  - **Geol 318** Mineralogy ................................................................. (3)
  - **Geol 320** Petrology ................................................................. (3)
  - **Geol 330** Structural Geology .................................................... (3)
  - **Geol 356** Geoscience Lectures .................................................... (1)
  - **Geol 411** Sedimentology & Stratigraphy ..................................... (5)
  - **Geol 420** The Evolving Earth ..................................................... (3)
  - **Geol 421** Seminar I .................................................................... (1)
  - **Geol 422** Seminar II ................................................................. (1)
  - **Geol 487** Research I ................................................................. (1)
  - **Geol 488** Research II ................................................................. (2)
  - **Geol 494** Senior Thesis ............................................................... (1)
  - **Field Geology** (Summer; not available at UND) ......................... (6)

- Two courses from:
  - **Geol 321** Geochemistry ......................................................... (3)
  - **Geol 414** Applied Geophysics .................................................... (3)
  - **Geol 415** Introduction to Paleontology ....................................... (4)
  - **Geol 417** Hydrogeology ............................................................. (3)

- Required in other departments:
  - **Chem 121, 121L** General Chemistry I & II and Laboratories .......... (8)
  - **Engl 110** College Composition I ............................................... (3)
  - ***Engl 125** Technical and Business Writing .................................. (3)
  - **Engr 200** Computer Applications in Engineering ....................... (2)
  - **Math 165 & 166** Calculus I & II .................................................. (8)
  - **Phys 211/211L**, **Phys 212/212L** College Physics I, II and Laboratories .......... (8)

- One course from:
  - **Math 265** Calculus III ............................................................... (4)
  - **Math 321** Applied Statistical Methods ....................................... (3)
  - **Psych 241** Introduction to Statistics ......................................... (4)

- Departmentally approved courses in engineering, mathematics, foreign language, and other fields of student interest ........................................... (22-24)

*English 120 acceptable alternate course.

**Teacher Certification**

Students seeking secondary teacher certification in Geology must complete the Department of Teaching and Learning Requirements in Secondary Education. Students seeking certification should follow the curriculum for the B.S. in Geology and select Statistics (Psyc 241, Math 321) rather than Math 265 or Computer Science. The 24 additional hours in science, computer science, statistics, engineering, mathematics, or a foreign language must include each of the following: at least one course in Biology with lab equaling 4 credits, Atmospheric Sciences, and Astronomy.

Geology majors seeking secondary certification must have an adviser both in the Department of Geology and Geological Engineering and in the Department of Teaching and Learning. Formal admission to Teacher Education is required and is normally sought while the student is enrolled in T&L 325 (see Department of Teaching and Learning listing).

**B.A. WITH MAJOR IN GEOLOGY**

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

- **40 major hours, including:**
  - **Geol 101 & 101L** Introduction to Geology and Laboratory .......... (4)
  - **Geol 102 & 102L** The Earth Through Time and Laboratory ............... (4)
The School of Engineering and Mines

The Geological Engineering curriculum gives the student a strong background in engineering and geology that serves as a foundation for meaningful professional practice. Geological engineering encompasses 1) exploration and extraction of mineral and energy resources, 2) geomechanics, 3) hydrogeology, 4) reclamation and contaminant remediation, 5) environmental site assessment, and 6) natural hazard investigation. These areas of expertise span the gap between civil, mining, environmental engineering and geology. To meet these demands, the curriculum contains a broad background in the physical and social sciences, humanities, communications, mathematics, geology, and engineering topics. The program is accredited by action of the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. Courses in the curriculum are arranged and integrated to provide the student with progressive preparation for engineering evaluation and design. To facilitate the transition from student to professional, the senior year has a capstone experience that incorporates student creativity and sociological and engineering criteria into a major design project.

As the demand for mineral, energy, and water resources increases and population growth and urbanization place a greater strain on the environment, the nation and world will need engineers with a thorough knowledge of geologic materials, processes, and history. The goal of the geological engineering program at the University of North Dakota is to provide students with the engineering skills and geological expertise necessary to assure that geological, social, and environmental factors are incorporated in the design, construction, operation, and maintenance of engineered structures and systems within their natural setting. Through its strong environmental emphasis, the department strives to develop in its engineering graduates keen insight and abilities to design an environmentally sound and sustainable future for humanity.

To achieve this goal, the department has the following objectives for its engineering graduates:

1. Program graduates shall have attained sufficient proficiency to practice geological engineering in at least one of the areas of exploration and production of mineral and energy resources, geomechanics, hydrogeology, reclamation, or site assessment/remediation.
2. Program graduates shall have the ability to competently perform a wide range of design tasks in at least one of the areas of exploration and production of mineral and energy resources, geomechanics, hydrogeology, reclamation, or site assessment/remediation.
3. Program graduates shall have attained sufficient proficiency in discipline-related areas such as mathematics, physical sciences, social sciences, and arts and humanities to enable them to understand technical and nontechnical issues related to the practice of engineering.
4. Program graduates shall be skilled in written, verbal and media-based communication, working in multi-disciplinary teams, geoscience and engineering workstation methods, and research methods.
5. Program graduates shall be prepared to enter a graduate program in geological engineering or geology if they so desire.

BS. IN GEOLOGICAL ENGINEERING

Required: 132 credits including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

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<td>Chem 121, 121L</td>
<td>General Chemistry I and Lab</td>
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<td>GeoE 203</td>
<td>Geology for Engineers</td>
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<td>Phys 252</td>
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<td>Engl 125</td>
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| Summer | | |
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| Field Geology (South Dakota School of Mines and Technology Black Hills Field Station) | 6 |
B.S. IN ENVIRONMENTAL GEOSCIENCE

Required 125 credits, including:

I. Essential Studies Requirements (see University ES listing).

II. The following Core Curriculum

41 major hours, including:

Geol 101, 101L Introduction to Geology and Laboratory (4)

Geol 102, 102L The Earth Through Time and Laboratory (4)

Geol 220 Computer Applications in Geology and Environmental Science (4)

Geol 311 Geomorphology (3)

Geol 318 Mineralogy (3)

Geol 321 Geochemistry (3)

Geol 322 Geology, Society and the Environment (3)

Geol 320 Digital Mapping Methods (3)

Geol 342 Environmental and Conservation Hydrology (3)

Geol 356 Geoscience Lectures (1)

Geol 410 Site Characterization (3)

Geol 414 Applied Geophysics (3)

Geol 421 Seminar I (1)

Geol 422 Seminar II (1)

Geol 427 Research I (1)

Geol 468 Research II (1)

Geol 494 Senior Thesis (1)

Required in Other Departments:

Biol 150, 150L General Biology I, Laboratory (4)

Biol 151, 151L General Biology II, Laboratory (4)

Biol 332, 332L General Ecology, Laboratory (4)

Chem 121, 121L General Chemistry I, Laboratory (4)

Chem 122, 122L General Chemistry II, Laboratory (4)

Math 165 Calculus I (4)

Math 66 Calculus II (or approved statistics course) (3-4)

Phys 251, 251L University Physics I, Laboratory (4)

Program Electives (three courses from following) (8-10 cr.):

Biol 431 Wildlife Management (3)

Biol 433 Aquatic Ecology (3)

Chem 333 Introductory Environmental, Clinical, and Forensic Chemical Analysis (4)

GeoE 417 Hydrogeology (3)

GeoE 418 Hydrogeological Methods (2)

Geol 419 Groundwater Monitoring and Remediation (3)

Geol 475 Digital Image Processing (3)

Law 263 Environmental Law (3)

SpH 430 Earth System Science (3)

Courses

For Geology majors, a grade of C or better is required in Geology 318 before any other 300 or 400 numbered courses are taken.

101. Introduction to Geology. 3 credits. Introduction to the dynamics of the Earth—volcanoes, earthquakes, plate tectonics, streams, groundwater, glaciers, waves, wind, and landslides, with emphasis on the environmental applications of these processes. Introduction to the tools of the geologist—minerals, rocks, maps, and aerial photographs. Geol 101L may be taken concurrently. F,S,SS

101L. Introduction to Geology Laboratory. 1 credit. Prerequisite or corequisite: Geol 101. An introductory laboratory to complement Geol 101. Field trip(s) included. F,S,SS

102. The Earth Through Time. 3 credits. The tracing of changes in the Earth and life through time, with emphasis on the record from North America. Geol 102L may be taken concurrently. F,S

102L. The Earth Through Time Laboratory. 1 credit. Prerequisite or corequisite: Geol 102. An introductory laboratory to complement Geol 102. Field trip included. F,S

103. Introduction to Environmental Issues. 3 credits. Introduction to Environmental Issues. A survey of environmental issues concerning society’s interaction with Earth’s natural systems and exploitation of Earth’s resources. F,S

104. Geology of National Parks. 3 credits. An overview of the geology of U.S. National Parks. Unifying geological principles are emphasized. Major topics: sandstone parks, volcanic parks, hot springs and geothermal areas, caves and limestone parks, reefs and fossilized reefs, rivers and erosion, ice and glaciers, mountain building and mountain ranges. S

105. Selected Topics. 1-4 credits. Repeatable when topics vary. A special topic course intended for non-geology majors. Subjects will include many issues of interest to non-geologists and non-scientists, such as earthquakes, evolution, gems, and the geology of National Parks. On demand.

106. Global Warming: The Facts and Myths. 3 credits. Global warming is the most debated current challenge to humans. A large, multifaceted and technically challenging topic, it has been diluted to popular slogans that at best capture some aspects of the issue and at the worst are over simplifications. Most of us who are directly affected by global warming do not understand the background, do not know the assumptions are based on, and cannot evaluate the correctness of the arguments propagated in mass media such as newspapers and talk-radio. This class will provide students with a clear grasp of the science behind global warming discussion, the typical strategies (prop/ cons) that are used in the popular media, and a good understanding of the science-based predictions of upcoming changes in the climate and environment. In addition to providing general scientific background to understand global warming and the science behind it, the class will visit the arguments that are used both for and against global warming. The graded written tests require students to address typical misinformation about global warming, show general knowledge of the scientific background, and recognize typical means to distort science in the mass media.

111. Views of Earth and Planets. 3 credits. An introduction to Earth and the Solar System. Coverage includes: the planets and their moons, comets, asteroids, impact craters, meteorites, the sun, the solar system’s origin, planetary atmospheres, the living Earth, the question of life elsewhere. F,S

111R. Views of the Earth and Planets Recitation. 1 credit. Corequisite: Geol 111. A recitation-discussion to complement Geol 111. S

203 (GeoE). Geology for Engineers. 3 credits. Corequisites: Geol 203L. Physical geology discussed from the engineering point of view. Required of students in civil engineering and geological engineering. Includes laboratory. F

205. Surviving on Planet Earth. 3 credits. This Essential Studies course stresses critical thinking in covering the basic strategies about humans succeeding on our planet including Earth’s hazards (our restless Earth); the balance of life on Earth (evolution and extinction); water in our lives (too much and too little); energy (use and population demands); and global change (Earth as a unique, ongoing experiment). S

220. Computer Applications in Geology and Environmental Science. 2 credits. Introduction to the application of computers, software, and digital processing in the geological and environmental sciences. F

302 (GeoE). Reclamation Engineering. 3 credits. Prerequisites: Geology 101 or Geol 203 or consent of adviser. Principles of reclamation emphasizing: the need for reclamation; geology and hydrogeology of disturbed landscapes, geological, hydrological, and ecological reclamation objectives; current reclamation practices; reclamation of abandoned mine lands; reclamation design; laws, regulations, permits, bonds, and public perception. Includes laboratory and field trips. S

303. Selected Topics in Geology. 1-4 credits. Prerequisite: Geology 100, 101, 102 or consent of instructor. Each offering concerned with a special aspect of geology. May be repeated up to a maximum of 8 hours. F,S

311. Geomorphology. 4 credits. Prerequisites: Geol 101 and 102. Dynamics of weathering, mass movement, running water, groundwater, waves, wind and ice in the production of landforms. Includes field trips and laboratory, F

318. Mineralogy. 3 credits. Prerequisite: Geol 101 or Geol 203, and Chem 121 or consent of instructor. Survey of the origin, distribution and uses of rock-forming minerals. Introduction to mineral structures, crystal chemistry, and crystallography. Laboratory identification of common minerals in hand sample and petrographic thin section. Introduction to the use of the polarizing microscope. Includes field trip. S

320. Petrology. 3 credits. Prerequisite: Geol 318. Description, classification and origin of igneous, metamorphic, and sedimentary rocks. Field and laboratory study of rocks. Engineering properties of earth materials. Advanced aspects of optical mineralogy. Includes laboratory. F

321. Geochemistry. 3 credits. Prerequisite: Geol 318, Chem 122 and Math 166, or consent of instructor. Application of the principles of chemistry to geologic and hydrogeologic problems. Origin and distribution of the chemical elements. Introduction to radiochemistry, isotopic geochronology, and stable-isotope geochemistry. S

322. Geology, Society, and the Environment. 3 credits. Prerequisite: One introductory geology course or upper division standing; Math 103 recommended. Relations of geology to society; natural hazards; misuse and repair of our natural environment; application of geology to engineering, land planning, and resource management. S

323 (GeoE). Engineering Geology. 2 credits. Prerequisites: One introductory geology course, Math 165, and upper division standing in geology or engineering. Application of geological and environmental principles to geotechnical engineering design, construction, and operation. On demand, offered alternate years.

330. Structural Geology. 3 credits. Prerequisites: Geol 318, Geol 320, and Math 105. Major phases of rock deformation, analysis of rock structures and interpretation of geologic maps and cross sections showing structural and tectonic features. Includes laboratory. S

340. Digital Mapping Methods. 3 credits. Prerequisites: Junior standing in Geology, geoscience, or environmental science. This course covers the basics of GIS software, an introduction to spatial analysis with an overview of the technology (GPS, lasers, and data management). Field
projects focus on mapping methodology and laboratory projects focus on analysis and presentation. It is assumed that students have an undergraduate geology background and a basic knowledge of computer applications.

342. Environmental and Conservation Hydrology. 3 credits. Prerequisites: Introductory geology course or upper division standing, Math 103. Topics relating hydrology to the environment and water conservation, including the global and local hydrological cycle, flood occurrence and prediction, water pollution, erosion and sedimentation, wetlands, and water management. S/S

356. Geoscience Lectures. 1 credit. Students attend and evaluate departmental lectures given by visiting scientists and engineers, faculty, and students. May be repeated once. S/U grading. May not be taken concurrently with Geol 422. F,S

397 (GeoE) Cooperative Education. 1-8 credits (repeatable to 24 credits). For qualified students majoring in geological engineering, geology, or environmental geology and geophysics. A practical work experience with a firm or individual associated with the student’s academic area. Positions may require student relocation for one or more semesters. Arranged by mutual agreement among student, department, and employer. Special permission required. S/U grading only. S/SS

407. Petroleum Geology. 3 credits. Prerequisites: Geol 101 or GeoE 203, and Geol 102. Origin, accumulation and geologic occurrence of petroleum and gas. F/2 (odd numbered years).

410. Site Characterization. 3 credits. Prerequisites: Geol 220, 311, 414; Biol 332, 332E. Purposes, techniques, and tools of site investigation. Covers geologic, hydricologic, and geologic concerns. Hands-on application of principles, tools and techniques at real sites. F

411. Sedimentology and Stratigraphy. 5 credits. Prerequisite: Geol 320. Origin, transportation, deposition, and diagenesis of sedimentary rocks; principles and applications of stratigraphy. Includes field trip and laboratory. S

414. Applied Geophysics. 3 credits. Prerequisites: Geol 101, Math 265, Phys 212 or 252. Principles of various geophysical methods and their application to geologic problems. F

415. Introduction to Paleontology. 4 credits. Prerequisite: Geol 102. Recommended: Biol 150, 151. The principles of paleontology/paleobiology are presented using fossils to document the evolutionary, stratigraphic, and paleoecologic history of animal and plant life on Earth. Includes field trip and laboratory. F

417 (GeoE/Geo). Hydrogeology. 3 credits. Prerequisite: Math 166 or consent of instructor. Physical and chemical aspects of groundwater movement, supply, and contamination. F

418 (GeoE). Hydrogeological Methods. 2 credits. Corequisite: GeoE/Geo 417. Field and laboratory methods used in hydrogeology; techniques of drilling, well and piezometer installation, determination of aquifer parameters, geophysical exploration, soil classification and analysis, ground water sampling and analysis. Includes field trip. F

419 (GeoE). Groundwater Monitoring and Remediation. 3 credits. Prerequisites: Math 166, GeoE/Geo 417 and a statistics course (Econ 210, Psy 241, Math 321 or 353) or consent of instructor. Statistical methods for groundwater sampling and monitoring network design. Groundwater remediation and design; including strategies that remove contaminants for external treatment and strategies for in-situ contaminant treatment. S

420. The Evolving Earth. 3 credits. Prerequisite: Senior standing in Geology. A synthesis of the physical, biological, and chemical changes on Earth through time set within geologic systems and unifying concepts. S

421. Seminar I. 1 credit. Prerequisite: Geol 356. Instruction and practice of oral and visual presentation in science and engineering. Includes preparation and delivery of scientific talks, chalk talks, and slide talks. Involves critical review of student presentations and departmental guest lectures. F,S

422. Seminar II. 1 credit. Prerequisite: Geol 421, senior or graduate status in departmental major. Continuation of Geol 421 experience. Preparation and delivery of oral presentations in science and engineering, culminating in oral presentation of senior thesis (Geol 490) or Engineering Design (485). Includes critical review of student presentations and departmental guest lectures. F,S

425 (GeoE). Design Hydrology for Wetlands. 3 credits. Prerequisites: Chem 121 and either CE/ME 306 or GeoE/Geo 417. Principles of chemistry, geology, hydraulics, and hydrology applied to natural and constructed wetlands and other small catchments. S

427 (GeoE). Groundwater Modeling. 3 credits. Prerequisites: GeoE 417. Math 265; some programming experience recommended. Fundamentals of numerical modeling applied to groundwater flow. Short programs using the finite difference method will be written to demonstrate groundwater movement and storage. Simulation of practical groundwater problems will be carried out using the U.S. Geological Survey’s MODFLOW code. S

455 (GeoE). Geomechanics. 4 credits. Prerequisites: GeoE 323 and CiEn 412 or consent of instructor. Principles of geomechanics and its application to geological engineering. Includes laboratory. F

484 (GeoE). Geological Engineering Design. 3 credits. Prerequisites: Advanced level standing in Geological Engineering and consent of adviser. The first of a two-course sequence in geological engineering design. Define the design problem, establish design objectives, evaluate alternatives, specify constraints, determine a methodology, complete a formal design problem statement. F,S

485 (GeoE). Geological Engineering Design. 3 credits. Prerequisites: GeoE 484. Corequisite: GeoE 422. Continuation of GeoE 484 taken the preceding semester. Systematic study and design, with determination of feasibility, careful assessment of economic and social factors, safety, reliability, aesthetics, ethics, and social and environmental impact. Results presented in GeoE 422 Seminar. F,S,SS

487. Research I. 1 credit. Prerequisite: Senior standing in departmental major. Identification and proposal of research project. Includes literature review, feasibility review, and formal project identification and written proposal. Selection of faculty research adviser within first month of semester. F,S

488. Research II. 2 credits. Prerequisite: Geol 487. Execution of research plan developed in Geol 487.

491. Geologic Problems. 1-4 credits. Prerequisites: Consent of instructor. May be taken more than one semester to maximum of 24 hours. Individualized or group study on selected geoscience topics. F,S,SS

493 (GeoE) Selected Topics on Mining. 3 credits (repeatable to maximum of 4 hours). Prerequisite: GeoE 301. Detailed study of a selected topic related to mine planning or operations. Includes laboratory if applicable. On demand.

494. Senior Thesis. 1 credit. Prerequisite or corequisite: Geol 488. Written results of research conducted in Geol 489. The thesis document should conform to the format guidelines of a major English-language journal in which the thesis could be published. A copy is to be provided to the F.D. Holland, Jr. Geology Library. F,S

History

http://www.und.edu/dept/histdept/

Berger, Broedel, Burin, Campbell, Caraher, Iseminger, Kelsch, Mochoruk, Porter (Chair), Prescott and Reese

The History program at the University prepares students to understand themselves and their society, as well as people in different cultures in the past and in the present. Beyond this, the department prepares students for the teaching of history at all levels, government service, and graduate studies in history. The study of history may serve as pre-professional preparation for other areas such as law or the ministry.

Two options are offered for the History major, and each by itself leads to a B.A. with a major in History. Option A is primarily for those who plan to enter professional schools, such as law, and for those who want to pursue advanced work in history at the graduate level. Option B is designed primarily for those who want to enter government service, business, or teaching at the secondary level.

When taken in conjunction with the Teaching and Learning program in Secondary Education, Option B satisfies the requirements for teacher certification in the Social Sciences. Prospective teachers should seek an adviser in the College of Education and Human Development in addition to their adviser in the History department.

College of Arts and Sciences

B.A. WITH MAJOR IN HISTORY

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies (see University ES listing).

II. One of the following curriculum options:

Option A

36 major hours, including:

9 hours from: .................................................................(9)

Hist 101 Western Civilization I .................................................(3)

Hist 102 Western Civilization II ..............................................(3)

Hist 103 United States to 1877 ..................................................(3)

Hist 104 United States since 1877 ..........................................(3)

Hist 240 The Historian’s Craft ...................................................(3)

Hist 440 Research ....................................................................(3)

Electives (15 must be upper level) ............................................(21)

Required in other departments:

Level IV proficiency in a foreign language.

Option B

36 major hours, including:

Hist 101 Western Civilization I .................................................(3)

Hist 102 Western Civilization II ..............................................(3)

Hist 103 United States to 1877 ..................................................(3)

Hist 104 United States since 1877 ..........................................(3)

Hist 240 The Historian’s Craft ...................................................(3)

Hist 440 Research ....................................................................(3)

Electives (15 must be upper level) ............................................(18)
MINOR IN HISTORY

Required 20 credits, at least 6 must be in upper division courses, including:

- Hist 101 Western Civilization I (3)
- Hist 102 Western Civilization II (3)
- Hist 103 United States to 1877 (3)
- Hist 104 United States since 1877 (3)
- History electives up to 11 credits from:

RELATIED FIELD CONCENTRATION IN INTELLECTUAL HISTORY, MINOR ONLY

Required: 20 credits Upper Level work approved by the chairs of the History or Philosophy departments.

Such courses as follows may be used:

- Hist 330 The United States: Social and Cultural 19th Century (3)
- Phil 300 Classical Greek and Hellenistic Philosophy (3)
- Phil 301 Medieval Period (3)
- Phil 302 Renaissance to Enlightenment (3)
- Phil 303 Kant and the Nineteenth Century (3)
- Phil 304 Twentieth Century Philosophy (3)
- Phil 305 American Philosophy (3)
- Art 210, 211 Art History I and II (6)
- Art 410 History of Art: Selected Subjects (3)

Courses

101. Western Civilization I. 3 credits. An interpretive survey of Western Civilization from earliest times to the close of the European Middle Ages. F, S

102. Western Civilization II. 3 credits. A comprehensive survey of Western Civilization from the Reformation to the present, with emphasis on movements and institutions common to Western Europe and their influence on the rest of the world. F, S

103. United States to 1877. 3 credits. A survey of early American history, including old world background, transformation of British institutions into American institutions, revolution, and the establishment of the Union with its temporary breakup in Civil War. F, S

104. United States since 1877. 3 credits. A survey of the history of the United States since Reconstruction, including the transformation of an isolationist, agrarian nation into an urban industrial and world power with attention to the resulting domestic social, economic and political changes. F, S

106. Middle Eastern Civilization From Islam to Present Time. 3 credits. A survey history of the civilizations of the Eastern Mediterranean since the rise of Islam to the time of the formation of the present nation states. S/2

204. Canada to 1867. 3 credits. A survey of pre-Confederation Canadian history from the pre-Columbian period to 1867. Particular attention will be paid to the social, economic, and political factors in Europe and North America which shaped Canada’s colonial history occurring since the Civil War. F/2

205. Canada Since 1867. 3 credits. A survey of Canadian history from Confederation to the present. Beginning with an overview of pre-Confederation Canada, this course will focus upon the cultural, economic, and political factors that have shaped Canada in the modern era. S/2

210. United States Military History. 3 credits. A survey from colonial times to the present of the Army’s role in the formulation and implementation of national defense. Attention is given to the Constitutional and legal status of the Army, changing concepts in military organization and training, public attitudes toward the military, and the influences of the Army on American society. Specific wars and battles are studied in terms of military tactics and strategy. F

220. History of North Dakota. 3 credits. A survey emphasizing settlement and development, noting the consequences of the state’s location, climate, and settlers on the situation in which it now finds itself. Special attention is paid to the Nonpartisan League story and the evolution of isolationist sentiment among North Dakotans. Recommended for Social Science major certification. F, S

221. The Scandinavian Countries Since 1500. 3 credits. A survey of Denmark, Norway, Sweden, Finland, and Iceland from the Lutheran Reformation to the welfare state. S/2

230. History of Modern Science. 3 credits. An introductory survey of the origins and development of modern Western science from the Renaissance to the present. Course themes will include the history of the scientific worldview, the early modern Scientific Revolution, the institutional and social contexts of Western science, and the histories of particular issues in the life and physical sciences. F

240. The Historian’s Craft. 3 credits. An introduction to research and writing history. Students will learn critical reading of secondary sources, how to locate and evaluate resources, how to analyze evidence, how to apply the style and form of historiographic writing, and how to utilize methods of research. Students will also study historiographic and typologies of historical writing and practice. F, S

250. The Civil Rights Movement. 3 credits. This course examines the “long” Civil Rights Movement, surveying not only the well-known struggles of the 1954-1965 period, but also significant episodes that came before and after that famous era. Along the way, the class explores contemporary accounts of the movement, how the crusade has been portrayed over the years, how Americans remember the saga nowadays, and civil rights today. S/2

269. World War II. 3 credits. A brief survey of the background, strategy and major campaigns of World War II including some of the diplomatic and political problems encountered by the major belligerents. The course includes extensive use of documentary film. S/2

300. Topics in History. 1 credit. Repeatable to 6. Topics in history which allow the student to study a specialized subject. 4 credits may apply to the history minor; 6 credits to the history major. F, S

301. Medieval Civilization. 3 credits. A survey of the development of Europe from the late Roman Empire to the Renaissance. Emphasis is on political and intellectual developments. S/2

325. The American West to 1890. 3 credits. An examination of major issues in the American West beginning with the trans-Appalachian West and proceeding to the trans-Mississippi West. The course will examine social, political, military, and economic developments in the context of the Western environment. F

326. The American West since 1890. 3 credits. An examination of the major issues in the trans-Mississippi West during the twentieth century. This course will examine social, political and economic developments in the context of the Western environment. S/2

330. The United States: Social and Cultural, 19th Century. 3 credits. A survey of the contributions of social institutions (such as the family, school, and church) to the development of a national culture. The colonial background is considered briefly, but emphasis is given to the first half of the nineteenth century. Changing attitudes toward social reform, individualism, class status, and minorities (such as children, women, blacks, and Indians) are examined. Competing regional trends in economics, social, political, and intellectual attitudes and institutions provide the dynamics for understanding the failure of nationalism during the antebellum period. F/2

332. Women in American History to 1865. 3 credits. A survey of U.S. women's history from the fifteenth century to 1865. The course will examine historical events and their significance for women of diverse cultures and classes. F/2

333. Women in American History since 1865. 3 credits. A study of the history of American women after the adoption of the Thirteenth Amendment to the Constitution. The course will examine historical events and their significance for women of diverse cultures and classes. S/2

334. Nuclear Weapons and the Modern Age. 3 credits. An introduction to the history of: nuclear weapons and their delivery systems, their development and use during World War II, the nuclear arms race between the U.S. and the U.S.S.R., popular disarmament movements, and diplomatic efforts to control nuclear weapons and their proliferation. The final section will deal with the nuclear implications of the end of the Cold War and the development of new nuclear states in the last years of the 20th century. The course will include—from an historian’s point of view—some technical material necessary to a reasonable and realistic understanding of the subject. S/2

335. The United States and Vietnam, 1945-1975. 3 credits. An exploration of Southeast Asian as well as American history. This course will survey briefly the development of Vietnamese culture and nationalism, the history of French imperialism in Indochina as background to an examination of the development of the Vietnamese independence movement, the origins of Vietnamese communism, the war for independence from France, and the violent and tragic relationship between the U.S. and Vietnam from the end of World War II to the final departure of American forces from Saigon. S/2

340. Women in Early Modern Europe. 3 credits. This course surveys women’s experiences in the development of European civilization from the Renaissance to the mid-18th century. The class will examine such issues as perceptions of gender, the role of institutions in defining women’s “place,” women’s contributions to their societies, economies, states and cultures, the realities of their daily lives and their responses to these realities, and the significance for women of such developments as the Renaissance, the Reformation, social revolution, Imperialism, warfare and scientific discoveries. F/2

341. Women in European History Since 1750. 3 credits. This course surveys women’s experiences in the development of European civilization from the mid-18th century to the present. The class will examine such issues as perceptions of gender, the role of institutions in defining women’s “place,” women’s contributions to their societies, economies, states and cultures, the realities of their daily lives and their responses to these realities, and the significance for women of such developments as the industrial revolution, modern political movements, the First and Second World Wars, the Holocaust and the Cold War. F/2

343. Ancient Greece. 3 credits. A study of Greek prehistory and history to the end of the Hellenistic era. Greek achievements in art, commerce, literature, politics, religion, science, and technology are examined. F/2

344. Ancient Rome. 3 credits. A survey of the prehistory, historical development, and ultimate decline in Rome. In addition to inquiries into the military, political, cultural, economic, and religious experiences of the ancient Romans, this course will attempt to delineate those qualities of life that were peculiarly Roman. S/2
345. The Ancient Near East. 3 credits. A course intended to acquaint the student with cultures of the ancient Western Asian world. Egypt, Iran, Iraq, Turkey, and the Levant are the areas emphasized. S/2

349. War in Early Modern Europe. 3 credits. The course examines the “modern military revolution”—the advent of firearms and professional armies—and the effects upon Europe's political, economic, cultural, and social history. The rise of the middle ages through the French Revolution. S/2

350. Europe: The Reformation, 1500-1648. 3 credits. The flow of events and ideas in Europe from the beginning of the Reformation to the end of the religious wars. F/2

351. Europe: Age of Absolutism, 1648-1789. 3 credits. The flow of events and ideas in Europe from the end of the Thirty Years’ War to the French Revolution. S/2

352. Europe: French Revolution and Napoleon Era, 1789-1815. 3 credits. An engagement with that which was to alter Europe in centuries to come: the American and French revolutions and the Napoleonic era. Emphasis will be placed upon the role of social, economic, and political factors which contributed to the Napoleonic era and its aftermath. S

353. Europe, 1815-1914. 3 credits. A study of such movements as industrialism, nationalism, socialism, and Imperialism, developing the theme that those who sought to change behavior, institutions, frontiers, or governments from 1815 to 1848 employed different strategies. After the 1848 revolutions that swept over Europe, a new “toughness of mind” emerged and those seeking to effect change became more practical and pragmatic, as manifested, for example, in Marxism and Realpolitik. F/2

355. Europe Since 1918. 3 credits. A survey of European history from 1914 to the present, with emphasis on the issues, institutions, and problems confronting Europeans after the Great War of 1914-1918, a war that was fought “to make the world safe for democracy,” but which simultaneously was an event that signalled the end of the “European age,” a period during which Europeans and their institutions had exerted a dominant influence around the world. S/2

362. Modern China. 3 credits. A survey of the political, economic, social, and intellectual history of China from the Opium War (1842) until the present. Special attention will be paid to the problems of modernization of traditional societies and to the nature of fundamental social revolution.

370. African-American History to 1877. 3 credits. This course begins with an examination of when and why the idea of race first developed; it then surveys colonial slavery, the impact of the American Revolution on race relations, and the slave community during the antebellum period. We will also consider the lives of free blacks in the North and South, as well as the similarities and differences between U.S. and Latin American slave societies. The role of Negroes in Reconstruction, this nation's experiment in interracial democracy. Through lecture, discussion, projects, and writing assignments, History 370 highlights both the tribulations and triumphs of African Americans.

371. African-American History since 1877. 3 credits. This course begins with a brief overview of Reconstruction; it then examines Populism, the entrenchment of Jim Crow segregation, and the philosophies of Booker T. Washington and W.E.B. DuBois. We also explore the impact of World War I on African Americans, as well as the Great Migration, the Harlem Renaissance, and the Great Depression/War II era. Several weeks are devoted to the Civil Rights and Black Power Movements, and the course concludes with an examination of contemporary race relations. A mixture of lectures, discussion, projects, and writing assignments, History 371 emphasizes both the travails and triumphs of African Americans since 1877, and endeavors to discover (and cultivate) the forces which promote racial equality and social justice. S

381. Modern Africa. 3 credits. This course will survey Africa’s history from the earliest times to the present. The majority of the class will focus upon the period from 1500 to the present and will explore how both internal and external forces shaped Africa’s history, especially in the 19th and 20th centuries. The class will spend time discussing the current problems and opportunities of Africa to present the students with a broad understanding of globalization. S/2

397. Cooperative Education. 3 credits. May be repeated to a maximum of 9 credits. A practical work experience with an employer closely associated with the student’s academic area. 3 credits repeatable to 9. Arranged by mutual agreement among student, department, and employer. S,U grading only. F, S, SS

399. Selected Topics in History. 2-3 credits. Selected topics in history which allow the student to study a specialized subject. Credits may apply to history major or minor. F/2

403. The United States: The Colonial Period. 3 credits. A survey of the back-ground of British colonization, the development of diverse colonial cultures, and the transformation in maturing provincial societies of the European heritage. The seven-teenth-century Age of Faith and the eighteenth-century Age of Reason are contrasted to illustrate the changing attitudes of Americans toward themselves and Britain. The un-derlying theme is long-range causes of American independence. F

404. The United States: Revolutionary Era, 1760-1789. 3 credits. A survey of the immediate causes of the American Revolution, with emphasis upon the incompatibil-ity of American and British constitutional and ideological views. American techniques of propaganda and political warfare are analyzed; military history is deemphasized. The results of independence are discussed in terms of the changing attitudes reflected in the Decla ration of Independence, the Articles of Confederation, and the Constitution. S

405. The United States: Age of Jefferson and Jackson, 1789-1850. 3 credits. A study of the political, diplomatic, economic, and social history of the federal government and a new nation, the United States. The growth of sectionalism and the simultaneous growth of sectional forces which brought the new nation to the brink of Civil War. F/2

406. The United States: Civil War and Reconstruction, 1850-1877. 3 credits. A study of the acceleration of the forces of sectionalism and racism that caused the tempo rary breakdown of the American democratic process and the tragedy of Civil War and Reconstruction. S/2

407. The United States: Rise of Industrial America, 1877-1917. 3 credits. A survey of the rise of America to industrial and world power. Emphasis is placed upon the great changes which the Industrial Revolution brought and the American response to these changes. Detailed attention is given to the Populist and Progressive movements. F/2

408. The United States, 1920-1945. 3 credits. A study of American society from the end of World War II through the Korean War. Emphasis will be placed upon the role of the United States in several of the major world events that characterized the period. S

413. The United States Since 1945. 3 credits. An advanced examination of the United States as it has developed from the height of its power, influence, and prosperity through years of upheaval, cultural mainstreams, economic decline. F/2

416. Russia to 1855. 3 credits. A survey of Russia’s political, economic, and cultural developments before the beginning of modern reforms and the growth of revolu tionary ideas.

419. Great Britain Since 1815. 3 credits. A survey of British history since 1815 with an emphasis on the state of mind known as “Victorian,” as it was manifested, prac ticed, or criticized in the nineteenth century; its influence on economics, politics, for eign affairs, and social policy; and its vestiges in modern-day Britain. F/2

418. The British Empire, 1848-1884. 3 credits. A course which focuses on the Imperial history from the Tudors to the “Scramble for Africa.” Particular attention will be paid to the social, economic, and political factors which shaped Britain’s Imperial history as well as the history of its colonies. F

419. The British Empire and Commonwealth, 1884-present. 3 credits. A survey of British Imperial history from the “Scramble for Africa” to the present. Beginning with an overview of the early Empire, this course will focus upon the cultural, economic, and political factors which shaped and led to the deconstruction of the Empire/Commonwealth in the modern era.

424. European Witch Trials. 3 credits. An examination of the development and content of European witch-beliefs and persecution, from their origins in antiquity and the middle ages through the dawn of the modern era. Emphasis upon witchcraft as a social, legal, and cultural phenomenon. F/2

425. American Family in Historical Perspective. 3 credits. This course is designed as a survey of the family over the nation’s first 400 years of existence. Course members will examine variations in the structure of the family, changes in the definition of the family, and the forces which brought about significant alterations in this most basic of social institutions, taking into consideration race, culture, and gender. S

431. Seminar in the History of the Great Plains. 3 credits. This course focuses on the Plains of North America through reading, discussion, research, and writing. Students will examine all aspects of Great Plains history including culture, environment, social organization, economics, and politics from the ancient past to the present. S/2

440. Research. 3 credits. In this course, students will design and conduct a major research project. Students will examine the history of a specialized subject. Credits may apply to history major or minor. F/S

450. European Social History. 3 credits. This course will cover the methods, historiography, and problems of European social history. The course is divided into three periods: for topical contexts, the French Regime, the Age of Revolution, and the Twentieth Century. There are several fairly specific skills students will develop, all of which can loosely be organized under the general heading of “how historians think:” to be able to distinguish between a primary and a secondary source; to be able to analyze a primary source within its appropriate historical context; to be able to locate the thesis or argument in a secondary source and to be able to offer an informed evaluation of that argument; to be able to read a secondary source within its particular context as part of a larger discussion of facts, individuals, events, etc.; and to be able to construct a sound historical thesis/argument of their own, whether in writing or class discussions. F/2

460. The Atlantic World. 3 credits. This is a comparative world history course that focuses upon the cultural, economic, social, political, ideological and religious interaction, competition, conflict and change between Western Europe, West Africa, and the Americas. The course will begin in the 1400s by examining the foundations of Eu ropean expansion and end with the revolutions of the Americas and Europe in the late 18th and early 19th centuries. A major focus of the class will be cultural interaction, the slave trade, and the foundations of the modern world system. F

485. United States-Canadian Relations, 1776 to the Present. 3 credits. This course explores the historical relationships linking and dividing Canada and the United States of America since 1774. Because of the unique constitutional and diplomatic status of British North America and then Canada itself, this course examines the often complex triangular relationships between the U.S., Canada, and Great Britain. F/2

488. Introduction to Public History. 3 credits. An introduction to public history at federal, state, and local levels. Emphasis is given to archival theory, oral history, museum studies and historic preservation, with attention to awareness of historical resources.

489. Public History Practice. 3 credits. A practicum in which the student learns through experience the techniques of public history work. S/2

498. Senior Honors Thesis. 1-15 credits; total not to exceed fifteen. Prerequisite: consent of the Chair of the Honors Committee. Supervised independent study culminating in a thesis, F, S

494. Readings in History. 1-3 credits. Repeatable to 6. F, S
Histotechnician Certificate Program

http://pathology.med.und.nodak.edu/histotech/index.cfm

Droog, Hoffman, Paur (Program Director) and Sens (Chair)

The Histotechnician Certificate Program at the University of North Dakota is within the Department of Pathology. It is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), which is located at 8410 W. Bryn Mawr Ave., Suite 670, Chicago, IL 60631-3415, 773-714-8880.

Histotechnology professionals are qualified to provide service and research in histotechnology and related areas in the rapidly changing and dynamic healthcare delivery system. Histotechnicians have diverse and multi-level functions in the areas of analysis and clinical decision-making, information management, regulatory compliance, education, and quality assurance/performance improvement wherever anatomic pathology testing is researched, marketed, developed or performed.

Histotechnology professionals perform, develop, evaluate, correlate and assure accuracy and validity of laboratory testing and procedures; direct and supervise anatomic pathology laboratory resources and operations; and collaborate in the diagnosis and treatment of patients. They possess skills for financial management, operations, marketing, and human resource management of the histopathology laboratory.

Histotechnology professionals practice independently and collaboratively, being responsible for their own actions, as defined by the profession. They have the requisite knowledge and skills to educate laboratory professionals, healthcare care professionals, as well as the public in laboratory practice.

The ability to relate to people, a capacity for calm and reasoned judgment, and a demonstration of commitment to the patient are essential qualities. Communication skills extend to consultative interactions with members of the health care team, external relations, customer service and patient education.

Histotechnology professionals demonstrate ethical and moral attitudes and principles that are necessary for gaining and maintaining the confidence of patients, professional associates, and the community (source: “Guide to Accreditation for Histotechnician Programs” National Accrediting Agency for Clinical Laboratory Sciences.)

The UND admission and advance placement policies, as well as the policies for special examination/ validation for credit, are included in the Academic Catalog or on the UND website at: www.und.edu.

Admission Requirements/Admission to the Histotechnician Certificate Program required prerequisites: verification of at least a 2.8 GPA and successful completion of the following courses with a C or better:

- Social Science, Humanities or Composition, 3 credits
- Introduction to Chemistry, 4 credits
- Concepts of Biology, 4 credits
- Math at the high school or college level

The requirements for entrance into the Histotechnician Certificate Program include verification of acceptance by a clinical site that meets the specifications for acceptance in the Histotechnician Certificate Program.

At least 60 credits of post-secondary coursework are recommended before applying for admission to the Histotechnician Certificate Program.

Curriculum:

Path 360 .......... Histology Laboratory Theory* ........................................ (3)
Path 361 .......... Histology Laboratory Technique** .................................. (1)
Path 361 .......... Histotechniques I* ......................................................... (3)
Path 362 .......... Histotechniques II* ....................................................... (3)
Path 367 .......... Histology Clinical Practicum I** .................................... (3)
Path 368 .......... Histology Clinical Practicum II* .................................... (3)
* Online course
**Clinical Internship at accredited medical center

Exceptions for acceptance of students may be made by petition to the Department of Pathology Professional and Academic Standards Committee at the University of North Dakota School of Medicine and Health Sciences.

Upon successful completion of the program the student will receive a Histotechnician Certificate from UND and will have met the eligibility requirements for the national certification examination.

All students registered in the Histotechnician Certificate courses have a specific Histotechnician tuition assessed; additional information may be obtained from the Clinical Laboratory Science office (701-777-2634).

Courses

360. Histology Laboratory Theory. 3 credits. This course presents an overview of standard histopathology laboratory practices including laboratory calculations, safety, quality assurance, information management, laboratory education, instrumentation, and proper specimen collection and handling.

361. Histology Laboratory Technique. 1 credit. Techniques and practice in use of general laboratory equipment, reagents and procedures utilized in histology.

362. Histotechniques I. 3 credits. This course is the introduction to the fundamental techniques, including fixation, processing, instrumentation, and solution preparation. Cytoplasmic, nuclear, carbohydrate, and amyloid staining will be presented.

363. Histotechniques II. 3 credits. This course is the continuation of the fundamental techniques of histology including muscle and connective tissue, nerves, microorganisms, pigment, minerals, cytoplasmic granules, immunohistochemistry, and enzyme histochemistry.

367. Histology Clinical Practicum I. 3 credits. Communication skills, attitude and work performance will be evaluated. The skills involved will emphasize the fundamental techniques including fixation, specimen processing, instrumentation, sectioning and staining with emphasis on the Hematoxylin and Eosin stain.

368. Histology Clinical Practicum II. 3 credits. Individual assignments in an accredited histology lab. Emphasis on refining skills learned in Histology Practicum I, staining procedures and tissue identification.

Honors (Hon)

http://www.und.edu/dept/honors/

S. Pyle, Program Director

For a full description of the Honors Program, see the University Information section.

GRADUATION AS A SCHOLAR IN THE HONORS PROGRAM

Required 125 credits (36 of which must be numbered 300 or above and 60 of which must be from a 4-year institution), including:

I. Twenty-four credits of Honors coursework, eight of which must be taken in col- loquia. Honors sections of courses offered by other departments may also count for a portion of the 24 credits. Nine senior Honors thesis credits, to be taken over a minimum of two semesters, also count toward the 24 credits.

II. Sophomore Honors Portfolio, submitted upon completion of nine Honors credits.

III. Senior Honors thesis.

Note: Honors Program requirements may substitute for the University Essential Studies Requirements.

Courses

101. Inquiry in the Humanities. 1-4 credits. Prerequisite: admittance to the Honors Program. Reading and discussion of selected works that reflect the methodology and concerns of the humanities; orientation to methods of Honors work. Normally taken by first-year students in the Honors Program. F.S
The Humanities Program also administers the Integrated Studies Program, a nationally-known, award-winning interdisciplinary Essential Studies program for first year students. See the Integrated Studies Program listing for more information.

Courses

101. Introduction to Humanities I. 4 credits. This course is designed to introduce beginning university students to the major disciplines of the Humanities: literature, philosophy, history, religion, drama, music, and art. The literature chosen each semester will vary, often focusing on a central theme. Class time will be used to discuss the texts and students will be expected to attend events in the fine arts.

102. Inquiry in the Social Sciences. 1-4 credits. Prerequisite: admittance to the Honors Program. Readings and discussion of selected works that reflect the methodology and concerns of the social sciences; orientation to methods of Honors work. Normally taken by first-year candidate-members of the Honors Program.

135. Advanced Colloquium in the Humanities. 1-4 credits, repeatable. Prerequisite: admittance to the Honors Program. Advanced interdisciplinary courses on varying topics related to the sciences; student participation in the form of writing, research, and discussion is stressed. FS

224. Integrated Social Science Inquiry. 2-4 credits. Readings and discussion of selected works that reflect the methodology and concerns of the social sciences; integration of social science topics and methods with other Integrated Studies courses/topics.

271. Integrated Studies General Science. 3 credits. An exploration of the nature of science, with the aim of discovering how scientists employ powerful epistemological methods in order to construct a body of cumulative knowledge that represents a fairly accurate, although always tentative, approximation of external reality. This course examines the inextricable conceptual connections which link and unify seemingly disparate sciences.

271L. Integrated Studies General Science Lab. 1 credit. Pre- or corequisite: HUM 271. Three-hour weekly laboratory to complement HUM 271. Students will design and implement experiments.


308. Writing Across Disciplines. 3 credits. Prerequisites: Engl 120 or permission of department. This course will provide students who have completed Engl 120 an upper-level, intense writing experience that focuses on methods and strategies of writing in the humanities, social sciences, and sciences. Students will engage in the process of integrating disciplinary materials and writing tactics as well as formulating written responses to topics of current concern. On demand.

391. Advanced Humanities Seminar. 1-4 credits. An interdisciplinary reading, writing and discussion course whose focus varies from semester to semester, but which draws on texts from the Humanities, Social Sciences, and Sciences.
Indian Studies
(IS)

http://www.und.edu/dept/indian/
Braun, Gagnon and Hans (Chair)

The Indian Studies curriculum at the University of North Dakota has been established to meet needs both on the campus and throughout the state. The major and minor, combined with other subject matter concentrations, are intended to provide: (1) a more complete understanding of Indian history and culture, (2) practical experiences in Indian communities, (3) a basis for employment in either reservation or non-reservation settings, and (4) background for graduate work in Indian Studies. The degree of Bachelor of Arts is offered through the College of Arts and Sciences. For the greater University community, the courses in Indian Studies, together with the research conducted or sponsored by the Department, provide an expanded approach to the study of American history. Another purpose of the program is to enable the University to serve the reservation communities, especially in their educational and human service programs. As the Indian Studies program develops, more basic information, teaching materials, technical data, and staff assistance will be available to Indian schools, programs, and Indian leaders.

College of Arts and Sciences

B.A. WITH MAJOR IN INDIAN STUDIES

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

A. Required courses - 12 hours:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 121</td>
<td>Introduction to Indian Studies</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 240</td>
<td>Research and Writing in Indian Studies</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 410</td>
<td>Identity in Native North America</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 420</td>
<td>Federal Indian Law and Policy</td>
<td>(3)</td>
</tr>
</tbody>
</table>

6 hours from Literature, Languages and Cultures:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 220</td>
<td>Indians in Children’s Literature</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 250</td>
<td>Lakota Language I</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 251</td>
<td>Lakota Language II</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 255</td>
<td>Survey of Native American Art</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 350</td>
<td>American Indian Languages</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 352</td>
<td>American Indian Philosophical Thought</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 360</td>
<td>Oral Traditions in American Indian Cultures</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 265</td>
<td>Native American Literature</td>
<td>(3)</td>
</tr>
</tbody>
</table>

6 hours from History and Government:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 201</td>
<td>History of the Sioux</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 203</td>
<td>History of the Chippewa</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 207</td>
<td>History of the Three Affiliated Tribes</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 331</td>
<td>Traditional Plains Indian Cultures</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 370</td>
<td>North American Indians</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 415</td>
<td>History of American Indian Education</td>
<td>(3)</td>
</tr>
</tbody>
</table>

6 hours from Contemporary Issues:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 330</td>
<td>Contemporary Plains Indian Cultures</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 346</td>
<td>American Indian Women</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 371</td>
<td>Reservation Government and Politics</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 380</td>
<td>Indians in the 21st Century</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 385</td>
<td>American Indian Economic Development</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 388</td>
<td>American Indians and Ecology</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Special Permission:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 494</td>
<td>Independent Study</td>
<td>(1-3)</td>
</tr>
<tr>
<td>IS 492</td>
<td>Directed Readings</td>
<td>(1-3)</td>
</tr>
<tr>
<td>IS 430</td>
<td>Internship</td>
<td>(1-3)</td>
</tr>
</tbody>
</table>

Summer:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 121</td>
<td>Introduction to Indian Studies</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 151</td>
<td>White Images of Native Americans</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 171</td>
<td>Hollywood Indians</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 425</td>
<td>Tribal Colleges</td>
<td>(3)</td>
</tr>
</tbody>
</table>

B. A concentration in another area or field:

(1) Proficiency in a language (equivalent to Level IV in a Native American or other language).
(2) A minor in another subject matter field.
(3) In special instances, a supplementary concentration of at least 24 hours can be arranged between the student and the faculty of the Department. These concentrations are designed for students to obtain coursework in areas which complement the major.
(4) Certification for teaching in the public schools. (It should be noted that at present Indian Studies is not a certifiable major. Thus, one must complete the requirements for a composite Social Science or another certifiable teaching major, as well as take the professional education foundations courses required of teacher candidates. Courses in Indian Studies may serve as an area of concentration in the Social Science major.)

MINOR IN INDIAN STUDIES

Required 22 credits including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 121</td>
<td>Introduction to Indian Studies</td>
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<tr>
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<tr>
<td>IS 410</td>
<td>Identity in Native North America</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 420</td>
<td>History of Federal Indian Law and Policy</td>
<td>(3)</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>(10)</td>
</tr>
</tbody>
</table>

Courses

121. Introduction to Indian Studies. 3 credits. Introduction to content, concepts and methods of Indian Studies courses, with emphasis on a survey of subject matter designed to provide a foundation for further study. F/S

151. White Images of Native Americans. 3 credits. European settlers had firm notions of what tribal peoples on the American continent were like before even leaving Europe. This course will show how these stereotypes and ethnocentrism were perpetuated in various genres and fields, e.g. captivity tales, fiction, historical accounts, sociology, etc. Finally, students will analyze some recent examples of these stereotypes and ethnocentrisms in print and film. F/S

171. Hollywood Indians. 3 credits. A summer class exploring the portrayal and roles of American Indians in feature films from the early 20th century to the early 21st century, and what we can learn from these films. SS

201. History of the Sioux. 3 credits. This class introduces the societies and cultures of Siouan speakers over time, focusing mostly on Lakota/Dakota groups, with an emphasis from the 17th century to the early 20th century. F

203. History of the Chippewa. 3 credits. A study of the development of Chippewa (Anishinabe, Ojibwe) society from its origins to the present. Topics include origin traditions, development of cultural distinctiveness, relations with other tribes and with French, English, and Americans, treaties, and current political, cultural, and economic status. S

207. History of the Three Affiliated Tribes. 3 credits. A survey of the history of the Mandan, Hidatsa, and Arikara people. The first part of the course deals with the history of the separate tribes, and the second part is concerned with their corporate history since 1862. S

212. Trade in Native North America. 3 credits. How did and do cultures interact with their environment? This class provides answers from cultural ecology and a focus on historical and contemporary North American Indian societies. On demand.

220. Indians in Children’s Literature. 3 credits. Students will be introduced to the joys of children’s literature with a focus on American Indian literature. Learning will include reading and reviewing Indian subject books appropriate for pre-school, elementary, and secondary children; applying criteria for the selection of appropriate books; and practicing evaluative writing. Outstanding authors, illustrators, and books will be featured and discussed. Students will learn to analyze the issues involved in ethnic literature including stereotyping, insensitivity, and accuracy. S

240. Research and Writing in Indian Studies. 3 credits. The course will introduce students to professional writing in Indian Studies. The final goal is for students to turn out a 20-25 page research paper in an area of interest to them. S

250. Lakota Language I. 3 credits. This is the first of two Lakota language classes for beginning speakers. On demand.

251. Lakota Language II. 3 credits. Prerequisite: IS 250 or permission. This is the second of two Lakota language classes for beginning speakers. On demand.

255. Survey of Native American Art. 3 credits. Examination of the methods, materials, and techniques of Native American visual arts, music, dance, and drama.

311. Health and American Indian Cultures. 3 credits. The course investigates cultural perceptions of health as well as specific historic and contemporary health problems in indigenous communities in Canada and the United States. On demand.

330. Contemporary Plains Indian Cultures. 3 credits. The second of two classes providing an overview of the history and cultures of the indigenous societies of the Great Plains, this course focuses on the 20th century. S

331. Traditional Plains Indian Cultures. 3 credits. The second of two classes providing an overview of the history and cultures of the indigenous societies of the Great Plains, this course focuses on the 20th century. F

346. American Indian Women. 3 credits. An examination of the historical and contemporary traditions, roles, contributions, and issues concerning Indian women. S
350. Native American Languages. 3 credits. This course provides an overview of Native American languages, the connection of culture to language, an introduction to socio-linguistics, and other discussions of language structure and linguistics as they pertain to Native North America. F

352. Native American Philosophical Thought. 3 credits. Introduces students to the complex and rich "religions" of Native American tribes as well as to the Church of Native Americans and the Native American Religious Freedom Act. Both traditional and contemporary belief systems and their influence are discussed. F

360. Oral Traditions in American Indian Cultures. 3 credits. Despite all predictions that they would disappear, American Indian oral traditions are as strong today as ever before. This course will introduce students to the complexities, richness, and conventions of different oral traditions as well as to the collecting process. F

370. North American Indians. 3 credits. Examines the development and evolution of American Indian societies in North America. Students will learn about the cultures of American Indian tribes, tribal interactions, and key aspects of American Indian history. The course begins with origin traditions and archaeological knowledge concerning original migration patterns of Paleo-American Indian, Archaic, and Woodland Eras and then moves to the development of tribes. Tribal relationships with European colonists and the United States will be examined through the development of reservations and the emergence of reservation sovereignty. F

371. Reservation Government and Politics. 3 credits. Places the more than 300 tribal governments in the context of Indian and United States history. Examines the development of contemporary tribal governments with emphasis on their place as the third form of government in the United States. The concepts of sovereignty, tribal jurisdiction, and the efforts of federal governments to govern will be analyzed with attention to the characteristics of contemporary Indian societies. Attention will be given to Indian political cultures. F

379. Special Topics. 1-3 credits. (Repeatable when topics vary). Topics and credits will vary with availability of staff, and with student interest. Students must secure permission of instructor prior to registration. S

380. Indians in the Twenty-First Century. 3 credits. More than 563 federally recognized tribes and 2.4 million American Indians entered the 21st century. Indians have a unique status within the United States resulting from history. This course examines the unique status and its origins, explores the issues, both positive and negative, that face American Indians and their governments, and explores the place of Indians within the United States. Topics include: the legacies of Indian cultures and federal policies, tribal governments and their interactions with state and federal governments, health and wellness issues, social developments, and urban Indians. F

385. American Indian Economic Development. 3 credits. The course explores American Indian economic development issues, initiatives, and concepts as they are linked to globalization and global social, economic, cultural, and political issues. S

388. American Indians and Ecology. 3 credits. How did and do cultures interact with their environment? This class provides answers from cultural ecology with a focus on historical and contemporary North American Indian societies. F

410. Identity in Native North America. 3 credits. The course investigates concepts, denials, and inventions of identity in Native North America, from federal definitions of personhood and society. S

415. History of American Indian Education. 3 credits. Throughout the centuries of American Indian and white contact, American Indian education advocated by the colonial and federal governments as well as by various combinations of Native people, the changing attitudes, stereotypes, and ethnocentrism of Europeans and EuroAmericans toward American Indian peoples. This course will examine the changing policies of the federal government, the attitudes of the various combinations, and examine the historical changes in the educational system. F

420. History of Federal Indian Law and Policy. 3 credits. Knowing the foundations of American Indian law and policy is necessary for understanding contemporary Indian relationships within the United States. This course analyzes the policies of the United States toward American Indians and their governments since 1781. Students will learn the key components of imperialism, colonialism, Self-Government, Termination and Self-Determination policies. Students will learn the meaning of the Marshall decisions, treaties and key federal court decisions that shape American Indian law and the cultural-political philosophies that guided them. Emphasis will be on the impact of federal Indian law on Indians and their governments. S

425. Tribal Colleges and Higher Education. 3 credits. This course examines the phenomenon of the development and operations of tribal colleges since the 1960s and their place in higher education. Emphasis will be on the missions of tribal colleges, their effects on tribal societies, and aspects of tribal college strengths and concerns. Students will conduct research on various facets of tribal colleges and tribal college students. SS

430. Internship in Indian Studies. 3 credits. Prerequisite: instructor permission. Internship will provide opportunities for students to have meaningful experience related to their field of interest within Indian Studies. Students will work with Native American related public or private sector sponsors such as tribal programs, businesses including tribal businesses on a reservation, and various state or private agencies serving Indian populations and causes. Individual learning agreements approved by the Indian Studies faculty and sponsoring supervisors specify student goals, objectives, and methods of assessment. It is expected that students will be of service to the sponsor. Internships may be paid. F,S,SS

494. Independent Study in Indian Studies. 1-3 credits. Maximum 9 credits. Consent of Instructor required. F,S,SS
MINOR IN INFORMATION SYSTEMS

22-23 semester hours, including:
- ISys 117 ** Personal Productivity with Information Technology ** (3)
- ISys 260 Operating Systems Principles* ............................ (3)
- ISys 305 End-User Applications* ........................................ (3)
- ISys 317 Information Systems in Enterprise .......................... (3)
- ISys 330 Relational Database Design** ................................. (3)
- CSCI 120 Computer Programming I (Visual Basic) ............... (4)
  or
- CSCI 160 Computer Science I (Java) ................................... (4)
  Electives: .......................... .......................... .......................... (9)
- ISys 300 and/or 400 level courses: Not to include ISys 397, 411, 420, or 497
* Prerequisite: ISys 117 required for all CoBPA majors
** Prerequisite: ISys 305 and CSCI 120

College of Education and Human Development

MINOR IN OFFICE ADMINISTRATION

(Not available for Information Systems majors)
- 23 hours, including:
  - ISys 117 Personal Productivity with Information Technology .................. (1)
  - ISys 305 End-User Applications ........................................ (2)
  - ISys 315 Records and Information Management ............................ (3)
  - ISys 317 Information Systems in Enterprise ................................ (3)
  - ISBE 320 Professional Communication for Business ...................... (3)
  - Mgmt 300 Principles of Management .................................... (3)
  Elect eight hours from courses in ISBE/ISys and/or from the College of Business and Public Administration.

Courses

117. Personal Productivity with Information Technology. 1 credit. Introductory lab-based course covering basic computer hardware, operating systems, software, and Microsoft Office tools. F,SS

260. Operating Systems Principles. 3 credits. Prerequisite: ISys 117. An introduction to a variety of computer operating systems. Emphasis placed on terminology, concepts, system commands, architecture, maintenance, and troubleshooting. Hands-on experience with operating systems and operating environments such as Windows, DOS, UNIX, OS400, and Windows NT Workstation and Server. F,SS

305. End-User Applications. 3 credits. Prerequisite: ISys 117. Development of proficiency in the use of end-user software applications with emphasis on spreadsheet and database. Spreadsheet applications include solutions for typical business situations using functions, macros and linking. Database applications include development of and querying of databases, linking, generating forms and reports, and developing menus. F,SS

308. Information Resource Administration. 3 credits. Introduction to information management and office management concepts and technologies including office automation, office facilities development, technology selection and implementation, office systems and procedures analysis, and office personnel supervision. F

315. Records and Information Management. 3 credits. Stresses the systematic design and control over the creation, distribution, utilization, retention, storage, protection, preservation, and final disposition of records. Examination of the management of recorded information on a variety of media, including paper, microfilm, magnetic, optical, and electronic records. Costs and systems analysis, electronic filing, computer-assisted retrieval, micrographics, forms management, and imaging systems are also discussed. F,SS

317. Information Systems in Enterprise. 3 credits. Pre- or corequisite: ISys 117. Major emphasis on information technology, enterprise systems and business processes, database management, decision support systems, strategic information systems, and the utilization of these technologies as productive business professionals. F,SS

ISBE 320. Professional Communication for Business. 3 credits. An overview of the communication process, including composition of business letters and reports, use of computer technologies, strategies for oral communication and listening, as well as a brief review of writing mechanics. Clear, concise, effective presentation and logical organization of business messages are emphasized. F,SS

330. Relational Database Design. 3 credits. Prerequisites: ISys 305, CSCI 120, Comp Prog I: Visual Basic I. Stresses design and utilization of databases, emphasis on both minicomputer and microcomputer database development environments, integrity and security issues. Project oriented. S

370. Internet/Intranet Development. 3 credits. Prerequisite: Sophomore, Junior, Senior or higher standing. A survey of information systems development using Internet/Intranet technologies. This is a course that requires a great deal of outside work. F

411. Information Systems Seminar. 3 credits. Prerequisites: ISys 315, 340, 420; ISBE 320. The capstone course for the Information Systems major. Students will use the knowledge gained from previous Information Systems courses to participate in seminars, case studies, simulations, and field experience projects involving present and emerging information systems topics. F,S

420. Systems Analysis and Design. 3 credits. Prerequisite: ISys 330. A survey of current practices in the development of information systems. Topics may include structured systems analysis and design, joint application development, prototyping, rapid application development, end-user development, and change theory and control. Project oriented. F

430. Relational Database Development. 3 credits. Prerequisites: ISys 330, 420 and CSCI 120 or 160. Corequisite: ISys 420. Focus on development of information systems that rely on relational databases for data storage and retrieval. Topics may include advanced SQL, embedded SQL, Oracle, SQL Server, Cold Fusion, Advanced Visual BASIC, and COBOL. Project oriented. F

460. Advanced Networking. 3 credits. Prerequisite: ISys 360. An in-depth study of networking protocols, planning, design, security, workstation and server management, RAS, performance tuning, troubleshooting, and when possible, enterprise level network topics. S

ISBE 497. Internship in Information Systems and Business Education. 1-6 credits. On-the-job work experience in business, education, or industry. One credit is earned on the basis of 15 hours per week per semester of occupational experience. S/U only. F,SS

499. Special Topics. 1-3 credits, repeatable to 12 credits. Topics will be selected on the basis of currency and relevancy to student needs. On demand.

Integrated Studies

http://www.und.edu/dept/integr8/

Barrentine, Carmichael (Coordinator),
LaPierre and Magness

(The permanent faculty is supplemented by faculty from other University departments.)

A nationally-known, award-winning program, the Integrated Studies Program is housed in the Humanities Program at the University and provides a unique way to take the Essential Studies classes which UND requires. Students who take classes through Integrated Studies (ISP) will take three to five courses each semester; all courses help students fulfill Essential Studies requirements necessary for all University undergraduate degrees. (See University ESR listing for information.) Each semester students receive credit from the following Essential Studies categories: Arts and Humanities; Communications; Social Sciences; and Math, Science, and Technology. Additional credits each term may also be offered in the Arts and Humanities category. Information on most course offerings can be found under the Humanities Department listing.

Below is an example of the Essential Studies requirements for undergraduates and the credits offered during one semester of ISP. Both a fall and a spring semester experience in the Program are offered; the total number of credits and their category distribution are similar each semester.

<table>
<thead>
<tr>
<th>Department</th>
<th>Required Credits at UND</th>
<th>Credits offered in one ISP Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Arts and Humanities</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Math, Science, Technology</td>
<td>12</td>
<td>3</td>
</tr>
</tbody>
</table>

To emphasize and build connections between disciplines, all class activities and discussions are organized around a central theme. Class meetings include a variety of small group settings in which discussion among students is emphasized. In addition, students enrolled in these classes form a supportive learning community: they spend the entire semester studying the same materials together and form close relationships with each other and with the faculty team. The Program provides students an opportunity to hone skills such as:

- Integrating topics from classes together, as well as with their daily lives
Interdisciplinary Studies

The Interdisciplinary Studies program offers students a unique opportunity to pursue a major that combines courses from two or more disciplines. The program fosters learning, scholarship, and discovery and allows students to take advantage of new and emerging fields and topics of study. The University of North Dakota is fortunate to have faculty with sufficient breadth and depth of knowledge to provide a foundation for interdisciplinary studies. Students can take charge of their own education by designing a plan of study focusing on a topic of interest, in consultation with an adviser and with the consent of the Director of Interdisciplinary Studies and the program’s executive committee. In these individualized tracks, students will undertake an in-depth study of a topic area of their choice that synthesizes information and research from two or more disciplines. General requirements for the major are described below. Interested individuals should contact the Director of Interdisciplinary Studies for further information.

College of Arts and Sciences

B.A. WITH MAJOR IN INTERDISCIPLINARY STUDIES

Required 125 credits, 36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution including:

I. Essential Studies Requirements. It is recommended that students include at least one semester, if not a full year, of Integrated Studies.

II. A minimum of 36 credits, including:

IDS 280 Learning Across Disciplines .................................................. (3)
IDS 491 Capstone Interdisciplinary Seminar ...................................... (1-3, not repeatable)
IDS 498 Senior Project ...................................................................... (3, repeatable to 6)

The remainder of the 36 credits will be chosen from appropriate specified disciplines, including 12 or more hours from one discipline.

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution including):
INTERNATIONAL STUDIES MINOR

I. Required Courses:

- Geog 161 World Regional Geography (3)
- Poli 220 Introduction to International Politics (3)
- Anth 171 Cultural Anthropology (3)
- Hist 102 Western Civilization II (3)
- Relig 203 World Religion I (3)

II. Three (3) credits from the following, or a substitute course, which is non-English in its primary orientation, with permission from the International Studies academic advisor:

- Hist 106 Middle Eastern Civilization (3)
- Hist 362 Modern Chinese Civilization (3)

III. The minor must contain at least three credits of upper division coursework which may come from additional courses or from substitution for one of the above courses with the approval of the International Studies Academic Adviser.

IV. Other courses may be substituted only with the consent of the International Studies academic adviser.

V. Language required: Level III proficiency.

Languages: Department of Modern and Classical Languages & Literatures (Lang)

http://www.und.edu/dept/lang/

Benoit, Berne, Berry, Berwald (Chair), Boyd, DuBois, Erickson, Fleshman, Gjellstad, Koprince, Maury, Mosher, Nelson, Routon and Worley

The Department of Modern and Classical Languages and Literatures offers study in Chinese, French, German, Latin, Norwegian, Russian, and Spanish. See Indian Studies 250 and 251 for study of Native American languages of North Dakota. Majors are offered in Chinese, Classical Studies, French, German, Norwegian, or Spanish. Minors are offered in Chinese Studies, Classical Studies, French, German, Norwegian, Russian, and Spanish.

Coursework is divided into Lower and Upper Divisions. Lower division courses introduce students to languages and cultures. They also satisfy general education requirements, as do select upper division courses. Upper division courses focus on literary, linguistic, theoretical and cultural studies and are taught in the target languages unless otherwise indicated.

The Department encourages international study through departmentally approved programs. It is recommended that students who are seeking credit for previous foreign study take the placement test. It also recommends students for various awards for superior academic performance, especially the Arneberg and the Larsen Foreign Travel Scholarships.

Foreign Language Placement & Credit Test

Students with a background in a foreign language which is currently taught in the Languages Department at UND may receive credit by taking a test in that language through the Languages Department. It is strongly recommended that students take this test during pre-registration or registration. Students who take it later than the end of their first semester in residence will need to see the Language Lab Director for the appropriate petition form, and will need to petition to establish eligibility. Students who are enrolled in a language course and wish to take the Foreign Language Placement & Credit Test in that language must take it during the first two weeks of the semester.

Credits earned through the Foreign Language Placement & Credit Test do not satisfy the World Cultures General Education Requirement. See University GER listing.

Credit earned through College Level Examination Program (CLEP) tests may be recognized by UND. See CLEP listing.

Students who have completed French, German, Latin, or Spanish Advanced Placement (AP) courses with appropriate scores may also receive credit. This credit is normally equivalent to Levels I and II in that language. See Advanced Placement listing.

Native speakers of a language other than English who wish to take classes in that language may enroll without special permission in any 400-level course, or in any 300-level course which emphasizes literary or cultural topics. Native speakers must obtain the permission of the department, however, to enroll in any 300-level course which emphasizes language instruction, or in any lower-division course. Incoming students whose native language (as indicated on their TOEFL exam) is one offered at UND should consult the Director of the Language Laboratory (M-306) about automatic waiver of the language placement examination.

College of Arts and Sciences

B.A. WITH A MAJOR IN A LANGUAGE

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4 year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. Humanities requirements:

- History 101 Western Civilization I (3)
- History 102 Western Civilization II (3)
- English courses beyond College Composition II (4)

III. Additional requirements for licensure in French, German or Spanish:

- Advanced Grammar (with grade no lower than B) (2)
- A course in civilization of the country or countries in which the language is spoken is also strongly recommended.

IV. Admission to the Teacher Education program, normally while taking T&L 250. (See College of Education and Human Development for admission and licensing requirements.)

V. The program in Secondary Education, to include:

- T&L 250 Introduction to Education (3)
- T&L 252 Child Development (3)
- T&L 339 Technology for Teachers (2)
- T&L 345 Curriculum Development and Instruction (3)
- T&L 386 Field Experience (Optional) (1)
- Lang 400 Methods and Materials of Teaching Middle and Secondary School Foreign Languages (3)
- T&L 432 Classroom Management (3)
- T&L 433 Multicultural Education (3)
- T&L 486 Field Experience (1)
- T&L 487 A full semester of student teaching, normally taken during the semester of graduation (16)
- T&L 488 Senior Seminar (1)

Language majors seeking teacher licensure must have an adviser in both the Languages Department and the Department of Teaching and Learning.

*T&L 390, Special Topics, may be taken as an elective (supervised by Languages Department Faculty).

CHINESE STUDIES

B.A. WITH A MAJOR IN CHINESE STUDIES

Required: 35 credits distributed between Parts A and B as follows.
MINOR IN CHINESE STUDIES: LANGUAGE AND CULTURE

Required: 23 credits distributed between Parts A and B as follows:

**Part A: Language Requirements (8 credits)**

Chin 101 .... First Year Chinese I .............................................................. (4)
Chin 102 .... First Year Chinese II .......................................................... (4)

**Part B: Area Studies (15 credits selected from the following courses)**

Chin 201 .... Second Year Chinese I .............................................................. (4)
Chin 202 .... Second Year Chinese II .......................................................... (4)
Chin 303 .... Chinese Overseas Immersion .................................................. (12)
Chin 305 .... Chinese Culture through Films .............................................. (3)
Chin 306 .... Introduction to Chinese Calligraphy ....................................... (3)
Chin 312 .... Topics in Chinese Culture ......................................................... (3)
Chin 405 .... Traditional Chinese Literature in Translation .......................... (3)
Chin 406 .... Modern Chinese Literature in Translation ............................... (3)
Hist 362 .... Modern China ....................................................................... (3)
Rels 315 .... Daoism and Confucianism ..................................................... (3)
Rels 380 .... Buddhism ............................................................................. (3)
Phil 283 .... Asian Philosophy ................................................................ (3)
Geog 463 .... Regional Geography (China) ............................................... (3)
BAdm 316 .... Introduction to Business in China ........................................ (3)
BAdm 318 .... China Then and Now .............................................................. (3)
BAdm 497 .... Internship in China (SU only) ................................................. (6)

Other courses may be substituted with the consent of the Chinese Studies academic advisor.

**CLASSICAL STUDIES**

**B.A. WITH A MAJOR IN CLASSICAL STUDIES**

Required: 36 credits distributed between Parts A and B as follows:

**I. Essential Studies Requirements (see University ES listing).**

**Part A: Language requirement (16 credits)**

A student may fulfill the language requirement in one of three ways:

**Option 1, Latin:**

Class 101 .... First Year Latin I ................................................................. (4)
Class 102 .... First Year Latin II ................................................................. (4)
Class 201 .... Second Year Latin I ............................................................... (4)
Class 202 .... Second Year Latin II .............................................................. (4)

**Option 2, Greek:**

Class 151 .... First Year Greek I ................................................................. (4)
Class 152 .... First Year Greek II ................................................................. (4)
Class 251 .... Second Year Greek I ............................................................. (4)
Class 252 .... Second Year Greek II ............................................................ (4)

**Option 3, Greek and Latin:**

Class 101 .... First Year Latin I ................................................................. (4)
Class 102 .... First Year Latin II ................................................................. (4)
Class 151 .... First Year Greek I ................................................................. (4)
Class 152 .... First Year Greek II ................................................................. (4)

**Part B: Courses in classical civilization, literature, culture (20 credits)**

The remaining 20 credits should be chosen from the following. A minimum of 15 credits must be at the 300 level or above.

Art 420 .... Greek and Roman Art ............................................................ (3)
Class 185 .... Introduction to Classical Mythology ..................................... (3)
Class 301 .... Latin Prose ........................................................................ (3)
Class 362 .... Masterpieces of Latin Literature ........................................... (3)
Class 364 .... Special Topics in Classical Literature ................................... (3)
Class 404 .... Latin Poetry ....................................................................... (3)
Hist 101 .... Western Civilization .............................................................. (3)
Hist 343 .... Ancient Greece ................................................................. (3)
Hist 344 .... Ancient Rome ................................................................. (3)
Hist 345 .... The Ancient Near East ......................................................... (3)
Hum 102 .... Introduction to the Humanities .............................................. (3)
Phil 300 .... Classical Greek and Hellenistic Philosophy ......................... (3)
Phil 301 .... Medieval Philosophy ............................................................ (3)
Pols 311 .... Development of Political Thought ......................................... (3)
Rels 228 .... Early Christian Traditions .................................................... (3)
Rels 230 .... New Testament ................................................................ (3)

Additional 100- and 200-level Latin courses, other than those used to satisfy Part A*

Additional 100- and 200-level Greek courses, other than those used to satisfy Part A*

*Other courses as approved by Classical Studies adviser

**MINOR IN CLASSICAL STUDIES**

Required: 28 credits distributed between Parts A and B as follows:

**Part A: Language requirement (16 credits)**

A student may fulfill the language requirement in one of three ways:

**Option 1, Latin:**

Class 101 .... First Year Latin I ................................................................. (4)
Class 102 .... First Year Latin II ................................................................. (4)
Class 201 .... Second Year Latin I ............................................................... (4)
Class 202 .... Second Year Latin II .............................................................. (4)

**Option 2, Greek:**

Class 151 .... First Year Greek I ................................................................. (4)
Class 152 .... First Year Greek II ................................................................. (4)
Class 251 .... Second Year Greek I ............................................................. (4)
Class 252 .... Second Year Greek II ............................................................ (4)

**Option 3, Greek and Latin:**

Class 101 .... First Year Latin I ................................................................. (4)
Class 102 .... First Year Latin II ................................................................. (4)
Class 151 .... First Year Greek I ................................................................. (4)
Class 152 .... First Year Greek II ................................................................. (4)

**Part B: 12 credits are to be selected from the courses listed below — 9 of these credits must be at the Upper Division level (300 or above).**

Art 420 .... Greek and Roman Art ............................................................ (3)
Class 185 .... Introduction to Classical Mythology ..................................... (3)
Class 301 .... Latin Prose ........................................................................ (3)
Class 362 .... Masterpieces of Latin Literature ........................................... (3)
Class 364 .... Special Topics in Classical Literature ................................... (3)
Class 404 .... Latin Poetry ....................................................................... (3)
Hist 101 .... Western Civilization .............................................................. (3)
Hist 301 .... Medieval Civilization ............................................................ (3)
Hist 343 .... Ancient Greece ................................................................. (3)
Hist 344 .... Ancient Rome ................................................................. (3)
Hist 345 .... The Ancient Near East ......................................................... (3)
Hum 102 .... Introduction to the Humanities .............................................. (3)
Phil 300 .... Classical Greek and Hellenistic Philosophy ......................... (3)
Phil 301 .... Medieval Philosophy ............................................................ (3)
Pols 311 .... Development of Political Thought ......................................... (3)
Rels 228 .... Early Christian Traditions .................................................... (3)
Rels 230 .... New Testament ................................................................ (3)

Additional 100- and 200-level Latin courses, other than those used to satisfy Part A*

Additional 100- and 200-level Greek courses, other than those used to satisfy Part A*

*Other courses as approved by Classical Studies adviser

**CLASSICAL STUDIES**

Courses (Clas)

101. First Year Latin I. 4 credits. Introduction to Latin grammar and syntax, with selected readings from ancient authors. F
102. First Year Latin II. 4 credits. Prerequisite: Clas 101 with a grade of C or better. Continued study of Latin grammar and syntax, with selected readings from ancient authors. S
151. First Year Greek I. 4 credits. Introduction to ancient Greek grammar and syntax, with selected readings from ancient authors. On demand.
152. First Year Greek II. 4 credits. Prerequisite: Class 151 with a grade of C or better. Continued study of ancient Greek grammar and syntax, with selected readings from ancient authors. Grade of “C” or better in Class 151 recommended. On demand.

185. Introduction to Classical Mythology. 3 credits. Study of literary and artistic representations of Greek and Roman mythology. Different methods of interpreting myths will also be explored. These include anthropological, philosophical and psychological approaches. On demand.

201. Second Year Latin I. 4 credits. Prerequisite: Class 102 or equivalent. Conclusion of basic grammar and introduction to Latin authors, such as Ciceron, Nepos, Petronius, or Phaedrus. F

202. Second Year Latin II. 4 credits. Prerequisite: Class 201 or equivalent. Readings in Latin literature such as the works of Catullus, Ovid, or Vergil. S

251. Second Year Greek I. 4 credits, not repeatable. Prerequisite: Class 152 or equivalent. Conclusion of basic grammar and introduction to ancient Greek authors, such as Plato, Lysias, Xenophon, or Euripides. On demand.

252. Second Year Greek II. 4 credits. Prerequisite: Class 251 or equivalent. Selected readings from works of ancient Greek literature, such as Homer’s Iliad or Plato’s Ion. May be repeated, with permission of the instructor, up to eight credits. On Demand.

301. Latin Prose. 3 credits; repeatable to 9. Prerequisite: Class 202 or equivalent. Readings from major prose authors, such as Apuleius, Cicero, Sallust, Seneca, Livy, Petronius or Tacitus. On demand.

362. Masterpieces of Latin Literature. 3 credits. Readings in English translation. A survey of some of the major works of Latin literature, including, for example, Vergil’s Aeneid, Ovid’s Metamorphoses, the speeches of Cicero, and the history of Livy. On demand.

364. Special Topics in Classical Literature. 3 credits. May be repeated, with change of topic, up to 9 hours. Study of a specific author, genre (e.g. epic, tragedy, comedy), or special theme (e.g. war, the perception of women) in Greek and/or Latin literature. On demand.

401. Seminar in Latin Literature, (CNN) 3 credits; repeatable to 6. Prerequisite: Class 202 or equivalent. Close translation and critical analysis of a major work of Latin literature. Students will be encouraged to pursue their own topics of interest and to develop those topics into an oral presentation and/or paper. On demand.

403. Individual Greek and Latin Readings. 1-4 credits. Prerequisite: Class 252 or 202 or equivalent. Topic to be determined by the interest of the student and instructor. May be taken only with the consent of the department. May be repeated up to a total of 8 credit hours. On demand.

MODERN LANGUAGES

Chinese

Courses (Chin)


102. First Year Chinese II. 4 credits. Prerequisite: Chin 101 with a grade of C or better. Continued study of fundamentals of Chinese grammar, oral use of the language and reading of easy Chinese. S

201. Second Year Chinese I. 4 credits. Prerequisite: Chin 102 or equivalent. Bring students’ Chinese proficiency to the intermediate level through intensive training in reading, writing, listening and speaking. F

202. Second Year Chinese II. 4 credits. Prerequisite: Chin 201 or equivalent. Bring students’ Chinese proficiency to the intermediate level through intensive training in reading, writing, listening and speaking. S

303. Chinese Overseas Immersion. 3-12 credits variable, repeatable to 24 credits. This course, offered in China/Taiwan allows further improvement in Chinese language proficiency and significant understanding of Chinese culture through coursework and first-hand experience. F/S

305. Chinese Culture through Films. 3 credits. Help students understand traditional and modern Chinese cultural values through examining films and readings. F

306. Introduction to Chinese Calligraphy. 3 credits. Provide students significant exposure to Chinese culture through appreciation of a variety of script styles and practices in Kaishu “block.” S

312. Topics in Chinese Culture. 3 credits, repeatable to 9 credits when topics vary. Introduction to various aspects of Chinese culture. On demand.

405. Traditional Chinese Literature in Trans. 3 credits, repeatable to 9 credits when topics vary. Introduction to genres and topics in Chinese literature, and significant pre-1911 Chinese works. F/S

406. Modern Chinese Literature in Trans. 3 credits, repeatable to 9 credits when topics vary. Introduction to genres and topics in Chinese literature, significant post-1911 Chinese writers and their works. S/S

498. Senior Project. 1 credit. Prerequisites: Senior standing and completion of coursework for Chinese Studies major or consent of Chinese Studies advisor. A capstone project designed by students, in consultation with their advisor, which reflects an integrated knowledge of various aspects of Chinese culture. S/U grading only. On demand.

French

A B.A. with a major in French requires a minimum of 21 credits with at least 6 credits in each of the following areas: Grammar & Writing (Fren 301, 302, 413); Literature & Civilization (Fren 371, 372, 373, 491, 494); Culture & Conversation (Fren 304, 305, 306, 307, 340, 491, 494). The following courses are required: Fren 301, 302, 304, 305, 306.

A French minor consists of Fren 301, 302, 304, 305, 306 and a minimum of 2 additional credit hours selected from Upper Division courses for a total of 14 credits.

Students interested in business may obtain a minor in French by taking Fren 301, 305, 306, 340 and a minimum of 4 additional credits of Upper Division courses for a total of 14 credits.

International study is encouraged; scholarships are available through the Department. All majors are required to take on campus a minimum of 3 hours in each of the three areas (see above), regardless of the number of credits acquired through transfer, including international study. All minors are required to take on campus a minimum of 3 hours in at least two of the areas (see above).

Courses (Fren)

101. First Year French I. 4 credits. Introduction to speaking, reading, writing and listening comprehension with a focus on understanding the diversity of our world’s natural heritage as found in the Francophone world. F, S

102. First Year French II. 4 credits. Prerequisite: Fren 101 with a grade of C or better, French placement exam or consent of instructor. A continuation of the fundamentals of speaking, reading, writing and listening comprehension with a focus on world issues arising in Francophone countries from the encounter between cultural heritage and natural heritage. F, S

101. Second Year French I. 4 credits. Prerequisite: Fren 102, with a grade of C or better, French placement exam or consent of instructor. Fundamentals of French grammar with an emphasis on speaking, reading, writing and listening comprehension and a focus on Francophone world organizations and the solutions they offer to world issues. This course is taught primarily in French. F

102. Second Year French II. 4 credits. Prerequisite: Fren 201 with a grade of C or better, French placement exam or consent of instructor. Review of the structure of the French language, continued practice of oral and written expression, introduction to phonetics, and Francophone literatures as a reflection of culture. This course is taught primarily in French. S

301. Third Year French I. 3 credits. Prerequisite: Fren 202 with a grade of C or better. French placement exam or consent of instructor. Review of French grammar with an emphasis on written expression and a focus on readings, films and cultures. This course is taught in French. F

302. Third Year French II. 3 credits. Prerequisite: Fren 301 or equivalent. Grammar review and introduction to literature. Emphasis on reading and writing skills. S

305. French Conversation and Culture. 2 credits. Prerequisite: Fren 202 or consent of instructor. A conversational approach to civilization and contemporary culture. Emphasis on oral skills. F

306. French Conversation and Culture. 2 credits. Prerequisite: Fren 202 or consent of instructor or Fren 305. Contemporary world issues from a French perspective. F

307. A Social and Cultural History of Quebec. 3 credits. Prerequisites: Fren 202 with a grade of C or better, French placement exam or consent of instructor. This course focuses on the case of Quebec as an example of North American cultural diversity. It addresses how geography, history, language, ideology, religion and ethnicity help explain cultural differences and their construction of a cultural state. On demand.

318. Individually Arranged Study Abroad. 1-12 credits, repeatable to 12. Prerequisite: Permission of Department. Participation in individually arranged programs of study abroad. For major or minor credit, the language used abroad must correspond to the language being studied at UND. The Department reserves the right to test the student upon his or her return to Grand Forks. S/U grading only. On demand.

319. University Sponsored Study Abroad. 1-12 credits, repeatable to 12. Prerequisite: Lang 102 or equivalent. Participation in UND-sponsored programs of study abroad. For major or minor credit, the language used abroad must correspond to the language being studied at UND. Repeatable when programs or topics within a program vary. On demand.

340. Business French. 3 credits. Prerequisite: Fren 202 with a grade of C or better, French placement exam or consent of instructor. Oral and written practice with terminology and idioms used in commerce and business correspondence. Readings on such topics as banking, employment, markets, production, services, trade and practices in the French business world. On demand.

371. History of French Literature. 3 credits. Prerequisite: Fren 302, or consent of instructor. French literature from its origins to 1700; representative works with lectures, outside readings and reports. On demand.

372. History of French Literature. 3 credits. Prerequisite: Fren 302 or equivalent. French literature from 1700 to the present day; representative works with lectures, outside readings and reports. On demand.

373. French-Canadian and Quebec Literature and Thought. 3 credits. Prerequisites: Fren 302. A survey of French-Canadian and Quebec authors who express the consciousness and universal themes associated with being French in North America. On demand.
A major in German for the Bachelor of Arts (B.A.) degree includes a minimum of 21 semester credit hours of Upper Division (German 300-400) course work: Germ 307, 308, 407, 408, and three additional courses (Germ 304, 312, 403, 404, 406, 409, 413, LANG 318 or 319). In addition, at least eight credit hours of course work in fields related to German approved by the faculty adviser in Languages are required.

Students interested in business may obtain a minor in German by completing Germ 307, 308, and one additional course (Germ 304, 312, LANG 318 or 319).

Majors and minors are encouraged to make their interests known, including interest in studying in a German-speaking area in Europe, for which UND may grant academic credit. In addition to the departmental Arneberg and the Larsen scholarships awarded to students in several languages including German, the Max Kade, Stoltz and Rogers scholarships and the Boswa Endowment Fund are awarded exclusively to qualified students of German.

Courses (Germ)

101. First Year German I. 3 credits. Fundamentals of German grammar, oral use of the language and reading of easy German. F, S
102. First Year German II. 4 credits. Prerequisite: Germ 101 with a grade of C or better. Continued study of fundamentals of German grammar, oral use of the language and reading of easy German. F, S
201. Second Year German I. 4 credits. Prerequisite: German 102, or equivalent. Review of the structure of the language, practice in oral and written expression and reading in German. F
202. Second Year German II. 4 credits. Prerequisite: German 201 or equivalent. Review of the structure of the language, practice in oral and written expression and reading in German. S
304. German Phonetics. 3 credits. Prerequisite: German 201 or equivalent. Intensive pronunciation practice leading to proper German sound articulation and to a thorough knowledge of the principles of German pronunciation and intonation. S
307. Third Year German. 3 credits. Prerequisite: Germ 307 or equivalent. Further improvement of the fourth language skills: listening, writing, reading and speaking. Thorough grammar review. F
308. Third Year German. 3 credits. Prerequisite: Germ 307 or equivalent. Further improvement of the four language skills: listening, writing, reading and speaking. Thorough grammar review. S
312. Topics in German Culture. 3 credits. Prerequisite: Germ 202 or equivalent.

Lang 318. Individually Arranged Study Abroad. 1-12 credits, repeatable to 12. Prerequisite: Permission of Department. Participation in individually arranged programs of study abroad. For major or minor credit, the language used abroad must correspond to the language being studied at UND. The Department reserves the right to test the student upon his or her return to Grand Forks. S/U grading only. On demand.

Lang 319. University Sponsored Study Abroad. 1-12 credits, repeatable to 12. Prerequisite: Lang 102 or equivalent. Participation in UND-sponsored programs of study abroad. For major or minor credit, the language used abroad must correspond to the language being studied at UND. Repeatable when programs or topics within a program vary. On demand.

403. German Film. 3 credits. Prerequisite: Germ 308 or equivalent. Survey of the major contributions to "New German Cinema (1970's to 1990's)." Attention to film as an artistic medium and to the cinematic representation of German history and culture. F/2
404. Topic in German Literature. 3 credits, repeatable to 9 credits. Prerequisite: German 308 or equivalent. Topics vary: Literary periods, literary genres, individual authors, or interdisciplinary projects. Repeatable when topics vary. S/2
406. German Literature in Translation. 3 credits, repeatable to 9 credits. Introduction to major intellectual and artistic achievements of German civilization from the Middle Ages to the present, emphasizing the arts in the context of history and philosophy. Repeatable when topics vary. S/2
407. Fourth Year German. 3 credits. Prerequisite: Germ 308. Continuing and strengthening the skills practiced in third year German. May be repeated with instructor's permission if course content changes. F

408. Fourth Year German. 3 credits. Prerequisite: Germ 407. Continuing and strengthening the skills practiced in third year German. May be repeated with instructor's permission if course content changes. S
409. German Life and Civilization. 3 credits, repeatable to 9 credits. Introduction to major intellectual and artistic achievements of German civilization from the Middle Ages to the present, emphasizing the arts in the context of history and philosophy. Repeatable when topics vary. F/2
413. Advanced German Grammar Review. 3 credits. Prerequisite: Germ 308 or equivalent. Written composition and oral practice, with a review of those aspects of grammar which need most practice on the advanced level. F
419. Individual German Readings. 1-3 credits. May be repeated to a total of six hours. Prerequisite: German 308 or equivalent. May be taken only with the consent of the department. F, S

Norwegian

A major in Norwegian includes the following Upper Division courses: Norw 431, 432, 433, 434; a minimum of 8 credit hours selected from Norw 350, 403 and 494; and at least 8 credit hours of approved course work in related fields.

A minor in Norwegian requires 9 credits selected from Norw 431, 432, 433, and 434, plus a minimum of 3 additional credit hours selected from Norw 350, 403 and 494.

Courses (Norw)

101. First Year Norwegian I. 4 credits. Introduction to the basic Norwegian language skills: reading, writing, speaking and listening; fundamentals of grammar. F
102. First Year Norwegian II. 4 credits. Prerequisite: Norw 101 with a grade of C or better. Basic Norwegian language skills; continuation of fundamentals of grammar. S
201. Second Year Norwegian I. 4 credits. Prerequisite: Norw 102 or equivalent. Selected cultural and literary readings, review of the structure of the language, and continued development of readings, writing, speaking, and listening skills. F
202. Second Year Norwegian II. 4 credits. Prerequisite: Norw 201 or equivalent. Selected cultural and literary readings, continued review of the structure of the language and development of language skills. S

Lang 318. Individually Arranged Study Abroad. 1-12 credits, repeatable to 12. Prerequisite: Permission of Department. Participation in individually arranged programs of study abroad. For major or minor credit, the language used abroad must correspond to the language being studied at UND. The Department reserves the right to test the student upon his or her return to Grand Forks. S/U grading only. On demand.

350. Norwegian Culture. 3 credits. Taught in English. Open to non-majors. A systematic analysis of Norwegian culture through the centuries. F
403. Great Literary Works of Norway. 3 credits. Taught in English. Open to non-majors. Reading and analysis of selected texts by a major Norwegian author. S
431. Advanced Norwegian. 3 credits. Prerequisite: Norw 202 or equivalent. Reading of selected works by leading Norwegian authors, interpretation and discussion. F/2
432. Advanced Norwegian. 3 credits. Prerequisite: Norw 202. Reading of selected works by leading Norwegian authors, interpretation and discussion. F/2
433. Norwegian Literature. 3 credits. Prerequisite: Norw 202. Norwegian literature, with special attention given to recognized masterpieces, past and present. F
434. Norwegian Literature. 3 credits. Prerequisite: Norw 202. Norwegian literature, with special attention given to recognized masterpieces, past and present. S/2
494. Individual Norwegian Readings. 1-3 credits. May be repeated to a total of six hours. Prerequisite: six credits of other 400-level Norwegian courses. May be taken only with the consent of the department. F, S

Russian

A minor in Russian includes Russ 301 and 302, plus a minimum of four additional credit hours from among: Russ 161, 162, 494, Lang 318 or 319. With the permission of the department, other relevant courses may be elected to fulfill the requirements for a minor in Russian.

Courses (Russ)

101. First Year Russian I. 4 credits. Fundamentals of Russian grammar, oral use of the language and reading of easy Russian. F
102. First Year Russian II. 4 credits. Prerequisite: Russian 101 with a grade of C or better. Continued study of fundamentals of Russian grammar, oral use of the language and reading of easy Russian. F
161. Introduction to Russian Literature. 3 credits. An introduction to Russia's writers of the 19th and 20th centuries. In English, but students with adequate language preparation may do some assignments in Russian. On demand.
162. Introduction to Russian Culture. 3 credits. A survey of Russian culture with emphasis on the 19th and 20th centuries. In English, but students with adequate language preparation may do some assignments in Russian. On demand.
201. Second Year Russian I. 4 credits. Prerequisite: Russian 102 or equivalent. Review of the structure of the language, readings in Russian, practice in oral and written expression. F
202. Second Year Russian II. 4 credits. Prerequisite: Russian 201 or equivalent. Review of the structure of the language, readings in Russian, practice in oral and written expression. S

301. Third-Year Russian. 3 credits. Prerequisite: Russian 202 or equivalent. Intensive oral drill, short readings, systematic review of grammar. Emphasis on developing a practical command of spoken Russian. F, S

302. Third-Year Russian. 3 credits. Prerequisite: Russian 301 or equivalent. Intensive oral drill, short readings, systematic review of grammar. Emphasis on developing a practical command of spoken Russian. S, F

304. Independent Study. 1-3 credits, repeatable to 6 credits. Prerequisites: Russian 202 or equivalent. Supervised independent study. May be taken only with consent of instructor. F, S

450. Individual Russian Readings. 1-3 credits. Prerequisite: Russian 302 or equivalent. May be repeated to a total of six hours. May be taken only with the consent of the department. F, S

Spanish

A major in Spanish includes the following courses beyond Lower Division work: Span 304 or 450, 307, 308, 309, 310, 311, 414 or 416; three courses from Span 420, 421, 422, 423; and a minimum of six credit hours selected from other Upper Division courses, of which at least three credit hours must be at the 400 level.

A major in Spanish with a field in teaching includes the following courses beyond Lower Division work: Span 304, 307, 308, 309, 310, 311, 450; three courses from Span 420, 421, 422, 423; and a minimum of six credit hours selected from other Upper Division courses (300-400 level).

A minor in Spanish includes the following courses beyond Lower Division work: Span 308, 309, 310 and 311 and a) 307 and 4XX (literature option) or b) 304 and 450.

Courses (Span)

101. First Year Spanish I. 4 credits. Pronunciation and fundamental grammatical principles introduced through the development of skill and listening comprehension and speaking, followed by practice in reading and writing.

102. First Year Spanish II. 4 credits. Prerequisite: Span 101 with a grade of C or better. Continued study of pronunciation and fundamental grammatical principles through the development of skill in listening comprehension and speaking, followed by practice in reading and writing.

201. Second Year Spanish I. 4 credits. Prerequisite: Span 202 or equivalent. Review of the structure of the language, readings in Spanish, practice in oral and written expression.

202. Second Year Spanish II. 4 credits. Prerequisite: Span 201 or equivalent. Review of the structure of the language, readings in Spanish, practice in oral and written expression.

304. Spanish Phonetics. 3 credits. Prerequisite: Span 202 or equivalent or permission of instructor. A theoretical and practical approach to Spanish pronunciation.

312. Spanish Composition. 3 credits. Prerequisite: Span 202 or equivalent or permission of instructor. An introduction to the analysis of Hispanic literature, with particular emphasis on poetry, novel, and drama.

308. Spanish Conversation. 3 credits. Prerequisite: Span 202 or equivalent. Practice in a variety of forms of oral Spanish.

309. Spanish Composition. 3 credits. Prerequisite: Span 202 or equivalent. Practice in a variety of forms of written Spanish.

310. Spanish Civilization and Culture. 3 credits. Prerequisite: Span 202 or equivalent or permission of instructor. Readings, lectures and discussions in Spanish civilization and culture.

311. Spanish American Civilization and Culture. 3 credits. Prerequisite: Span 202 or equivalent or permission of instructor. Readings, lectures and discussions in Spanish American civilization and culture.

312. Spanish for the Professions. 3 credits. Prerequisites: Span 202 or equivalent or permission of the instructor. A study of terminologies, cultural contexts, and professional etiquette. Topics will vary.

331. Individually Arranged Study Abroad. 1-12 credits, repeatable to 12. Prerequisite: Permission of Department. Participation in individually arranged programs of study abroad. For major or minor credit, the language used abroad must correspond to the language being studied at UND. The Department reserves the right to test the student upon his or her return to Grand Forks. S/U grading only.

319. University Sponsored Study Abroad. 1-12 credits, repeatable to 12. Prerequisite: Lang 102 or equivalent. Participation in UND-sponsored programs of study abroad. For major or minor credit, the language used abroad must correspond to the language being studied at UND. Repeatable when programs or topics within a program vary.

331. Foreign Literature in Translation. 1 to 3 credits, may be repeated to a maximum of 6 credits. The faculty in the various foreign languages will lead reading and discussion of English translations of their fields of specialty. Course may be taken in partial fulfillment of the Humanities requirement, but would not apply toward a language major or minor. Topics to be announced. F, S

333. Colloquium in Language and Letters. 1 to 3 credits, may be repeated to a maximum of 2 hours of credit no more than 2 hours may result from participation in the French Manito Program. 1 credit, 333a. regular grading; 333b. S/U grading. Prerequisites: Language 102 or equivalent. Special subjects to be announced. F, S

389. Honors Tutorial. 2 to 4 credits. Prerequisites: Language 302 or equivalent and consent of the department. Supervised independent study of topics of mutual interest to students and members of the departmental faculty. May apply toward graduation with Senior Honors. On demand.

397. Cooperative Education in Language. 1-6 credits, repeatable to 6. Prerequisites: Recommendation of language unit and approval of Department. Compensated and practical work experience in various areas of the language of study. Coop credits may not be substituted for any required course. S/U grading only. F, S, SS

400. Methods and Materials of Teaching Middle and Secondary School Foreign Language. 3 credits. Prerequisites: T&L 325 and T&L 345; Corequisite: T&L 456. Various teaching methods, strategies and materials used in teaching middle and secondary school foreign language. F

489. Senior Honors Thesis. 1 to 15 credits; total not to exceed fifteen. Prerequisite: consent of the Department and approval of the Honors Committee. Supervised independent study culminating in a thesis. F, S

Leadership Minor (Lead)

Leadership Minor

http://www.und.edu/dept/leadership

Ruthig (Advisor)

The minor in leadership offers both theoretical and experiential components, provides in-depth instruction on desired qualities of leaders and on the application of such qualities, and provides the
courses and experiences necessary for UND graduates to serve as leaders in their community and professions. For further information, contact Dr. Joelle Ruthig, Department of Psychology (phone: 777-3553; e-mail: joelle.ruthig@un.dodak.edu).

Total requirement for the minor is 20 credits, including the following required courses (13 credits):

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEAD 101</td>
<td>Introduction to Leadership</td>
<td>(3 cr)</td>
</tr>
<tr>
<td>Comm 212</td>
<td>Interpersonal Communication</td>
<td>(3 cr)</td>
</tr>
<tr>
<td>LEAD 400</td>
<td>Advanced Leadership</td>
<td>(4 cr)</td>
</tr>
<tr>
<td>Ethics</td>
<td>(chosen from Phil 370, 372, 373, or Rels 342)</td>
<td>(3 cr)</td>
</tr>
<tr>
<td>Elective</td>
<td>Courses</td>
<td>(7 cr)</td>
</tr>
</tbody>
</table>

To be chosen in consultation with the minor advisor from courses that have significant leadership components and are educationally appropriate to meet the goals of the student and the program.

Courses

101. Learning Leadership. 3 credits. An introduction to leadership as a discipline including the theories of leadership, the role of leadership in history and today's society, communication and interaction with diverse individuals and groups, basic network-building concepts and assessment of application of leadership theory and skills. F, S

400. Advanced Leadership. 4 credits. Prerequisites: LEAD 101, completion of one ethics course, and enrollment in the minor. An in-depth analysis of the applications of leadership skills in a variety of contexts, including an experiential analysis of self (and others) as a leader within context. Students will demonstrate creative and critical thinking about leadership, communicate effectively in oral and written format, and apply networking concepts and leadership skills in an applied setting. S

Linguistics (Ling)

http://www.und.edu/dept/linguistics/

Linguistics courses are taught through a cooperative program between UND and SIL. International during a nine-week summer session. Introductory courses are at the undergraduate level, and advanced courses are at the graduate level. While the University currently has no undergraduate degree program in linguistics, it is possible for students to have a concentration in languages and linguistics as English majors, and an undergraduate minor in linguistics is in the process of being developed (contact SIL or the English department for its current status).

Students wishing to take SIL courses should apply directly to SIL, preferably by April 15 (April 1 for non-U.S. citizens). Application and other information is available at: http://www.und.nodak.edu/dept/linguistics/, or call 1-800-292-1621. The chair of the linguistics program is Albert Bickford, SIL-UND, 16131 N. Vernon Dr., Tucson, AZ 85739 (director_silund@sil.org). During the summer, further information is available from the SIL office on campus (777-0575).

Other departments also offer undergraduate courses relevant to linguistics, especially CSD, English and Languages.

MINOR IN LINGUISTICS

Emphasizing both cognitive understanding and analytical skills, the undergraduate minor in Linguistics provides an introduction to the scientific study of language, as a supplement to a student’s primary academic concentration. It is to provide a foundation for a graduate degree or other further education in linguistics or related fields, and to prepare students for informed decision-making about language-related issues in their daily life and civic responsibilities. The courses are offered in four core subfields of linguistics: phonetics, phonology, morphology, and syntax with focus on a broad range of languages, especially minority languages, in addition to other subfields, including interdisciplinary and applied subjects. Required coursework: 20 credit hours, including three core courses and one course in a non-Indo-European language. Prerequisite: Engl 209 Introduction to Linguistics (3 credit hours).

Management

As part of the College of Business and Public Administration, the Department of Management provides courses in the fundamentals of organizations and management, emphasizing both theory and practice of management concepts. Students are exposed to current information concerning the study and practice of business management. Students develop an understanding of current management concepts and practices, build problem-solving and communication skills, and appreciate the ethical implications of managerial work. Topics of interest in management include: decision-making and planning; organizing processes and resources for effective action; leading and motivating organization members; and the impact of technology in the workplace and the competitive environment. The faculty are dedicated, motivated, caring, experienced, and academically and professionally qualified; value meaningful student-faculty interaction; and search out and uses current instructional resources and methods. Management faculty also emphasize expanding the boundaries of theory, practice, and teaching by engaging in basic, applied, and instructional research and providing service to the university, business, professional, and local communities.

The Department of Management offers a comprehensive undergraduate program in management through a variety of courses in organizations and management theory, human resources, operations and production management, and strategic management. The purpose of the program is to prepare the student for the challenges of modern management by providing an overall understanding of the basic functions of management as well as appropriate skills and problem-solving methods. The program introduces the student to the complexities of organizational variables and provides an appropriate framework for examining various institutions and the external environment in which these units operate. The Management department provides students with several majors in which they may specialize, including: Human Resource Management; Management; and Operations and Supply Chain Management. In addition, Airport Management and Aviation Management are offered through the College of Business and Public Administration in cooperation with the John D. Odegard School of Aerospace Sciences.
MAJORS

B.B.A. With A Major In Human Resource Management

The Human Resource Management major is designed to prepare students to take on the role of human resource professional in today’s organizations. Many organizations, large and small, have employees dedicated to making certain the organization is hiring, developing and retaining, its human capital. Key topics in the major include recruiting, selecting, compensating, training, and appraising employees as part of strategic human resource management practices.

The courses in this major follow guidelines developed by the Society for Human Resource Management and the Association to Advance Collegiate Schools of Business, and are designed to prepare students to move directly into positions of responsibility in human resource management.

B.B.A. With A Major In Operations and Supply Chain Management

The Operations and Supply Chain Management major provides students with the knowledge and skills to assist in the design, implementation, and control of efficient and effective supply chains. The success of many firms depends upon their ability to work with suppliers, distributors, customers, intermediaries, and service providers worldwide. Developing a firm’s supply chain network, including the relationships and technology necessary to have the network operate and adapt efficiently and effectively, can be the difference between success and failure for many manufacturing and service firms. This major provides students with quantitative and conceptual tools that will facilitate effective management of their organization’s operations and supply chains.

B.B.A. With A Major In Management

The UND Management program develops student’s ability to analyze and solve problems confronting today’s for-profit and not-for-profit organizations. Students learn about decision-making and planning, organizing resources and work processes, leading groups, and managing technology. The Management curriculum is broad enough to prepare students for a variety of career opportunities. Surveys of past graduates identify this breadth as a major strength of the program. In addition to coursework, many management students also pursue internship opportunities with businesses. The program provides a background of professional education for general management or human resource careers in retail, manufacturing, banking, aviation, health care, public service, and other fields where sound management skills are important.

B.B.A. With A Major In Airport Management

The Airport Management curriculum is offered to those students seeking employment in administrative positions with companies in and related to the groundside activities of the aviation industry. All aspects of general aviation, air carrier and the total aviation industry will be studied in-depth with sufficient flexibility in courses to allow the student to concentrate in a particular area of the industry such as general aviation operations, airline management, airport administration, or corporate aviation management. Requires a private pilot certificate.

B.B.A. With A Major In Aviation Management

This curriculum is for those students whose career objectives are toward the management and operation of the airside activities of the aviation industry. The program provides a thorough foundation in both aviation and business. By graduation, students will have earned a minimum of an FAA Commercial Pilot Certificate with Instrument and Multi-Engine Ratings.

Requirements for ALL Management Department Majors

UND Requirements:
1. Minimum 125 credit hours.
2. At least 36 credit hours must be from courses numbered 300 and above.
3. At least 60 credit hours must be from a 4-year institution.

UND Essential Studies Requirements:
See UND Essential Studies Requirements, current list of eligible courses, and consult with your adviser.

CoBPA Pre-business Core Requirements:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 201</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>Acct 200</td>
<td>Elements of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>Isys 117</td>
<td>Personal Productivity with Information Technology</td>
<td>1</td>
</tr>
<tr>
<td>Econ 202</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>Acct 201</td>
<td>Elements of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>Econ 210</td>
<td>Introduction to Business and Economic Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

CoBPA Requirements:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acct 315</td>
<td>Business in the Legal Environment</td>
<td>3</td>
</tr>
<tr>
<td>Econ 303</td>
<td>Money and Banking</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 300</td>
<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 301</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 305</td>
<td>Marketing Foundations</td>
<td>3</td>
</tr>
<tr>
<td>Isys 317</td>
<td>Information Systems in Enterprise</td>
<td>3</td>
</tr>
<tr>
<td>Fin 310</td>
<td>Principles of Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 475</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
</tbody>
</table>

HRM Major Requirements

(in addition to the requirements for all management department majors)

Major Requirements:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mgmt 302</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 310</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 400</td>
<td>Organizational Theory and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 407</td>
<td>Wage and Salary Administration</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 408</td>
<td>Issues in Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 410</td>
<td>Staffing: Recruitment and Selection</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 412</td>
<td>Training and Development</td>
<td>3</td>
</tr>
<tr>
<td>Psyc 301**</td>
<td>Industrial/Organizational Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Major Elective Requirements:

A minimum of nine elective credits, six of which must be chosen from List A (below) and three of which must be from List B (below).

List A (minimum of six credits required):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 341</td>
<td>Labor Econ &amp; Labor Relations</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 309</td>
<td>Quantitative Methods for Managers</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 395</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 409</td>
<td>Union Management Relations</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 420</td>
<td>Multinational Management</td>
<td>3</td>
</tr>
</tbody>
</table>

List B (minimum of three credits required):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acct 316</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>Entr 385</td>
<td>Venture Initiation</td>
<td>3</td>
</tr>
<tr>
<td>Entr 387</td>
<td>Venture Growth</td>
<td>3</td>
</tr>
<tr>
<td>Isys 305</td>
<td>End-User Applications</td>
<td>3</td>
</tr>
<tr>
<td>Isys 315</td>
<td>Records and Information Management</td>
<td>3</td>
</tr>
<tr>
<td>ISBE 320</td>
<td>Professional Communication for Business</td>
<td>3</td>
</tr>
</tbody>
</table>
Major Elective Requirements:
may be required; consult current catalog and instructor.

** It is recommended that Psyc 301 be taken no later than the first semester of the junior year.

**Operations and Supply Chain Management Major Requirements**
(in addition to the requirements for all management department majors)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mgmt 309</td>
<td>Quantitative Methods for Managers</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 310</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 431</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 432</td>
<td>Supplier Relationship Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 433</td>
<td>Logistics in the Supply Chain</td>
<td>3</td>
</tr>
<tr>
<td>Acct 320</td>
<td>Accounting for Production</td>
<td>3</td>
</tr>
</tbody>
</table>

Major Elective Requirements:
A minimum of twelve elective credits must be chosen from the list below.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISBE 320</td>
<td>Professional Communication for Business</td>
<td>3</td>
</tr>
<tr>
<td>TECH 330</td>
<td>Quality Assurance</td>
<td>3</td>
</tr>
<tr>
<td>TECH 433</td>
<td>Manufacturing Strategies</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 302</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 395</td>
<td>Topics in Management (with approval)</td>
<td>3-12</td>
</tr>
<tr>
<td>Mgmt 397</td>
<td>Cooperative Education in Management</td>
<td>1-6</td>
</tr>
<tr>
<td>Mgmt 400</td>
<td>Organizational Theory and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 420</td>
<td>Multinational Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 494</td>
<td>Readings in Management (with approval of instructor)</td>
<td>1-3</td>
</tr>
<tr>
<td>Mgmt 497</td>
<td>Internship in Management</td>
<td>1-3</td>
</tr>
<tr>
<td>Psyc 499</td>
<td>Special Topics: Conflict Management</td>
<td>3</td>
</tr>
<tr>
<td>Entr 385</td>
<td>Venture Initiation</td>
<td>1</td>
</tr>
</tbody>
</table>

**Management Major Requirements**
(in addition to the requirements for all management department majors)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISBE 320</td>
<td>Professional Communication for Business</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 302</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 309</td>
<td>Quantitative Methods for Managers</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 310</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 400</td>
<td>Organizational Theory and Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Major Elective Requirements:
A minimum of nine elective credits, six of which must be chosen from List A (below) and three of which must be from List B (below).

**List A (minimum of six credits required):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mgmt 395</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 407</td>
<td>Wage and Salary Administration</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 408</td>
<td>Issues in Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 409</td>
<td>Union Management Relations</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 410</td>
<td>Staffing: Recruitment and Selection</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 420</td>
<td>Multinational Management</td>
<td>3</td>
</tr>
<tr>
<td>Entr 385</td>
<td>Venture Initiation</td>
<td>1</td>
</tr>
<tr>
<td>Mgmt 412</td>
<td>Training and Development</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 431</td>
<td>Supply Chain Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 432</td>
<td>Supplier Relationship Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 433</td>
<td>Logistics in the Supply Chain</td>
<td>3</td>
</tr>
</tbody>
</table>

**List B (minimum of three credits required):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acct 301</td>
<td>Intermediate Accounting I</td>
<td>4</td>
</tr>
<tr>
<td>ISys 305</td>
<td>End-User Applications</td>
<td>3</td>
</tr>
<tr>
<td>ISys 308</td>
<td>Information Resource Administration</td>
<td>3</td>
</tr>
<tr>
<td>ISys 315</td>
<td>Records and Information Management</td>
<td>3</td>
</tr>
<tr>
<td>Econ 308</td>
<td>Intermediate Microeconomic Theory</td>
<td>3</td>
</tr>
<tr>
<td>Econ 309</td>
<td>Intermediate Macroeconomic Theory</td>
<td>3</td>
</tr>
<tr>
<td>Econ 341</td>
<td>Labor Economics and Labor Relations</td>
<td>3</td>
</tr>
<tr>
<td>Fin 360</td>
<td>Capital Market Financing and Investment Strategies</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 310</td>
<td>Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 315</td>
<td>Retail Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 330</td>
<td>Marketing Research</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 397</td>
<td>Cooperative Education in Management</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Plus electives to bring the total hours to 125.

**Airport Management Major Requirements**
(in addition to the requirements for all management department majors)

Add the following to the Pre-business “core” requirements:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AtSc 110</td>
<td>Meteorology I (Lab Science)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Aviation Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avit 100</td>
<td>Aviation Orientation</td>
<td>1</td>
</tr>
<tr>
<td>Avit 102</td>
<td>Introduction to Aviation</td>
<td>3</td>
</tr>
<tr>
<td>Avit 103</td>
<td>Introduction to Air Traffic Control</td>
<td>2</td>
</tr>
<tr>
<td>Avit 208</td>
<td>Aviation Safety</td>
<td>3</td>
</tr>
<tr>
<td>Avit 250</td>
<td>Human Factors</td>
<td>2</td>
</tr>
<tr>
<td>Avit 402</td>
<td>Airport Planning and Administration</td>
<td>3</td>
</tr>
<tr>
<td>Avit 403</td>
<td>Aerospace Law</td>
<td>3</td>
</tr>
<tr>
<td>Avit 485</td>
<td>Aviation Senior Capstone</td>
<td>3</td>
</tr>
<tr>
<td>Geol 103</td>
<td>Introduction to Environmental Issues</td>
<td>3</td>
</tr>
</tbody>
</table>

And one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avit 405</td>
<td>Airline Operations and Management</td>
<td>3</td>
</tr>
<tr>
<td>Avit 407</td>
<td>General Aviation Operations &amp; Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**Advanced Business Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISys 305</td>
<td>End User Applications</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 302</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 310</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>Pols 404</td>
<td>Urban Politics and Administration</td>
<td>3</td>
</tr>
</tbody>
</table>

And one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pols 308</td>
<td>Intergovernmental Relations</td>
<td>3</td>
</tr>
<tr>
<td>Pols 432</td>
<td>Public Policy Making Process</td>
<td>3</td>
</tr>
<tr>
<td>Pols 433</td>
<td>The Administrator and Public Affairs</td>
<td>3</td>
</tr>
</tbody>
</table>

Plus electives to total 125 credits.

**Aviation Management Major Requirements**
(in addition to the requirements for all management department majors)

Add the following to the Pre-business “core” requirements:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AtSc 110</td>
<td>Meteorology I (Lab Science)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Aviation Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avit 231</td>
<td>Aviation Meteorology I</td>
<td>1</td>
</tr>
<tr>
<td>Avit 100</td>
<td>Aviation Orientation</td>
<td>5</td>
</tr>
<tr>
<td>Avit 102</td>
<td>Introduction to Aviation</td>
<td>5</td>
</tr>
</tbody>
</table>
Avit 103 .... Introduction to Air Traffic Control .......... 2
Avit 208 .... Aviation Safety .................................. 3
Avit 221 .... Basic Attitude Instrument Flying .......... 3
Avit 222 .... IFR Regulations and Procedures ............ 7
Avit 250 .... Human Factors .................................. 2
Avit 322 .... Aerodynamics - Airplanes .................... 3
Avit 324 .... Aircraft Systems .................................. 3
Avit 325 .... Multi-engine Systems and Procedures ...... 2
Avit 403 .... Aerospace Law ................................... 3
Avit 485 .... Aviation Senior Capstone ....................... 3

And one of the following:
Avit 402 .... Airport Planning and Administration ......... 3
Avit 405 .... Airline Operations and Management ............ 3
Avit 407 .... General Aviation Operations & Management ... 3

Advanced Business Courses And One Of The Following:
Mgmt 302 .... Human Resource Management ................ 3
Mgmt 310 .... Organizational Behavior ....................... 3

Plus electives to total 125 credits.

Courses

300. Principles of Management. 3 credits. Prerequisites or Corequisites: Sophomore, Junior or Senior Standing; minimum total of 50 credit hours. This course provides a survey of the traditional functions of management with primary emphasis on planning, organizing, controlling, and leading. This emphasis involves coverage of managerial decision making, leadership, motivation, interpersonal communication, staffing human resources, and organizational structure, design, and change and development. Additional topics include the history of managerial thought, management information systems, international management, and business ethics and social responsibility. F, S

301. Operations Management. 3 credits. Prerequisites: Econ 210, Sophomore or Junior Standing and 2.5 GPA; declared CoBPA majors only. This course introduces managerial issues and problems arising in the operations function of both service and manufacturing-oriented organizations. Topics include: aggregate planning, facility layout, forecasting, inventory control and management, introduction to linear programming, operations strategy, processes and technology, project management, quality control and management, scheduling, supply chain management, and waiting line analysis. F, S

302. Human Resource Management. 3 credits. Prerequisites: Econ 210 and Mgmt 300, Junior or Senior Standing; declared CoBPA majors only. A survey of the concepts, procedures, and programs associated with Human Resource Management in organizations. It includes an overview of the basic management functions and legal issues linked to the execution of the personnel functions of employment, performance appraisal, training, compensation, and development. F, S

305. Managerial Concepts. 3 credits. Prerequisites: Junior or Senior Standing; not available to students in the College of Business and Public Administration. This course is designed to expose the student to a variety of concepts presented within the framework of the traditional functions of management. The course includes topics such as decision making, organizing, motivating, group work, authority, personnel staffing, leadership, change/conflict, communications, and controlling are explored in the context of supervisory personnel development. F, S

309. Quantitative Methods for Managers. 3 credits. Prerequisites: Econ 210; Mgmt 301; Junior or Senior Standing; declared CoBPA majors only. Topics include decision analysis, forecasting, linear programming (formulation, sensitivity analysis), integer and mixed programming, network models, queuing analysis, and simulation. F, S

310. Organizational Behavior. 3 credits. Prerequisites: Econ 210; Mgmt 300; Junior or Senior Standing; declared CoBPA majors only. The objective of this course is to allow the student to become acquainted with and experience various ways of thinking about and responding to the issues of human relations and management. The course is designed to survey the following topics at the individual, group, and organizational levels: individual perceptions, attitudes, values, motivation, leadership, communication, group dynamics, and problem solving. F, S

395. Special Topics. 3 credits. Prerequisites: Mgmt 300; declared CoBPA majors only; Management department may require additional prerequisites for specific sections; Management department approval. Specific topics will vary. Course will offer specialized knowledge in a specific area; e.g., Human Resource Management, Operations Management, Strategic Management. May be taken a maximum of two times for credit. Regular grading. On demand.

397. Cooperative Education in Management. 1-6 credits, repeatable to a maximum of 12 credits. Prerequisites: Mgmt 300, 302, 2.50 GPA, and consent of coordinator. On-the-job compensated experience in general management or management of human resources. S/U grading only. F, S, SS

400. Organizational Theory and Analysis. 3 credits. Prerequisites: Mgmt 310, Junior or Senior Standing; declared CoBPA majors only. The course is designed to acquaint students with some of the alternative ways in which organizations may be designed to accomplish their tasks. The course reviews the development of organization theories, their current status, and their future. Emphases are placed on the analyses of system theories pertaining to structure, process, and context. F, S

407. Wage and Salary Administration. 3 credits. Prerequisites: Mgmt 302, Junior or Senior Standing; declared CoBPA majors only. The role of a wage and salary administrator is studied. The course focuses on the fundamentals of wage theory, job evaluation and pricing, employee evaluation, individual and group incentive plans, benefits, and managerial/executive compensation. F

408. Issues in Human Resource Management. 3 credits. Prerequisites: Mgmt 302, Junior or Senior Standing; declared CoBPA majors only. This course is designed to facilitate a more in-depth study of selected issues confronting organizations in the area of personnel administration. Treatment of these issues will be accomplished utilizing some combination of the following methods: extensive reading and class discussion, individual student reports, case study analysis, and/or individual student projects. S

409. Union-Management Relations. 3 credits. Prerequisites: Mgmt 302, Junior or Senior Standing; declared CoBPA majors only. This course provides the student with an overview of the role of labor unions in contemporary organizations. The primary emphasis of the course is on the collective bargaining process. Students are engaged in simulated collective bargaining processes and learn about mediation, arbitration, and final contractual agreements. Causes of industrial disputes and grievance arbitration are also covered. S

410. Staffing: Recruitment and Selection. 3 credits. Prerequisites: Mgmt 302; Junior or Senior Standing; declared CoBPA majors only. This course trains students in one of the major components (applicant recruitment and selection) for Human Resource professionals as well as managers. In doing so, students are introduced to the techniques of analyzing the effectiveness and appropriateness of various instruments used by professionals. Additionally, students are introduced to the techniques of analyzing the effectiveness and appropriateness of various instruments used by professionals. F

412. Training and Development. 3 credits. Prerequisite: Mgmt 302. This course trains students in one of the major components (employee training and development) for Human Resource professionals as well as managers. In doing so: students are introduced to the current state of employee training and development practices; acquire a basic understanding of key issues related to the structure, the methods, and the use of technology for the training of employees; and through readings, lectures, discussions, and presentations, learn to apply learning theories in the development and implementation of a strategic employee training system. F

420. Multinational Management. 3 credits. Prerequisite: Mgmt 300 and Fin 310; Junior or Senior Standing; declared CoBPA majors only. This course is an introduction to the dynamics of management processes encountered in a multinational business setting. It covers comparative management systems and analysis of various environmental conditions for making effective managerial decisions within a multinational company. Adaptation to different cultures is emphasized as one of the essential components of the successful multinational management equation. F

431. Supply Chain Management. 3 credits. Prerequisites: Mgmt 301; Mrkt 305; declared CoBPA major. This course covers the set of approaches utilized to efficiently integrate activities of suppliers, operations/production, and distribution of goods and services. Topics include: logistics, inventory management, urban issues, coordination of product/service and processes in a supply chain, customer value, and decision support. F

432. Supplier Relationship Management. 3 credits. Prerequisites: Mgmt 301; Mrkt 305; declared CoBPA major. This course focuses on the "upstream" portion of the supply chain and stresses managerial issues in supplier relations. Topics covered include: cross-functional issues in supplier management, social responsibility, buyer-supplier relationships, quality management, total cost of ownership, developing supply requirements, strategic sourcing, cost management, relationship management, and world-class supply management. F

433. Logistics in the Supply Chain. 3 credits. Prerequisite or corequisite: Mgmt 309; declared CoBPA major. The primary emphasis of this course is directed toward dealing effectively with the management problems associated with moving and storing goods through the supply chain. Major topics covered include: logistic network strategy and planning, transportation strategy, inventory strategy, location strategy. F

475. Strategic Management. 3 credits. Prerequisites: Mgmt 300, 301; Fin 310, Mgrkt 305; Junior or Senior Standing; and 100 credits. This is the capstone course in business. Students apply knowledge gained in accounting, economics, finance, management, and marketing to develop business strategies. Case studies, simulations, and other exercises are used to develop executive skills. F, S, SS


494. Readings in Management. 1 to 4 credits. Prerequisite: Senior or graduate standing, and consent of instructor. Selected readings in management. F, S

497. Internship in Management. 1-6 credits. Prerequisite: Management major, senior standing, and consent of instructor. Guided, practical experience in personnel, production, administration with selected participating businesses and other organizations is the essence of this course. S/U grading only. F, S, SS
The Marketing Department offers programs in preparation of careers in profit and non-profit organizations where skills in professional selling, promotion, research, distribution, and brand management are necessary. The undergraduate curriculum consists of a range of required and elective courses designed to establish core competencies in the field while also encouraging a choice of career focus. Virtually all coursework includes emphases on improving writing and speaking skills and the use of contemporary technology and analytical skills necessary to effective marketing managers. Students enjoy a range of opportunities for group projects, many with a hands-on element with live businesses, both in regular classes and through internships and cooperative education. The American Marketing Association Student Chapter offers an opportunity to participate with local and regional marketing managers through speaker events and site visits.

The Department is also home to the recently dedicated Page Family Marketing Center, a suite of break-out rooms for small-group projects, a state-of-the-art computer lab and a conference room equipped for the conduct of focus groups. The Department faculty takes pride in the quality and currency of programming. Professors are regularly recognized for their excellence in the classroom as well as for the high quality of their applied research and service to regional and national firms and the quality of basic research published in the field of Marketing.

College of Business and Public Administration

B.B.A. WITH MAJOR IN MARKETING

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The College of Business and Public Administration Requirements (see BPA listing) and including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acct 200, 201</td>
<td>Elements of Accounting I &amp; II</td>
<td>(6)</td>
</tr>
<tr>
<td>Econ 201</td>
<td>Principles of Microeconomics</td>
<td>(3)</td>
</tr>
<tr>
<td>Econ 202</td>
<td>Principles of Macroeconomics</td>
<td>(3)</td>
</tr>
<tr>
<td>Econ 210</td>
<td>Introduction to Business and Economic Statistics</td>
<td>(3)</td>
</tr>
<tr>
<td>Econ 303</td>
<td>Money and Banking</td>
<td>(3)</td>
</tr>
<tr>
<td>Isys 117</td>
<td>Personal Productivity with Information Technology</td>
<td>(1)</td>
</tr>
<tr>
<td>Isys 317</td>
<td>Information Systems in Enterprise</td>
<td>(3)</td>
</tr>
<tr>
<td>Acct 315</td>
<td>Business in the Legal Environment</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 103,146</td>
<td>College Algebra, Applied Calculus I</td>
<td>(6)</td>
</tr>
<tr>
<td>Mgmt 300</td>
<td>Principles of Management</td>
<td>(3)</td>
</tr>
<tr>
<td>Mgmt 301</td>
<td>Operations Management</td>
<td>(3)</td>
</tr>
<tr>
<td>Fin 310</td>
<td>Principles of Financial Management</td>
<td>(3)</td>
</tr>
<tr>
<td>Mgmt 475</td>
<td>Strategic Management</td>
<td>(3)</td>
</tr>
<tr>
<td>Mgmt 305</td>
<td>Marketing Foundations</td>
<td>(3)</td>
</tr>
<tr>
<td>Poli 115</td>
<td>American Government</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 110</td>
<td>Fundamentals of Public Speaking</td>
<td>(3)</td>
</tr>
<tr>
<td>Anth 171</td>
<td>Introduction to Cultural Anthropology</td>
<td>(3)</td>
</tr>
<tr>
<td>Psyc 111</td>
<td>Introduction to Psychology</td>
<td>(3)</td>
</tr>
<tr>
<td>Soc 110</td>
<td>Introduction to Sociology</td>
<td>(3)</td>
</tr>
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</table>

One course selected from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mkt 410</td>
<td>Consumer Behavior</td>
<td>(3)</td>
</tr>
<tr>
<td>Mkt 325</td>
<td>International Marketing</td>
<td>(3)</td>
</tr>
<tr>
<td>Mkt 330</td>
<td>Marketing Research</td>
<td>(3)</td>
</tr>
<tr>
<td>Mkt 450</td>
<td>Marketing Management</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Major in Marketing

Complete at least 15 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mgmt 431</td>
<td>Supply Chain Management</td>
<td>(3)</td>
</tr>
<tr>
<td>Mkt 311</td>
<td>Professional Selling</td>
<td>(3)</td>
</tr>
<tr>
<td>Mkt 312</td>
<td>Advertising</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Courses

201. Personal Marketing. 3 credits. The course applies the marketing concept to planning of career tracks. Emphasis is placed on the development of individual marketing plans during the sophomore/junior year thus initiating a systematic career planning process. Pre-requisite: planning prior to the senior year helps incorporate internships, job shadowing, and/or cooperative education into students’ program of study. Particular emphasis is placed on the application of the marketing concepts in professional career initiation and on the development and delivery of marketing presentations. The course also incorporates attitude testing, mock interviews, discussion of job search using the Internet, networking, time management strategies, and portfolio development. S

305. Marketing Foundations. 3 credits. Prerequisite: Econ 201. Prerequisites or Corequisites: Acc 201 and Econ 210; Sophomore, Junior or Senior Standing; minimum total of 50 credit hours; declared and pre-CoBPA majors only. An overview of the scope and nature of market exchange and the buyer’s pivotal role. F, S

310. Consumer Behavior. 3 credits. Prerequisites: Mkt 305; Sophomore, Junior or Senior Standing; declared CoBPA majors only. Theoretical and applied analysis of consumption related activities of individuals. Investigations of the reasons behind and the forces influencing the selection, purchase, use, and disposal of goods and services. F, S

311. Professional Selling. 3 credits. Prerequisites: Mkt 305; Sophomore, Junior or Senior Standing; declared CoBPA majors only. The professional selling process including prospecting, qualifying, need-discovery and development, relationship-building, presentations, handling objections, closing, and post-sale service. F, S

312. Advertising. 3 credits. Prerequisites: Mkt 305; Sophomore, Junior or Senior Standing; declared CoBPA majors only. Introductory survey of the field of advertising with emphasis on institutions, practices, and salient aspects of advertising management. F, S

315. Retail Management. 3 credits. Prerequisites: Mkt 305 and Acc 201; Sophomore, Junior or Senior Standing; declared CoBPA majors only. Application of marketing and financial principles to the planning and execution of retail management. Includes analyses of relevant institutions and interest groups. F

325. International Marketing. 3 credits. Prerequisites: Mkt 305; Sophomore, Junior or Senior Standing; declared CoBPA majors only. Survey of international business environment, with focus on elements of international marketing practices and their management. F, S

330. Marketing Research. 3 credits. Prerequisites: Mkt 305 and Econ 210; Sophomore, Junior or Senior Standing; declared CoBPA majors only. The research process from a marketing perspective. Addresses problem formulation, research design, methodology, and appropriate statistical methods. Application of procedures appropriate for the analysis and interpretation of marketing data. F, S

396. Directed Studies in Marketing. 1-3 credits. Prerequisites: Mkt 310, and Consent of Instructor. Research in some aspect of marketing. Written reports and collateral readings. F, S, SS

397. Cooperative Education in Marketing. 1-8 credits, repeatable only to maximum of 8 credits. Prerequisites: Mkt 305 and consent of instructor. Compensated, on-the-job experience in various areas of marketing. S/U grading only; F, S, SS

405. Brand and Product Management. 3 credits. Prerequisites: Mkt 310 and 330; Junior or Senior Standing; declared CoBPA majors only. The study of the theory and practice of managing brands and products as vital corporate assets and the focus of the marketing planning process. S

411. Sales Management. 3 credits. Prerequisites: Mkt 305 and 311; Junior or Senior Standing; declared CoBPA majors only. The practice of sales management including sales force recruiting, training, organization, motivation, compensation, and evaluation. S

412. Promotional Strategy. 3 credits. Prerequisites: Mkt 312; Junior or Senior Standing; declared CoBPA majors only. Relationship of marketplace activities to promotional processes; integration of promotional tools into marketing strategy. F

430. Relationship Marketing. 3 credits. Prerequisites: Mkt 305 and 311; Junior or Senior standing; declared CoBPA majors only. Relationship marketing is now a core strategic element of virtually all marketing. Organizations increasingly place the importance of cooperation with customers, communities, charities, and other partners. This course focuses primarily on marketing relationships in the Organization-to-Organization context. S

440. Special Topics in Marketing. 3 credits. Prerequisites: Mkt 305; Junior or Senior Standing; declared CoBPA majors only. Investigation of selected topics of importance to the marketing of goods, services, or ideas. May be taken a maximum of two times for credit. S

450. Marketing Management. 3 credits. Prerequisites: Mkt 305, 310, 325, and 330; Senior Standing; declared CoBPA majors only. Capstone course addressing the firm’s micro and macro environments from a strategic marketing decision making perspective. F

497. Internship in Marketing. 1-8 credits, repeatable only to maximum of 8. Prerequisites: 9 hours of Marketing, GPA of 2.75, and consent of instructor. Compensated, practical experience with selected participating firms. S/U grading only. F, S, SS
The functions of the Mathematics Department within the total framework of the University are varied. Besides the training of undergraduate and graduate majors in the field of Mathematics, the Department offers courses designed to meet the needs of students in business, engineering, physical, social, and biological sciences; and elementary and secondary education.

The student considering mathematics as a career should realize that emphasis in mathematics courses will change as he/she progresses through college and graduate school. The early emphasis on solving problems is later subordinated to the more important tasks of formulating problems in mathematical language and of dealing effectively with mathematical structures and abstract ideas.

It should be stressed that an effective mathematician in any type of employment should be a well-educated person. He/she should have not only the technical background of calculus and differential equations taken by most scientists and engineers, and the more advanced mathematical training required for a major in mathematics, but should also have taken a selection of courses from other disciplines. A student who plans to continue beyond the bachelor’s degree in mathematics should also acquire a reading knowledge of at least one and preferably two of the foreign languages in which much of the current literature in mathematics is written, namely, German, Russian, and French. All students should, of course, acquire fluency in the written and oral expression of ideas in English.

The main fields of opportunity in mathematics today are teaching, mathematical statistics, mathematics in industry, mathematics in government and actuarial mathematics.

Students may pursue the B.S. degree with a major in mathematics through the College of Arts and Sciences. Teacher licensure is possible provided appropriate requirements are met.

Elective courses to be taken toward the bachelor’s degree are decided in consultation with an adviser from the Mathematics Department, and vary according to the needs of the student, consistent with the particular objective of the general education and mathematical education of the student.

Placement in Mathematics. Appropriate initial enrollment in mathematics courses at UND is determined by a combination of entrance and placement tests or the acceptance of credits for transfer, Advanced Placement (AP) and College Level Examination Program (CLEP). Students enrolling without such previous credit are directed to entry level mathematics courses, courses numbered 102 through 165 and 277 depending on their scores on the ACT Mathematics test and/or a combination of scores on tests from the Placement Testing Program (PTP) sponsored by the Mathematical Association of America.

Anyone without the required prerequisites enrolling in a mathematics course may be dropped from the class by the instructor.

College of Arts and Sciences

B.S. WITH MAJOR IN MATHEMATICS

All students are urged to take courses in disciplines which make use of mathematics such as Physics, Chemistry, Engineering, Computer Science and Biology. Students considering graduate school are urged to take a full year of Advanced Calculus, Math 431 and 432.

http://www.und.edu/dept/math/mathhome.html

Bevelacqua, Collings, Dearden, Dunnigan, Gilsdorf, Halcrow, Hong, J. liams, M. liams, Khavanin, Metzger, Millsapgh (Chair), Minnotte, Peterson, Richards, Takahashi and Zerr

MINOR IN MATHEMATICS

Required 20 credits as follows:
Math 115 .......... Introduction to Mathematical Thought .......... (3)
Math 277 .......... Math for Elementary School Teachers .......... (3)
Math 377 .......... Geometry for Elementary Teachers .......... (3)
Math 477 .......... Topics in Elementary School Mathematics .......... (3)

At least three additional courses numbered 208 and above, not including 277, 377, 397, 400 or 477. Math 405, 415, 416, 494, and 495 may be used only with prior approval from the Mathematics Department.

MINOR IN MATHEMATICS FOR ELEMENTARY EDUCATION

Required 12.5 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ER listing).
II. Non-Mathematics Requirements:
Three hours of Computer Science and 8-9 hours of writing courses as approved by the Mathematics Department (see http://www.und.edu/dept/math/majinfo.html).
III. The Following Curriculum of 39 Major Hours:

Mathematics Core
Math 165, 166, 265 .......... Calculus I, II, III ................. (12)
Math 327 ..........Applied Linear Algebra .......... (3)
or
Math 442 .......... Linear Algebra .......... (3)
Math 266 .......... Elementary Differential Equations .......... (3)

Mathematics Sequences

I. Non-Mathematics Requirements:

A. General Education, Non-Mathematics, and Mathematics Core requirements as described above.

B. The following sequences:
Math 441 and 442
Math 409 and 412
Math 494 and 495

C. Electives:

Math courses numbered 208 and above, excluding 277, 377, 400, 477 .......... (9)

TEACHER LICENSURE

Through a partnership with the College of Education and Human Development and the Department of Teaching and Learning, students may seek secondary licensure in Mathematics. The following program of study must be completed:

I. Mathematics program of study:

a. The General Education, Non-Mathematics, and Mathematics Core requirements as described above.

b. The following sequences:
Math 441 and 442
Math 409 and 435

II. Admission to the Secondary Program, normally while taking T&L 250. (See College of Education and Human Development for admission and licensing requirements.)

III. The program in Secondary Education, to include:

T&L 250 ...... Introduction to Education .......... (3)
T&L 339 ...... Technology for Teachers .......... (2)
T&L 345 ...... Curriculum Development and Instruction .......... (3)
T&L 350 ...... Development and Education of Adolescents .......... (3)
T&L 386 ...... Field Experience (Optional) .......... (1)
Math 400 ...... Methods and Materials of Teaching Middle and Secondary School Mathematics .......... (3)
T&L 432 ...... Classroom Management .......... (3)
T&L 433 ...... Multicultural Education .......... (3)
T&L 486 ...... Field Experience .......... (1)
T&L 487 ...... A full semester of student teaching, normally taken during the semester of graduation .......... (16)
T&L 488 ...... Senior Seminar .......... (1)

Mathematics majors seeking secondary licensure must have an advisor in both the Mathematics Department and the Department of Teaching and Learning.

*T&L 390, Special Topics, may be taken as an elective
And, at least one of the following:

Math 146. Applied Calculus I. 3 credits. (3)
Math 165. Calculus I. 4 credits. (4)
Math 166. Calculus II. 4 credits. (4)
Math 208. Discrete Mathematics. 3 credits. (3)

All electives may be selected from Mathematics courses above Math 102.

MINOR IN STATISTICS (Plan A)

Requires 3 semesters of calculus (Math 165, 166, 265) as prerequisite.

Required: 9 credits, including:

Math 421, 422. Statistical Theory I, II. (6)
Biol 470. Biometry. (3)
EFR 513. Basic Computer Applications in Education. (2)
EFR 514. Small System Computer Applications in Education. (3)
EFR 516. Statistics II. (3)
Chf 515. Design of Engineering Experiments. (3)
EE 411. Communications Engineering. (3)
Math 321. Applied Statistics. (3)
Math 403. Theory of Probability. (3)
Math 415. Topics in Applied Math (when appropriate). (3)
Math 416. Topics in Statistics. (1-3)
Psyc 541. Advanced Univariate Statistics. (3)
Psyc 542. Test Construction and Multivariate Analysis. (3)
Psyc 543. Experimental Design. (3)
Soc 521. Advanced Analytical Methods. (3)

MINOR IN STATISTICS (Plan B)

Requires Math 146, Applied Calculus, as prerequisite.

Required: 12 credits from:

Biol 470. Biometry. (3)
EFR 513. Basic Computer Applications in Education. (2)
EFR 514. Small System Computer Applications in Education. (3)
EFR 516. Statistics II. (3)
Chf 515. Design of Engineering Experiments. (3)

No more than 1 class from:

Econ 210. Elementary Business and Economics Statistics. (3)
Psyc 241. Introduction to Statistics. (4)
Soc 326. Sociological Statistics. (3)
EE 411. Communications Engineering. (3)
Math 321. Applied Statistics. (3)
Math 403. Theory of Probability. (3)
Math 415. Topics in Applied Math (when appropriate). (3)
Math 416. Topics in Statistics. (1-3)
Math 421. Statistical Theory I. (3)
Math 422. Statistical Theory II. (3)
Psyc 541. Advanced Univariate Statistics. (3)
Psyc 542. Test Construction and Multivariate Analysis. (3)
Psyc 543. Experimental Design. (3)
Soc 521. Advanced Analytical Methods. (3)

Courses

NOTE: PTP* indicates an appropriate score in the Placement Testing Program (PTP) is required.

102. Intermediate Algebra. 3 credits. (Does not count toward graduation at UND.) Prerequisite: PTP*. Equations, exponents, quadratic equations, lines, graphs, inequalities. S/U grading only. F,S,SS

103. College Algebra. 3 credits. Prerequisite: PTP* or Math 102. Sections meeting 5 days per week are offered for students determined eligible by the Math Department. Polynomial and rational functions, inverse functions, exponential and logarithmic functions, simple conics, systems of equations, determinants, arithmetic and geometric sequences, the Binomial Theorem. F,S,SS

105. Trigonometry. 2 credits. Prerequisite: One year of high school geometry and either PTP* or Math 102. Angles, trigonometric functions and their inverses, solving triangles, trigonometric identities. S

107. Precalculus. 4 credits. Prerequisite: Math 102 or PTP*. Equations and inequalities; polynomial rational, exponential, logarithmic and trigonometric functions; inverse trigonometric functions; algebraic and trigonometric methods commonly needed in calculus. F,S,SS

112. Transition to Calculus. 1 credit. Prerequisites: Math 107, Math 146, or PTP*. This course is designed for students intending to take Math 165, Calculus I who have mastered most of, but not all, the material covered in Math 107, Precalculus. Emphasis is therefore on topics such as inverse functions, partial fraction expansion, trigonometric identities, and applications of trigonometry, which are deemed most difficult for pre-calculus students. F,S

115. Introduction to Mathematical Thought. 3 credits. The course will focus on analysis and interpretation of common types of mathematical arguments as well as having students construct their own arguments. A combination of topics will be included, such as: elementary combinatorics, probability, statistics, set theory, number theory, geometry and topology, mathematical logic, the mathematics of voting, etc. F or On demand.

119. Applied Calculus I. 3 credits. Prerequisite: PTP* or Math 103. A non- rigorous introduction to differential and integral calculus. Topics include limits, continuity, differentiation and integration techniques, and applications. F,S,SS

165. Calculus I. 4 credits. Prerequisites: PTP* or Math 112 or completion of Math 107 with a grade of C or better. Limits, continuity, differentiation, Mean Value Theorems, integration, Fundamental Theorem of Calculus. Prerequisite: Math 112.*

166. Calculus II. 4 credits. Prerequisites: Completion of Math 165 with a grade of C or better or permission of the Mathematics Department. Techniques and applications of integration, exponential and logarithmic functions, parametric equations, infinite sequences and series. F,S,SS

208. Discrete Mathematics. 3 credits. Prerequisite: PTP* or Math 103 or Math 107. Introduction to Set Theory, Functions and Relations, Permutations and Combinations, Logic, Boolean Algebra, Induction, Difference Equations. Other topics from Graphs, Finite Automata and Formal Languages. F,S,SS

265. Calculus III. 4 credits. Prerequisite: Math 166. Multivariable and vector calculus including partial derivatives, multiple integration, line and surface integrals, Green’s, Divergence, Stokes’ Theorems. F,S,SS

266. Elementary Differential Equations. 3 credits. Prerequisite: Math 265 and proficiency in a programming language. Solution of elementary differential equations by elementary techniques. Laplace transforms, introduction to matrix theory and systems of differential equations. F,S,SS

277. For Math for Elementary School Teachers. 3 credits. Prerequisite: Admission to Teacher Education and either PTP* or Math 103. For elementary education majors only. Development of the number systems used in elementary schools. Includes some methods and work with laboratory materials. F,S

280. History of Mathematics. 3 credits. Prerequisite: Math 166 or equivalent, or consent of instructor. This is a course on the conceptual and chronological history of mathematics. The course involves the interpretation and analysis of how and why mathematical ideas have developed over time, including political and cultural considerations. Topics include: numbers and counting systems, non-Western developments, mathematics of Egypt, Babylon and Greece, early European developments, the Renaissance, the Scientific Revolution and the development of calculus, women in mathematics, twentieth century mathematics. S

315. Topics in Computational Mathematics. 1-3 credits. Prerequisites: Math 266 and proficiency in a programming language, or consent of instructor. An introduction to mathematical methods useful in the computational analysis of problems in applied mathematics. Topics may include numerical methods, numerical simulation, symbolic computation, and theory of computation. May be repeated for credit with consent of instructor up to six credits. On demand.

321. Applied Statistical Methods. 3 credits. Prerequisite: Math 166. Introduc- tory statistics for students with a background in single-variable calculus. Topics include descriptive statistics, continuous and discrete probability density functions, sampling distributions, point and interval estimation, and tests of hypotheses. F,S

327. Applied Linear Algebra. 3 credits. Prerequisite: Math 166. A practical treatment of systems of linear equations, finite dimensional vector spaces, linear transformations, determinants, matrices, eigenvalues, and eigenvectors. F,S

330. Set Theory and Logic. 3 credits. Prerequisite: Math 166 or consent of instructor. Axioms and operations on sets, mathematical logic, relations and functions, development of the natural and real number systems. S

352. Introduction to Partial Differential Equations. 3 credits. Prerequisite: Math 266. Partial differential equations, Fourier series, special functions, series solutions to ordinary differential equations. S

377. Geometry for Elementary Teachers. 1-3 credits. For elementary education majors only. Experimental and inductive discovery in building geometric concepts at the elementary school level. On demand.

397. Cooperative Education. Prerequisites: 15 completed credits in Math in- cluding Math 165, 166, 265, in addition to standard Co-op requirements. A practical work experience with an employer closely associated with the student’s academic area. 1-8 credits repeatable to 18. Arranged by mutual agreement among student, department, and employer. A maximum of 6 cooperative education credits may be applied against requirements for a Math major. S/U grading only. F,S,SS


403. Theory of Probability. 3 credits. Prerequisite: Math 265. Sets, sample spaces, discrete probability, distribution functions, density functions, characteristic functions, study of normal, Poisson, binomial and other distributions with applications. S/2

405. Selected Topics in Mathematics. 1-3 credits. Prerequisite: permission of the Mathematics Department. May be repeated to a maximum of six credits. On demand.

408. Combinatorics. 3 credits. Prerequisites: Math 208 and 166. Introduction to the techniques and reasoning needed in combinatorial problem-solving. The course may include topics related to combinatorics, such as graph theory. S

409. Geometry. 3 credits. Prerequisite: Math 208 or 291. A metric and synthetic approach to Euclidean geometry. The usual topics in elementary geometry treated in a
mathematically logical way. Topics include congruence, inequalities, parallelism, similarity, area, solid geometry and the circle. F

412. Differential Equations. 3 credits. Prerequisite: Math 266. Basic types of ordinary differential equations. Existence and uniqueness of solutions. F/2

415. Topics in Applied Mathematics. 1-3 credits. Prerequisite: Math 265 and consent of instructor. An introduction to selected areas in applied mathematics chosen from a variety of topics including: Applied algebra, difference equations, linear programming, modeling and simulation, operations research, optimization, partial differential equations and computers in mathematics. Topics to be considered will be illustrated with examples and practical applications. May be repeated for credit with consent of instructor up to a maximum of six credits. On demand.

416. Topics in Statistics. 1-3 credits. Prerequisites: Math 265 and 321 or consent of instructor. An introduction to a variety of topics in statistics including: Linear models in categorical analysis, Bayesian methods, decision theory, ridge regression. Non-parametric techniques, stochastic games and models. The number of topics to be considered during a semester will be limited to permit greater depth of coverage and sufficient practical illustrations. May be repeated for credit with consent of instructor up to six credits. On demand.

421, 422. Statistical Theory I and II. 3 credits each. Prerequisite: For 421, Math 265; for 422, Math 421. Discrete and continuous random variables, expectation, moments, moment generating functions, properties of special distributions, introduction to hypothesis testing, sampling distributions, Central Limit Theorem, curve of regression, correlation, empirical regression by least squares, maximum likelihood estimation, Neyman-Pearson lemma, likelihood ratio test, power function, chi-square tests, change of variable, “F” and “T” tests, one and two-way ANOVA, nonparametric methods. F/2

425. Cryptological Mathematics. 3 credits. Prerequisite: Math 208. This course develops the math behind elementary symmetric-key cryptoschemes and a variety of public-key schemes. Modern block ciphers may be discussed. F/2

431, 432. Advanced Calculus I and II. 3 credits each. Prerequisite: for 431, Math 330 or consent of instructor; for 432, Math 431. Real number system, functions, sequences, limits, continuity, differentiation, integration, partial differentiation, infinite series, power series and vector analysis. F/S

435. Theory of Numbers. 3 credits. Prerequisite: Math 208 or 330. Basic properties of numbers, including divisibility, primes, congruences, Diophantine equations and residue theory. S/2

441. Abstract Algebra. 3 credits. Prerequisite: Math 330 or consent of instructor. Rings, integral domains, fields, elements of group theory. F

442. Linear Algebra. 3 credits. Prerequisite: Math 265 and 330 or consent of instructor. A theoretical treatment of systems of linear equations, matrices, vector spaces, linear transformations and elementary canonical forms. S

450. Elements of Topology. 3 credits. Prerequisite: Math 330 or consent of instructor. Set operations, mappings, functions, continuity, compactness, connectedness and topological spaces with special emphasis on topologies of the real line. On demand.

460. Mathematical Modeling. 3 credits. Prerequisite: Math 266 and either 327 or 442, or consent of instructor. The primary goal of the course is to present the mathematical analysis provided in scientific modeling. Topics may include population modeling, mechanical vibrations, traffic flow, epidemic modeling, queues and decay processes. F/2

461, 462. Numerical Analysis I and II. 3 credits each. Prerequisite: Math 266 and a scientific programming language. Prerequisite for 462 is Math 461 or consent of instructor. Numerical techniques for: the solution of equations in one or several unknowns, approximate integration, differential equations, approximation theory, optimization theory and matrix analysis. Corresponding error analysis will be investigated. F/2, S/2

465. Topics in Operations Research. 3 credits. Prerequisites: Math 265 and either 327 or 442, or consent of instructor. The primary goal of this course is to present mathematical methods useful in the analysis of problems that involve making decisions. Topics may include optimization, mathematical programming, network analysis, decision theory, game theory, queuing theory, and dynamic programming. S/2

471. Introduction to Complex Variables. 3 credits. Prerequisite: Math 265. The complex plane, analytic functions, complex integration, power series, the theory of residues and contour integration, conformal mapping, Fourier and Laplace transformations, and applications. F/2

477. Topics in Elementary School Mathematics. 1-3 credits. May be repeated for credit up to six credits. For elementary education majors only. Selected topics from mathematical concepts appropriate to the elementary school curriculum. On Demand.

479. Topics in Mathematics Education. 1-3 credits. Prerequisite: Consent of instructor. May be repeated for up to six credits. Selected topics from mathematical concepts appropriate for K-12 educators. On demand.

495. Reading Course in Mathematics. 1-3 credits, repeatable to six credits. Consent of instructor required. Directed individual reading on selected topics not developed in other courses. F/S, SS
The Mechanical Engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

In addition to the normal transfer credit requirements, students in Mechanical Engineering must complete a minimum of 21 credit hours of 300-level or higher coursework in Mechanical Engineering at UND, including ME 418, ME 483, ME 487 and ME 488 Engineering Design sequence.

School of Engineering and Mines

B.S. IN MECHANICAL ENGINEERING

Required 129 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Second Semester</th>
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</thead>
<tbody>
<tr>
<td>Chem 121 General Chemistry I</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Chem 121L General Chemistry I Lab</td>
<td>(1)</td>
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<tr>
<td>Engl 110 College Composition I</td>
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<tr>
<td>Engl 120 College Composition II</td>
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<tr>
<td>or Engl 125 Technical and Business Writing</td>
<td>(3)</td>
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<tr>
<td>ME 101 Intro to Mechanical Engineering</td>
<td>(3)</td>
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<tr>
<td>Engr 200 Computer Applications in Engineering</td>
<td>(2)</td>
<td>(4)</td>
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<tr>
<td>Math 165, 166 Calculus I, II</td>
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<td>(4)</td>
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<tr>
<td>Phys 251 University Physics I</td>
<td>(4)</td>
<td></td>
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<tr>
<td>Phys 251L University Physics I Lab</td>
<td>(0)</td>
<td></td>
</tr>
</tbody>
</table>

Sophomore Year

| Engr 201 Statics                      | (3)            |                 |
| Engr 202 Dynamics                     | (3)            |                 |
| Engr 203 Mechanics of Materials       | (3)            |                 |
| ME 201 Student Design                 | (1)            |                 |
| ME 341 Thermodynamics                 | (3)            |                 |
| Econ 201 Principles of Microeconomics | (3)            |                 |
| EE 206 Circuit Analysis               | (3)            |                 |
| ME 206 Sensors and Instrumentation    |                |                 |
| or EE 306 Circuits Laboratory I       | (1)            |                 |
| Math 265 Calculus III                 | (4)            |                 |
| Math 266 Elementary Differential Equations | (3) | (4)           |
| Phys 252 University Physics II        | (4)            |                 |
| Phys 252L University Physics II Lab   | (0)            |                 |
| Phys 253 University Physics III       | (4)            |                 |
| Phys 253L University Physics III Lab  | (0)            |                 |
| or Chem 122 General Chemistry II      | (3)            |                 |
| Chem 122L General Chemistry II Lab    | (1)            |                 |

Junior Year

| Social Science                        |                 |                 |
| ME 301 Materials Science              | (3)            |                 |
| ME 306 Fluid Mechanics                | (3)            |                 |
| ME 322 Kinematics and Dynamics        | (3)            |                 |
| ME 323 Machine Component Design       | (3)            |                 |
| ME 323L Machine Component Design Lab  | (1)            |                 |
| Engr 460 Engineering Economy         | (3)            |                 |
| Math 321 Applied Statistical Methods  | (3)            |                 |
| or Technical Elective                 | (3)            |                 |

Senior Year

| ME 418 Manufacturing Processes        | (4)            |                 |
| ME 480 Mechanical Engineering Seminar | (3)            |                 |
| ME 483 Mechanical Measurements Lab    | (3)            |                 |
| ME 487 Engineering Design            | (2)            |                 |
| ME 488 Engineering Design            | (3)            |                 |
| ME 370 Engineering Disasters and Ethics | (3)            |                 |
| or ChE 340 The Role of Engineers & Applied Scientists in a Global Society | (3) |
| or Phil 370 Ethics in Engineering & Science (A&H) | (3) |
| or Social Science (if taking ME 370 or ChE 340) | (3) |

Technical Electives: Technical electives must be chosen from the following three groups as stated unless the student is seeking the Aerospace concentration.

For the Aerospace concentration, technical electives must be chosen from the Aerospace group of electives as identified by a # in the technical elective listing below. One of the technical electives has to be either ME 429 or ME 464.

ME 490 or ME 590 may also be included in the respective groups at the discretion of the Mechanical Engineering Chair. Further, students who satisfactorily complete two Cooperative Education (ME 397) experiences for a combined total of at least 3 credit hours are granted a waiver for one technical elective, provided one of the Cooperative Education experiences is semester long as either fall or spring. The waived technical elective is considered as elective at large and is not specified into any one of the three groups listed below.

Mechanical Design: (Take at least one from this group or any three for optional emphasis)

ME 426# Mechanical Vibrations       (3)
ME 429# Intro. to Finite Element Analysis (3)
ME 523# Advanced Machine Design     (3)
ME 525# Metal Fatigue in Engineering (3)
ME 526# Advanced Vibrations         (3)
ME 529# Advanced Finite Element Methods (3)
ME 532# Advanced Dynamics            (3)

Thermal Systems: (Take at least one from this group or any three for optional emphasis)

ME 442# Industrial Energy Management (3)
ME 446# Gas Turbines                (3)
ME 449# Internal Combustion Engines (3)
ME 451# Heating and Air Conditioning (3)
ME 464# Computational Fluid Dynamics (3)
ME 476# Intermediate Fluid Mechanics (3)
ME 477# Compressible Fluid Flow      (3)
ME 545# Fluidized-Bed Combustion    (3)
ME 574# Advanced Heat Transfer       (3)
ME 575# Conduction and Radiation Heat Transfer (3)
ME 576# Convective Heat Transfer     (3)

Manufacturing and Materials: (Take at least one from this group or any three for optional emphasis)

ME 342# Intermediate Thermodynamics (3)
ME 442# Advanced Manufacturing Processes (3)
ME 514# Processing of Advanced Materials (3)
ME 524# Deformation and Fracture     (3)
ME 525# Metal Fatigue in Engineering (3)
ME 542# Thermodynamics of Materials (3)

* Some of the following courses may be waived by completing Engr 100 — Professional Assessment Evaluation: ME 101, Engr 200, ME 201, ME 397 and ME 480. The ethics requirement as represented by ME 370/ChE 340/PhD 370 may also be waived, but not the University’s Essential Studies Requirements (For Engr 100 course description, see Engineering listing).

Aerospace Concentration: Requires 134 hours

Students completing the above curriculum with the following modifications will be deemed to hold a B.S. in Mechanical Engineering with an Aerospace Concentration.

1. Completion of Avit 102, Introduction to Aviation, 5 credits. This course includes earning a private pilot license and is recommended for the summer session between the freshman and sophomore years.**

2. Technical electives must be chosen from the aerospace group of electives as identified by a # in the above technical elective listing. One of the technical electives has to be either ME 429 or ME 464. An ME 490 or an ME 590 may also be included in the aerospace group at the discretion of the Mechanical Engineering Chair.

** Students already holding a private pilot license may earn a commercial license or an acceptable advanced rating through UND as a substitute for Avit 102.

Courses

101. Introduction to Mechanical Engineering, 3 credits. Development of visualization, technical communication, and documentation skills. 3-D geometric modeling as applied to CADD applications using current methods and techniques commonly found in industry. Introduction to engineering design and analysis of a machine or system, and team problem solving. Development of an academic career plan. F,S
Finite element analysis is introduced as a design tool. Emphasis is given to modeling and fabrication processes. Special topic lectures on contemporary Mechanical Engineering issues and research activities. F

Sensor based instrumentation. 1 credit. Corequisite: EE 206. This course is designed to prepare mechanical engineers for experimental methods. It covers the basic electrical measurement and sensing devices. It incorporates the construction and analysis of linear electric circuits containing resistors, inductors, and capacitors driven by constant and sinusoidal voltage sources. Operational amplifier circuits will also be introduced. Finally, data acquisition and processing will be introduced. Chapter 2, 4, and 14 from Experimental Methods for Engineers will be covered. This book will also be used in the ME 483 lab. S and On demand.

Laboratory Problems. 1 to 3 credits. Repeatable to a maximum of 6 credits. Consent of instructor. Laboratory investigations of interest to student and faculty. On demand.

Materials Science. 3 credits. Prerequisites: Chem 121, Phys 252. The theory of the structure of matter, the prediction and evaluation of engineering properties of materials. F

Fluid Mechanics. 3 credits. Prerequisites: Phys 251, Math 265. Fluid properties; fluid statics and dynamics; transport theory and transport analogies, conservation of mass, energy, and momentum; dimensional analysis; boundary layer concepts; pipe flows; compressible flow; open channel flow. S

Material Properties and Selection. 3 credits. Prerequisite: ME 301. Study of relationships between materials, manufacture and design of engineering component. On demand.

Kinematics and Dynamics of Machines. 3 credits. Prerequisite: Engr 200, 202 and ME 101. Analytical and graphical study of motions, velocities, accelerations and forces for design of machine elements such as linkages, cams and gears. F

Machine Component Design. 3 credits. Prerequisite: Engr 203, ME 322. Design of machine elements such as shafts, bearings, gears, clutches, springs, threaded components, and bolts, riveted, welded, and bonded joints. Stress and failure theory analyses of the implementation of machine components are covered. S

Machine Component Design Laboratory. 1 credit. Corequisite: ME 323. Application of design and analysis tools developed in the Machine Component Design course. Laboratory emphasizes creative design, analysis techniques, construction methods, and design report writing. S

Thermodynamics. 3 credits. Prerequisites: Phys 251, Math 166. Fundamental energy relationships applied to both closed and open systems. Determination of thermodynamic properties, first and second laws of thermodynamic processes and basic cycles. F


Engineering Disasters and Ethics. 3 credits. Prerequisite: Junior or Senior standing. Engineering disasters will be the basis for teaching an ethics course to engineering students. Starting with the premise that most people know the difference between right and wrong (this is not a course on criminal activity!), the course explores how ethical decisions, in spite of their best intentions, sometimes create disastrous situations. The effect of cumulative adverse detail is difficult to teach except with case studies. Also explored is cost vs. safety trade-offs, the role of lawsuits, and government regulation. F

Cooperative Education. 1-3 credits repeatable to 12. Prerequisite: Eligible for advanced to the mechanical engineering degree program. A practical work experience with an employer closely associated with the student’s academic area. Arranged by mutual agreement among student, department and employer. S/U grading only. F,S,SS

Manufacturing Processes. 4 credits. Prerequisite: Engr 203, ME 301. Descriptive and analytical study of manufacturing methods and economics as they pertain to machining, metrology and automation. Includes laboratory. F

Systems Dynamics and Control. 3 credits. Prerequisites: Math 266, ME 322. Theory, analysis, and design of linear closed-loop control systems containing electronic, hydraulic, and mechanical components. Differential equations. LaPlace transforms, Nyquist and Bode diagrams are covered. On demand.

Mechanical Vibrations. 3 credits. Prerequisite: Engr 202, Math 266. Vibration analysis and design as it applies to single and multi degree freedom mechanical systems, isolation and absorption of vibration, vibration of continuous systems, numerical methods of solution. S

Advanced Manufacturing Processes. 3 credits. Prerequisite: ME 418. Individual projects involving the manufacturing economics and flow charts for selected products and basic technical principles of manufacturing processes. Includes laboratory. On demand.

Introduction to Finite Element Analysis. 3 credits. Prerequisite: Engr 203. Finite element analysis is introduced as a design tool. Emphasis is given to modeling techniques and element types. Matrix and energy methods are also introduced. On demand.

Industrial Energy Management. 3 credits. Prerequisites: ME 341 or consent of instructor. In this course, fundamentals and various levels of analysis for energy management of industrial processes and commercial buildings are presented. The purpose is to be able to assess current energy utilization through an audit and then to be able to propose and evaluate various energy conservation measures. Topics include: historical energy usage; energy management vs. conservation; normalized energy usage; utility rate structures (electric and gas); energy economics; auditing tools and procedures; energy management opportunities in various systems such as steam, insulation, heat exchangers, lighting, comfort conditioning, waste heat recovery, combustion, cogeneration, fans/pumps/motors, and electrical power. F


Internal Combustion Engines. 3 credits. Prerequisite: ME 342. Fundamentals of spark ignition and compression ignition engines, related components and processes. On demand.

Heating and Air Conditioning. 3 credits. Prerequisite: ME 342 or consent of the instructor. Corequisite: ME 474. Psychrometrics, heating and cooling loads and analysis of air conditioning systems. On demand.

Computational Fluid Dynamics. 3 credits. Prerequisites: ME 306 and Math 266. Provides a practical experience using computational fluid dynamics and provides computer support in material in fluid dynamics, which is useful in understanding the need to resolve grids in boundary layers and other regions of high velocity gradients. The course is structured as half lecture and half laboratory. The lecture covers topics related to laminar and turbulence boundary layers with and without acceleration, turbulence modeling, wakes and jets. The laboratory provides the student with the necessary tools to understand and manipulate fluid flow. S


Compressible Fluid Flow. 3 credits. Prerequisite: ME 306 and 341. Introduction to the theory and application of one-dimensional compressible flow. Course topics include isentropic flow in converging and diverging nozzles, normal shock waves, oblique shock waves, Prandtl-Meyer flow, flow with friction and heat addition. On demand.

Mechanical Engineering Seminar. 3 credits. Prerequisite: Senior standing. Reports and presentations on current developments in mechanical engineering and engineering ethics. F

Mechanical Measurements Laboratory. 3 credits. Prerequisite: EE 206 and either ME 206 or EE 306. Experiments and written reports on the operation and performance of instruments and basic mechanical engineering equipment. F

Engineering Design. 2 credits. Prerequisites: ME 323, ME 323L, and either ME 474 or one elective from the thermal sciences group. Corequisites: Engr 440 and 483. The first course of a two-course sequence in Engineering Design, establish concepts and important features of the machine or system, do market analysis, establish design objectives, explore alternatives, conduct research, specify constraints. F

Engineering Design. 3 credits. Prerequisites: ME 487. Systematic study and practice essential to the mechanical engineering degree program. A practical work experience with an employer closely associated with the student’s academic area. Arranged by mutual agreement among student, department and employer. S/U grading only. F,S,SS

Introduction to the theory and application of one-dimensional compressible flow. Course topics include isentropic flow in converging and diverging nozzles, normal shock waves, oblique shock waves, Prandtl-Meyer flow, flow with friction and heat addition. On demand.

Special Laboratory Problems. 1 to 3 credits. Repeatable to maximum of 6 credits. Prerequisite: Consent of instructor. Laboratory investigations of interest to students and faculty. On demand.

Introduction to Health Sciences Professions. 1 credit. Introduction to the roles, ethics, certification, education, employment and fundamental knowledge and skills related to the health science professions. F, S, SS

Medical Terminology. 1 credit. Knowledge of medical terminology learned through the study of different body systems. F, S, SS
Microbiology and Immunology (MBio)

http://www.med.und.nodak.edu/depts/micro/programs_study.html

Bradley (Interim Chair), Flower, Hill, Nilles and Sailer

Courses

202L. Introductory Medical Microbiology Lecture. 3 credits. Prerequisite: Chem 121 or 116. Three hours lecture per week. An introductory medical microbiology course primarily for nursing and clinical lab science students but open to allied health students with permission of the instructor. This course provides a background in all aspects of microbial agents and disease.

202L. Introductory Medical Microbiology Laboratory. 2 credits. Prerequisite: Chem 121 or 116. Corequisite: MBio 202. Four hours laboratory per week. An introductory laboratory course in the isolation and identification of all types of microorganisms with an emphasis on those that cause disease.

302L. General Microbiology Lecture. 2 credits. Prerequisites: Biol 150 or Chem 116 or Chem 121 or permission of instructor. Two hours lecture per week. An introduction to general microbiology with emphasis on the morphology, classification, and physiology of bacteria, fungi, parasites, and viruses. The significance of microorganisms in food processing, waste disposal, and in maintaining our environment is discussed.

302L. General Microbiology Laboratory. 2 credits. Prerequisite or corequisite: MBio 302. Four hours laboratory per week. The growth, isolation, and identification of microorganisms from a variety of sources using procedures such as staining, microscopy, pure culturing, and biochemical tests.

328. Introduction to Immunology. 3 credits. Prerequisites: Biol 150, 151, or BBMB 301 or equivalent. An introduction to the fundamentals of immunology including immunohistochemistry, humoral and cellular response, hypersensitivity, immunodeficiency, immunogenetics, tolerance and immunodiagnosis.

494. Directed Studies. 1-3 credits. A course designed to provide individual students with the opportunity for creative, scholarly and research activities in microbiology and immunology under the direction of a department faculty member. Open to all students with the consent of the instructor required. F, SS

Military Science (MSci)

http://www.und.edu/dept/msci/

Beauchamp, Flemmer, Pittman, Reed, Sickinger (Chair) and VanHout

The Army Reserve Officer Training Corps (ROTC) offers a program of instruction designed to mold young men and women into responsible, self-disciplined citizens and leaders. Students seeking a commission as a second lieutenant in the United States Army can expect to learn and develop the following skills: time management, oral and written communication, leadership, management, problem solving and decision making. Selection for active duty and for commissioning as an Army officer is competitive. Students commissioned as reserve officers may request active duty or may serve with the Army Reserve or National Guard after a short period of active duty for officer training. The program is voluntary and is open to both male and female students. Enrollment in Military Science I (freshman year) entails no military service obligation. This offers the student an opportunity to explore military science subjects and is a basis upon which to decide about further enrollment in military science including entering competition for an ROTC scholarship. Winners of three or four year ROTC scholarships incur a military obligation when they enter their MS II (sophomore) year. Other students incur no obligation until their MS III (junior) year. Successful completion of MS I and MS II is a prerequisite to enrollment in MS III and MS IV; however, placement credit procedures are available for veterans, Junior ROTC participants, and transfer students formerly enrolled in other ROTC programs, or by completion of a summer Leadership Training Course (LTC). Direct questions concerning placement eligibility to the Department of Military Science. Financial assistance is available in the form of two, three, and four year ROTC scholarships. This scholarship pays tuition, laboratory fees, a flat rate for textbooks and a monthly stipend. We also offer the Helicopter Flight Training Program. This gives financial assistance for all helicopter training. All ROTC scholarship students and each non-scholarship junior and senior are paid a graduated stipend. The advance course may be taken for credit only by non-obligated students with prior arrangement through the Department of Military Science. The Department of Military Science is housed in the University Armory which contains a library, physical fitness center, and a computer lab for the use of enrolled students.

Professional Military Education Requirements

In addition to successfully completing the ROTC curriculum and earning a baccalaureate degree, a cadet must complete an undergraduate history course to meet the requirements for commissioning. Specifically, cadets must take a course in American military history, e.g., Military History, WWII, Nuclear Weapons and the Modern Age, U.S. and Vietnam 1945-1975, U.S. Foreign Relations Since 1900.

MINOR IN MILITARY SCIENCE

Required 29 credits, including:

- MSCI 301 .......... Military Science III ................................................................. (3)
- MSCI 301 LAB .......... Military Science Lab ......................................................... (1)
- MSCI 302 .......... Military Science III ................................................................. (3)
- MSCI 302 LAB .......... Military Science Lab ......................................................... (1)
- MSCI 302 LAB .......... Military Science Lab ......................................................... (1)
- MSCI 401 .......... Military Science IV ................................................................. (3)
- MSCI 401 LAB .......... Military Science Lab ......................................................... (1)
- MSCI 402 .......... Military Science IV ................................................................. (3)
- MSCI 441 .......... Military Science IV ................................................................. (3)
- Hist 210 .......... Military History .......................................................... (3)

3 credits from the following:

- Pols 220 .......... International Politics ................................................................. (3)
- Pols 225 .......... Comparative Politics ................................................................. (3)
- Hist 269 .......... World War II .............................................................................. (3)
- Hist 335 .......... Nuclear Weapons and the Modern Age .................................... (3)
- Hist 339 .......... The United States and Vietnam, 1945-1975 ................................... (3)
- Hist 412 .......... U.S. Foreign Relations Since 1900 ................................................. (3)

3 hours from the following:

- Comm 212 .......... Interpersonal Communication ................................................. (3)
- Mgmt 300 .......... Principles of Management (Restricted to BPA Majors) ............. (3)
- Mgmt 305 .......... Managerial Concepts (Restricted to non-BPA Majors) ............ (3)
- Nurs 478 .......... Leadership and Management (Restricted to Nursing Majors) ................................................................. (3)
- Phil 370 .......... Ethics in Science and Engineering (Restricted to junior/senior standing) ................................................................. (3)
- Phil 373 .......... Ethics in Business and Public Relations ............................................. (3)
- Isys 217 .......... Fundamentals of Management Information Systems ....................... (4)

Courses

101. Military Science I. 2 credits. Make your first new peer group at college one committed to performing well and enjoying the experience. Increase self-confidence through team study and activities in basic drill, physical fitness, rappelling, leadership reaction course, and basic marksmanship. Learn fundamental concepts of leadership in both a classroom and outdoor laboratory environment. Participation in a weekend exercise is optional.

101L. Leadership Lab. 1 credit. Corequisite: MSCI 101. An introduction to individual and team aspects of military tactics in small unit operations. Includes basic drill and ceremony, marksmanship training and fundamental concepts of leadership.

102. Military Science I. 2 credits. Learn and apply the principles of effective leadership. Reinforce self-confidence through participation in physically challenging exercises with upper division ROTC students. Develop oral and written communication skills that will improve individual and group interaction. Develop skills in land navigation, and radio communications.

102L. Leadership Lab. 1 credit. Corequisite: MSCI 102. An introduction to individual and team aspects of military tactics in small unit operations. Includes operation order writing, team level movement techniques, and followship.

201. Military Science II. 2 credits. Learn/apply ethics-based leadership skills that develop individual abilities and contribute to the building of effective teams of
402. Leadership Lab. 1 credit. A culmination of all of the concepts learned in the previous classes with emphasis on writing operation orders for company level and higher. Responsible for all Army ROTC Cadet Battalion training involving a series of practical exercises and evaluation of training. S

411. Military Physical Conditioning. 1 credit. Corequisites: MSci 401, 401L. Putting into practice all of the personal fitness concepts learned in the previous classes with emphasis on leadership of a battalion sized organization, including planning and coordination of all physical fitness for the ROTC Battalion and evaluation of the personal fitness training and trainers. Coordination of individual training specific to fitness needs. An essential objective for each student is to achieve a minimum score of 275 points total, in the three events of the Army Physical Fitness Test (APFT): pushups, sit-ups, and a timed two-mile run. F

422. Military Physical Conditioning. 1 credit. Corequisites: MSci 402, 402L. Continuation of 411 with emphasis on grasping the Army’s policy on physical fitness, fitness maintenance, and safety. Become familiar with Army regulations and forms pertaining to physical fitness. Responsible for documentation, testing and briefing of the ROTC Battalion’s Physical Fitness Program. An essential objective for each student is to achieve a minimum score of 275 points total, in the three events of the Army Physical Fitness Test (APFT): timed pushups, sit-ups, and a two-mile run. S

499. Special Topics. 1-3 credits, repeatable to 6. Special Topics for the Department of Military Science. FS

Music (Musc)

http://www2.und.nodak.edu/undmusic/index.php

Blackburn, Blake, Bronfman, Christopherson, Costes, Drago, Ingle, Keyser, Knight, Lewis, Norman Dearden, Popejoy, Rheude, Tang, Towne and Wittgraf (Chair)

The mission of the University of North Dakota Department of Music is to inspire our students and community through education, performance, scholarship, and human relationships in music. The professional and liberal arts degrees of the Department of Music provide rigorous courses of study that cultivate the highest degree of artistry, innovative teaching, professionalism, and critical inquiry. The University of North Dakota is an accredited institutional member of the National Association of Schools of Music.

Music courses that are specifically designed for essential studies include: Music 100, 101, 203, and Fine Arts 150. These courses, along with performing ensembles, can fulfill the Fine Arts and Humanities portion of the University’s Essential Studies Requirements. Individual lessons for credit are offered to music majors and minors, as well as to non-majors. These courses, along with other music classes, may also be used for general education or to pursue other academic goals. Individual lessons are taught by professional musicians who have expertise in a specific area of music.

Prior to admission to any of the music degree programs, students’ musical background and skills will be evaluated, and a meeting with the appropriate faculty member(s) will be scheduled. Prospective students are encouraged to attend a music degree program that is appropriate to their goals and abilities.

The study of music at the University begins with a series of core courses common to all music major degree programs, along with individual lessons in the appropriate area and ensemble participation. Students must complete an audition in their major performing medium prior to acceptance for individual lessons. First-year students in a music major or minor should register initially for Music 130 and 131, as well as for individual lessons and the major ensemble within their area of concentration. In addition, music majors should also register for Music 133. Placement tests administered during the first week of classes will evaluate the student’s readiness for Music Theory. Deficiencies revealed by the examination may require remedial study in Music 101 prior to beginning Music 130 and 131. Upper-division courses are pursued in accordance with the specific degree program selected by the student.
Each music major degree program has a specific piano proficiency requirement, which all music majors must fulfill. Students in the Bachelor of Music degrees in Performance, Music Education, or Music Therapy must pass all levels of Piano Proficiency (Musc 133, 136, 233, 236 or equivalent). Bachelor of Arts students must pass Piano Proficiency Levels 1 and 2 (Musc 133 and 136). These requirements must be met prior to graduation, or prior to registration for either Student Teaching or Music Therapy Internship.

Ensemble participation is a component of each of the degree programs offered within the department. Students in the Bachelor of Music program participate in an ensemble each semester of residence except for the semester of student teaching. For Music Education students this should be the large ensemble of their major instrumental or vocal area. The number of ensemble credits for each degree is listed below. More information about the ensemble requirement for each degree program can be found in the Department of Music Undergraduate Handbook available in the department office.

Individual Applied Music Lessons are an essential part of all music degrees. The number of applied lesson credits for each degree is listed below. Individual lessons and ensembles may be repeated for credit without limitation. A maximum of 12 hours of credit in ensembles, however, may apply for graduation.

The Bachelor of Music degree program offers majors in Performance, Music Education, and Music Therapy. The Performance major is designed for the student who wishes to pursue a career in performance and who has the ability and commitment to achieve that goal. Students desiring admission into the applied lesson sequence for performance majors (Musc 155, 255, 355, 455) must present a formal audition before the appropriate applied faculty. Students accepted for this program must demonstrate exceptional potential for performance excellence. The Performance student is expected to present a shared recital during the third year, and to present a full recital during the fourth year.

The Music Education major is designed for the student who wishes to become a music teacher in the elementary and secondary schools and is intended to develop the requisite knowledge, performance, and teaching abilities needed to function as a professional music educator. The student will select either an instrumental or vocal/choral emphasis, culminating in the presentation of a half recital. The successful completion of this program will qualify the student for state licensure in instrumental, choral, and general music, grades K-12.

Music Education majors must complete seven semesters, not semester hours, of applied lessons. They are similarly required to complete a minimum of seven semesters in a major performing ensemble in their major performing area, i.e., Concert Choir, Women's Choir, Varsity Bards, Wind Ensemble, University Band, or University Chamber Orchestra.

The Music Therapy major is a competency-based program, which includes both academic and clinical work, culminating in an American Music Therapy Association approved internship. Academic requirements include courses in Music, Music Therapy and related fields. Clinical requirements include four levels of practica in a variety of community settings under the guidance of a music therapist in cooperation with community clinicians. The program is designed to produce highly skilled and broadly based music therapists who will meet the requirements for accreditation by the American Music Therapy Association.

The Bachelor of Arts degree program in music is designed for the student who wishes a general liberal arts education with emphasis in music. Along with a broad coverage of the discipline, the student selects an area of concentration, e.g., music history, music theory, music technology, composition, culminating in a final project.

In addition to examinations in traditional classroom courses, student progress in Individual Lessons is evaluated every semester through Individual Music jury examinations. At the end of the fourth semester of Individual Lessons study or at the end of the fourth semester of Music Theory, whichever comes first, all Music majors will undergo a Sophomore Review which includes a review of all academic work completed to that point and a juried performance examination in their major instrument. Students majoring in music must make a grade of "C" or better in every music course taken toward the degree and pass the juried performance examination in order to enroll in 300 level Individual Lessons. In sequential music courses, students must make a grade of "C" or better to progress to the next course in the sequence. Music Education students must complete a portfolio review as required by the Department of Teaching and Learning. Music Therapy students must be enrolled in Individual Instruction every semester they are enrolled in the program, up to a minimum of 8 credits.

A Department of Music Student Handbook is available to students as a supplement to this catalog. That volume includes the most recent updates of policies and procedures and may supersede information presented here.

College of Arts and Sciences

BACHELOR OF MUSIC WITH A MAJOR IN PERFORMANCE

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ER listing).

II. The Following Curriculum:

Core Courses

- Music 130, 134, 230, 234 Harmony and Theory Sequence (12)
- Music 131, 135, 231, 235 Aural Skills Sequence (4)
- Music 203 Popular and Classical Musics of the World (3)
- Music 310, 311 Music History Survey I, II (6)
- Music 490 Seminar in Music (3)
- Music 256 Basic Conducting (2)

Performance Courses

- Major Instrument (24)
- Secondary Instrument (may include Keyboard Skills Sequence; Musc 133, 136, 233, 236) (4)
- Music 444 Applied Music Pedagogy (2)
- Music 359 Junior Recital (1)
- Music 459 Senior Recital (1-2)
- Piano Proficiency through Level IV or Musc 133, 136, 233, 236 Keyboard Skills Sequence (4)

VOCAL MAJORS

Performance Courses

- Music 242 Diction for Singers (2)
- Music 259 Opera Workshop (2)

History, Literature, Theory and Composition

- Music 415 Song Literature (2)

Foreign Language Requirement

- French 101, 102 or German 101, 102 or Italian 101, 102 (8)

Other Electives

- Electives in disciplines other than the major (6)

INSTRUMENTAL MAJORS

Performance Courses

- Ensembles, Large and Small (10)

History, Literature, Theory and Composition

- Electives - Keyboard must include Musc 414, Piano Literature (3) (12)

Other Electives

- Electives in disciplines other than the major (9)
**BACHELOR OF MUSIC WITH A MAJOR IN MUSIC EDUCATION**

**仪 INSTRUMENTAL EMPHASIS**

**PROFESSIONAL EDUCATION**

T&L 250, 252, 386, 433, 486, 487, 488 (See adviser for clarification.)

**OPTIONAL CHORAL LICENSURE TRACK (9 hours)**

This additional coursework meets the criteria for Choral Licensure in Music Education in North Dakota.

Vocal/Choral Option:

- **Musc 445** Choral Methods .................................................. (3)
- **Musc 416** Choral Literature .................................................... (2)
- **Musc 260, 263** or 264 Large Choral Ensemble ........................ (1)
- **Musc 357** Choral Conducting ................................................ (2)*
- **Musc 140** Methods: Voice .................................................... (1)*

*Included in Instrumental Emphasis

**VOCAL/CHORAL EMPHASIS**

This coursework meets the criteria for Choral Licensure in Music Education in North Dakota.

Other studies

- **Musc 423** Instrumental and Choral Arranging ...................... (2)
- **Musc 427** Analysis of Musical Form ................................. (2)
- **Musc 417** Instrumental Literature ..................................... (2)

Performance

- **Musc 445** Choral Methods .................................................. (3)
- **Musc 416** Choral Literature .................................................... (2)
- **Musc 260, 263** or 264 Large Choral Ensemble ........................ (1)
- **Musc 357** Choral Conducting ................................................ (2)*
- **Musc 140** Methods: Voice .................................................... (1)*

*Included in Instrumental Emphasis

**Musc 150** Class Lessons (Guitar) ...................................... (1)

**BACHELOR OF MUSIC WITH A MAJOR IN MUSIC THERAPY**

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

Music majors must achieve a grade of C or better in every music course taken toward the degree in order to pass the Sophomore Proficiency.

Core Courses

- **Musc 130, 134, 230, 234** Harmony and Theory Sequence ........ (12)
- **Musc 131, 135, 231, 235** Aural Skills Sequence ......................... (4)
- **Musc 203** Popular and Classical Musics of the World .......... (3)
- **Musc 310, 311** Music History Survey I, II ................................ (6)
- **Musc 256** Basic Conducting ................................................... (2)
- **Piano Proficiency through Level IV or Musc 133, 136, 233, 236**
- **Keyboard Skills Sequence .................................................. (4)

Music Technology

- **Musc 340** Introduction to Music Technology .......................... (2)

**OPTIONAL INSTRUMENTAL LICENSURE TRACK (9 hours)**

This additional coursework meets the criteria for Instrumental Licensure in Music Education in North Dakota.

Instructoral Option:

- **Musc 446** Instrumental Methods ........................................... (3)
- **Musc 417** Instrumental Literature ........................................ (2)
- **Musc 270, 271** Piano Proficiency through Level IV or........ (2)
- **Musc 203** Popular and Classical Musics of the World .......... (3)
- **Musc 310, 311** Music History Survey I, II ......................... (6)
- **Musc 490** Seminar in Music ................................................... (3)

Supporting Courses in Music

- **Musc 150, 151** Class Lessons: Guitar ................................. (2)
- **Musc 150, 151** Class Lessons: Voice, and/or ....................... (2)
- **Musc 140, 399** Methods: Percussion, Jazz Improvisation ... (4)
- **Musc 131/136/233/236, Keyboard Skills Sequence .............. (4)
- **Major Ensembles (at least three different).............................. (6)
- **Musc 256** Basic Conducting ................................................... (2)
- **Musc 423** Instrumental and Choral Arranging ...................... (2)
- **Musc 340** Introduction to Music Technology ....................... (2)

Music Therapy Courses

- **Musc 180** Introduction to Music Therapy ............................ (3)
- **Musc 280** Music Therapy Theory and Methods I ................. (3)
- **Musc 281** Music Therapy Techniques I ................................ (3)
- **Musc 282** Music Therapy Practicum I ................................. (1)
- **Musc 380** Music Therapy Theory and Methods II ............... (3)
- **Musc 381** Music Therapy Techniques II ............................. (2)
- **Musc 382** Music Therapy Practicum II ............................... (1)
- **Musc 383** Music Therapy Practicum III ............................. (1)
- **Musc 480** Psychological Foundations of Music Learning .... (3)
- **Musc 481** Music Therapy Practicum IV ................................. (1)
- **Musc 497** Music Therapy Internship ..................................... (3)

or

- **Musc 397** Cooperative Education in Music (with placement approved by adviser) ................ (3)

Additional Required Courses

- **Psyc 111** Introduction to Psychology ................................. (3)
- **Psyc 250** Developmental Psychology ................................... (4)
- **Psyc 270** Abnormal Psychology .......................................... (3)
- **Anat 204** Anatomy for Paramedical Personnel .................. (3)
- **Cmp 241** Anatomy for Paramedical Personnel .................. (2)
- **T&L 315** Education of Exceptional Children ....................... (3)
- **Soc 236** Sociological Statistics ........................................... (3)
- **General Electives (chosen in consultation with adviser) .......... (6)

**BACHELOR OF ARTS WITH A MAJOR IN MUSIC**

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

Music majors must achieve a grade of C or better in every music course taken toward the degree in order to pass the Sophomore Proficiency.

Core Courses

- **Musc 130, 134, 230, 234** Harmony and Theory Sequence ........ (12)
- **Musc 131, 135, 231, 235** Aural Skills Sequence ......................... (4)
- **Musc 203** Popular and Classical Musics of the World .......... (3)
- **Musc 310, 311** Music History Survey I, II ................................ (6)
- **Musc 256** Basic Conducting ................................................... (2)
- **Piano Proficiency through Level IV or Musc 133, 136, 233, 236**
- **Keyboard Skills Sequence .................................................. (4)

PROFESSIONAL EDUCATION
I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

Music majors must achieve a grade of C or better in every music course taken toward the degree in order to pass the Sophomore Proficiency.

Core Courses:

Musc 130, 134, 230, 234 - Harmony and Theory Sequence ..........(12)
Musc 131, 135, 231, 235 - Aural Skills Sequence .................(4)
Musc 203 - Popular and Classical Musics of the World (3)
Musc 310, 311 - Music History Survey I, II .......................(6)
Musc 490 - Seminar in Music ............................................(3)

 Piano Proficiency Level I & II or
Musc 133, 136 Keyboard Skills I, II .................................(1)

Other Supportive Courses:

Performance (one instrument or voice) ......................................(4)
Major Ensemble ................................................................(4)
Electives in Theory/Comp., History/Lit., Conducting or Applied ..................(7)
Musc 492 Senior Project ....................................................(2)

Requisites in other departments:

A concentration in a single supplementary field other than Music is also required of all Bachelor of Arts in Music majors. The concentration may be satisfied in one of two ways: 1) Level IV language proficiency in a modern foreign language; or 2) 20 credit hours, at least 9 of which must be numbered 300 or above in any single subject area* taught at this university.

* Defined as courses with the same registration prefix or within a single degree major or minor area.

Students must take additional elective credits to fulfill the 125 credit hours required for degree completion.

MINOR IN MUSIC

Required 21 credits:

Musc 100 Introduction to the Understanding of Music (May be waived by examination) ....................(3)
Core Courses
Musc 130, 134 First-Year Harmony and Theory .........................(6)
Musc 131, 135 First-Year Aural Skills ...................................(2)
Musc 310 or 311 Music History Survey I or II .......................(3)
Additional Courses in Music
Performance (Applied Music, Conducting, Ensembles) .................(4)
Electives in History/Literature/Theory/Composition ....................(6)
(May include, but not limited to, other courses in Music
Major Core, such as 203, 230, 234, 310, 311)

College of Education and Human Development

MINOR IN MUSIC

Required 26 credits:

Musc 100 Introduction to the Understanding of Music (May be waived by examination) ....................(3)
Core Courses
Musc 130, 134 First-Year Harmony and Theory .........................(6)
Musc 131, 135 First-Year Aural Skills ...................................(2)
Musc 256 Basic Conducting .............................................(2)
Musc 310 or 311 Music History Survey I, II .......................(3)
Additional Courses
Applied Music .................................................................(4-5)
Ensembles ......................................................................(2-3)
Musc 440 Elementary Music Methods and Materials ..........(3)

Music Theory and Composition

130. Music Theory I. 3 credits. Corequisite: Musc 134. The study of diatonic harmony and the elements of the tonal idiom from pre-baroque to the classical period. Students with no previous study of music theory should begin in Musc 131. F/F, S/S

Aural Skills I. 1 credit. Corequisite: Musc 130. Training in reading at sight and in aural recognition involving dictation, keyboard, and singing skills. F

133. Keyboard Skills I. 1 credit. Beginning classroom instruction in keyboard. Music majors only or permission of department. F

134. Music Theory II. 3 credits. Prerequisite: Grade of “C” or better in Musc 130. Corequisite: Musc 135. The continuation of diatonic materials from Music Theory I with an introduction to chromatic materials. Material is learned through part writing, keyboard skills, and music analysis. F/S

135. Aural Skills II. 1 credit. Prerequisite: Grade of “C” or better in Musc 131. Corequisite: Musc 134. Training in reading at sight and in aural recognition involving dictation, keyboard, and singing skills. F

136. Keyboard Skills II. 1 credit. Prerequisite: A grade of “C” or better in Musc 136. Continuation of the development of fundamental piano skills with emphasis on the improvement of keyboard techniques and repertoire. Music majors only or permission of department. F/S

230. Music Theory III. 3 credits. Prerequisite: Musc 133; grade of “C” or better in Music 134. Corequisite: Musc 231. The continued study of chromatic materials covered in Musc 134. Material is learned through part writing, keyboard skills, and music analysis. F/S

231. Aural Skills III. 1 credit. Prerequisite: Grade of “C” or better in Musc 135. Corequisite: Musc 230. Continuation of the development of sight reading and aural recognition skills including music dictation. F

233. Keyboard Skills III. 1 credit. Prerequisite: A grade of “C” or better in Musc 136. Continuation of the development of fundamental piano skills with emphasis on the improvement of keyboard and repertoire. Music majors only or permission of department. F/S

423. Instrumental and Choral Arranging. 2 credits. Prerequisite: Musc 134. Scoring techniques for instrumental and vocal ensembles, including band, orchestra, jazz ensemble, choir and children’s chorus. Specific areas of focus to be determined by abilities and interests of the students. S/2


427. Analysis of Musical Form. 2 credits. Prerequisite: Musc 230. Analysis of the principal forms of musical composition. S/2


429. Composition. 2 credits (repeatable). Prerequisite: Musc 134. Original composition in smaller forms for vocal and instrumental solos and ensembles. F/S

Music History and Literature

200. Music in America. 3 credits. A historical survey of music in America from pre-colonial times through the twentieth century, including Classical, Ethnic, Folk, and Popular Traditions. Designed for non-majors; will include listening techniques and writing about music. On demand.

203. Popular and Classical Musics of the World. 3 credits. A study of the music of selected cultures of the world and ethnic sub-cultures in America; includes Native American, Jazz, Popular, and World music. S/2

270. Collegium Musicum. 1 to 4 credits not to exceed 1 credit per semester. Study and performance of vocal and instrumental music of the Medieval, Renaissance, and Baroque eras and other selected compositions which are rarely performed. On demand.

310. Music History Survey I. 3 credits. Prerequisite: Musc 134 or instructor’s permission. A historical survey of western art music from Ancient Times to 1650. F

311. Music History Survey II. 3 credits. Prerequisites: Musc 133 and 134 or permission of the instructor. A historical survey of western art music from 1650 to the present. S

314. Piano Literature. 3 credits. Prerequisite: Musc 354 or 355, Piano, or consent of the instructor. A study of the piano literature from the Baroque period to the present, with attention to the development of forms, styles, and techniques. S/2

315. Song Literature. 2 credits. Prerequisite: Musc 254 or 255, Voice. Repertoire selection and analysis of songs from the Baroque period to the present, with attention to the development of forms, styles, and techniques. S/2

415. Choral Literature. 2 credits. Prerequisite: 3 hours of Music History and Literature. Choral literature from the Renaissance to the present with particular attention given to the representative compositions in both large and small forms. F/S
Musc 383 and Soc 326. An in-depth study of the psychological foundations of music therapy and its role in enhancing the quality of the life of individuals who are facing serious health challenges. This course is intended for music therapy internship and for students seeking cooperative education in music therapy. F

Musc 281. Supervised field experience in music therapy with special needs children. The student will co-lead music therapy groups and work with individual clients. In addition to field placement, the student must attend a weekly on-campus seminar. S

Musc 282. Corequisite: Musc 381. Supervised field experience in music therapy with special adult populations. The student will co-lead music therapy groups and work with individual clients. In addition to field placement, the student must attend a weekly on-campus seminar. S

Musc 283. Music Therapy Practicum III. 1 credit. Prerequisites: Musc 381 and 382. Supervised field experience in music therapy with special adult populations. The student will co-lead music therapy groups and work with individual clients. In addition to field placement, the student must attend a weekly on-campus seminar. F

Musc 284. Music Therapy Practicum IV. 1 credit. Prerequisite: Musc 383. Supervised field experience in music therapy with either special needs children or adults. The student will lead music therapy groups and work with individuals. In addition to field placement, the student must attend a weekly on-campus seminar. F

Musc 285. Music Therapy Internship. 1-3 credits, repeatable to 3 credits. This course is intended for music therapy internship and for students seeking cooperative placements in the field of music. All placements will be conducted under the supervision of an appropriate music professional. Arranged by mutual agreement between student, department and placement supervisor. S/U grading. F,SS

Psychological Foundations of Music Learning. 3 credits. Prerequisites: Musc 383 and Soc 326. An in-depth study of the psychological foundations of musical behavior including human response to music, music preference and ability, psychoacoustical parameters; and research in the field. S

Music Therapy Practicum IV. 1 credit. Prerequisite: Musc 383. Supervised field experience in music therapy with either special needs children or adults. The student will lead music therapy groups and work with individual clients. In addition to field placement, the student must attend a weekly on-campus seminar. F

Music Therapy Internship. 1-3 credits. Prerequisites: Completion of all Music Therapy coursework. Clinical placement at an American Music Therapy Association approved facility upon the completion of Music Therapy coursework. The internship is a degree requirement, offering the student supervised field experience under the guidance of a professional music therapist. S/U grading only. F,SS

Music Education

140. Methods: Woodwinds, Brass, Strings, Percussion, Voice. 1 credit, repeatable to 6 credits. Prerequisite: Music majors and minors only. Offers music education students performance and pedagogical instruction on voice and instruments in the brass, woodwind, string and percussion families. F

140. Introduction to Music Technology. 2 credits. Prerequisites: Musc 134, 135. Introduction to the use of the World Wide Web, computers and synthesizers, samplers, and computer assisted instruction software in composition, performance and music education. S

141. Methods and Materials for Elementary Music. 3 credits. Corequisite: T&L 386. Overview of methods and materials of elementary music for music majors and minors. Includes experiences for the practical application of course content. F

142. Methods and Materials for Middle and Secondary School Music. 3 credits. Prerequisites: T&L 325. Corequisite: T&L 486. Various teaching methods and strategies and the materials used in teaching middle and secondary school band, choir, orchestra, and general music programs. F, S

143. Music for Elementary School Teachers. 3 credits. Prerequisite: Admission to Teaching and Learning. Survey of elementary school music. Development of teacher skills and knowledge emphasizing conceptual understandings and music competencies essential in the musical growth of children. Not open to music majors or minors. F

144. Music Methods and Materials for Elementary School Teachers. 3 credits. Prerequisite: Admission to Teaching and Learning, must be able to read music. An overview of elementary methods and materials for non-majors with a musical background. Not open to music majors or minors. S

145. Choral Methods. 3 credits. F, S

146. Instrumental Classroom Methods and Materials. 3 credits. F

147. Jazz Pedagogy. 2 credits. Organization of and materials appropriate for the jazz band, methods of teaching the rhythmic and tonal problems inherent in its style. On demand.

148. Orchestra Directors’ Course. 1 credit. Organization and administrative problems of the orchestra director such as curriculum, recruiting, scheduling, program, promotion of the string and band program, and literature. On demand.

149. Music Education Special Topics. 1 to 3 credits. F, S

Music Performance

a. Conducting

256. Basic Conducting. 2 credits. Prerequisite: Musc 133. Development of basic conducting techniques, baton technique, and use of the left hand. Reading of choral and instrumental literature. On demand.

257. Choral Conducting. 2 credits. Prerequisites: Musc 236 and 256. Conducting problems and rehearsal techniques in relation to choral literature in various styles based on score, class performance, and recordings. S

260. Instrumental Conducting. 2 credits. Prerequisite: Musc 256. Instrumental conducting, rehearsal techniques, and score reading through the use of instrumental literature of various styles and periods. S

b. Pedagogy

438. Music in the Junior High School. 1 to 4 credits. On demand.

444. Applied Music Pedagogy. 2 credits. Prerequisite: 4 semesters of Applied Music in the instrument (or voice) concerned or consent of the instructor. Readings, interpretation, and application of pedagogical principles and materials relevant to the student’s major instrument(s). May be repeated for credit up to 6 hours. Keyboard F, S. Voice F, S. Strings, Winds, on demand.

c. Music Ensembles

A maximum of twelve hours of credit in ensembles may apply towards graduation.

260. Concert Choir. 1 credit. Select mixed choir performing the finest choral literature from every historical era. By audition only. F

261. University Chamber Choir. 1 credit. Select small mixed choir focusing on a different kind of choral music every semester, from early music to jazz and theater. F

263. Varsity Bards Men’s Chorus. 1 credit. Men’s vocal ensemble specializing in traditional shorter choral works, folk songs, spirituals, and lighter fare. F

264. Women’s Chorus. 1 credit. Women’s vocal ensemble specializing in traditional shorter choral works, folk songs, spirituals, and lighter fare. F

266. Old English Christmas Feast. 1 credit. Participation in all scheduled activities for the Old English Christmas Feast, to include singing (large groups and smaller choruses), serving meals, acting, and ushering. F

269. Opera Workshop. 1 credit. Production and presentation of chamber operas, scenes from larger works, and major productions, fully staged and costumed. Permission of instructor. On demand.

270. Wind Ensemble. 1 credit. Select ensemble of wind and percussion students performing the finest concert band literature. By audition only. F

271. University Band. 1 credit. Concert band open to all university students without audition, performing a wide variety of contemporary band literature. F

272. Marching/Athletic Band. 1 credit. The Pride of the North Band is open to all students on campus, and performs in all home games for the UND football, men’s and women’s basketball, and hockey teams. F

273. Instrumental Jazz Ensemble. 1 credit. Big band jazz ensemble performing music ranging from the swing era to the sounds of today. By audition only. F

274. Symphony Orchestra. 1 credit. Ensemble for performance of works for large orchestra. By audition only. F

275. University Chamber Orchestra. 1 credit. Ensemble for chamber performance of works for small orchestra. By audition only. F

276. Collegium Musicum. 1 to 4 credits. Study and performance of vocal and instrumental music of the Medieval, Renaissance, and Baroque eras, and other selected compositions which are rarely performed. On demand.

277. Chamber Music Groups. 1 credit. Any combination of strings, brass, woodwind, voices, percussion, or keyboard instruments on an ad hoc basis by a faculty member to utilize the particular talents of advanced students in exploring and performing chamber music literature. These groups will prepare compositions in such media as string quartets and trios, woodwind quintets, and vocal quartets. F, S

d. Applied Music (Group Instruction)

150. Class Lessons. 1 credit. Beginning class instruction in any of the following instrumental classes: Brass, Woodwind, Percussion, and String Class; Piano Class; Voice Class; Guitar Class. May be repeated for credit without limitation. F

151. Class Lessons. 1 credit. Intermediate class instruction in any of the following instrumental classes: Brass, Woodwind, Percussion, and String Class; Piano Class; Voice Class; Guitar Class. May be repeated for credit without limitation. F

242. Diction for Singers. 1 credit. Prerequisite: 2 semesters of private voice lessons. Rules for and practical application of two of the major languages used in song literature: Italian/English or French/German. May be repeated for credit up to 2 hours when topics vary. F, S

e. Applied Music (Individual Lessons)*

153. Individual Lessons for Non-Majors. 1 credit. Beginning college-level applied study of the stated instrument or voice, for non-Music majors. Half hour lesson. F

* Individual Lessons

155. Individual Lessons. 2 credits. Applied study of the stated instrument or voice at the freshman level. Full hour lesson. For Bachelor of Music in Performance students and others by permission of instructor. F, S


255. Individual Lessons. 2 credits. Prerequisite: MUSC 155. Applied study of the stated instrument or voice at the sophomore level. Full hour lesson. For Bachelor of Music in Performance students and others by permission of instructor. F, S


355. Individual Lessons. 4 credits. Prerequisite: MUSC 255. Applied study of the stated instrument or voice at the junior level. Full hour lesson. For Bachelor of Music in Performance students and others by permission of instructor. F, S

359. Junior Recital. 1 credit. Prerequisite: MUSC 254 or 255. Corequisites: MUSC 354 or 355. Presentation of Junior Recital. F, S

454. Individual Lessons. 1 credit. Prerequisite: MUSC 354. Applied study of the stated instrument or voice at the senior level for Music, Music Education, and Music Therapy majors, and for secondary instrument for Music Performance majors. Half hour lesson. F, S

455. Individual Lessons. 4 credits. Prerequisite: MUSC 355. Applied study of the stated instrument or voice at the junior level. Full hour lesson. For Bachelor of Music in Performance students and others by permission of instructor. F, S


155. Individual Lessons. 2 credits. Applied study of the stated instrument or voice at the freshman level. Full hour lesson. For Bachelor of Music in Performance students and others by permission of instructor. F, S


255. Individual Lessons. 2 credits. Prerequisite: MUSC 155. Applied study of the stated instrument or voice at the sophomore level. Full hour lesson. For Bachelor of Music in Performance students and others by permission of instructor. F, S


355. Individual Lessons. 4 credits. Prerequisite: MUSC 255. Applied study of the stated instrument or voice at the junior level. Full hour lesson. For Bachelor of Music in Performance students and others by permission of instructor. F, S

359. Junior Recital. 1 credit. Prerequisite: MUSC 254 or 255. Corequisites: MUSC 354 or 355. Presentation of Junior Recital. F, S

454. Individual Lessons. 1 credit. Prerequisite: MUSC 354. Applied study of the stated instrument or voice at the senior level for Music, Music Education, and Music Therapy majors, and for secondary instrument for Music Performance majors. Half hour lesson. F, S

455. Individual Lessons. 4 credits. Prerequisite: MUSC 355. Applied study of the stated instrument or voice at the junior level. Full hour lesson. For Bachelor of Music in Performance students and others by permission of instructor. F, S


155. Individual Lessons. 2 credits. Applied study of the stated instrument or voice at the freshman level. Full hour lesson. For Bachelor of Music in Performance students and others by permission of instructor. F, S


255. Individual Lessons. 2 credits. Prerequisite: MUSC 155. Applied study of the stated instrument or voice at the sophomore level. Full hour lesson. For Bachelor of Music in Performance students and others by permission of instructor. F, S


355. Individual Lessons. 4 credits. Prerequisite: MUSC 255. Applied study of the stated instrument or voice at the junior level. Full hour lesson. For Bachelor of Music in Performance students and others by permission of instructor. F, S

359. Junior Recital. 1 credit. Prerequisite: MUSC 254 or 255. Corequisites: MUSC 354 or 355. Presentation of Junior Recital. F, S

454. Individual Lessons. 1 credit. Prerequisite: MUSC 354. Applied study of the stated instrument or voice at the senior level for Music, Music Education, and Music Therapy majors, and for secondary instrument for Music Performance majors. Half hour lesson. F, S

455. Individual Lessons. 4 credits. Prerequisite: MUSC 355. Applied study of the stated instrument or voice at the junior level. Full hour lesson. For Bachelor of Music in Performance students and others by permission of instructor. F, S

College of Arts & Sciences

CERTIFICATE IN NONPROFIT LEADERSHIP

Core Requirements:
A&S 200 .......... Introduction to the Nonprofit Sector .................. (2)
A&S 450 .......... Capstone Experience and Development ............... (3)
A&S 497 .......... Internship for Nonprofit Leadership ................... (6)

Electives (9 credits). See elective course list below.

MINOR IN NONPROFIT LEADERSHIP

Core Requirements:
A&S 200 .......... Introduction to the Nonprofit Sector .................. (2)
A&S 450 .......... Capstone Experience and Development ............... (1)
A&S 497 .......... Internship for Nonprofit Leadership ................... (6)
POLS 361 .......... Nonprofit Management ..................................... (3)

Electives (9 credits). See elective course list below.

E elective courses for the Certificate and Minor in Nonprofit Leadership. Choose one 3-credit course from each area.

Organizational:

Ente 301 ..... Accounting and Financial Concepts for Entrepreneurship ......................................................... (3)
Ente 302 ..... Marketing and Management Concepts for Entrepreneurship .................................................... (3)
Psy 301 ..... Industrial and Organizational Psychology .......................................................... (3)
Mgmt 302 ..... Human Resource Management .............................. (3)
Comm 303 ..... Principles of Public Relations .............................. (3)
Mgmt 310 ..... Organizational Behavior ...................................... (3)
Comm 401 ..... Organizational Communication ............................ (3)
RIS 442 ..... Recreation Administration ...................................... (3)

Service and Community:

Comm 102 ..... Communication and the Human Community ........ (3)
Soc 115 ..... Social Problems ................................................... (3)
Comm 212 ..... Interpersonal Communication ............................ (3)
Psy 250 ..... Developmental Psychology .................................... (4)
T&L 252 ..... Child Development ............................................. (3)
SWK 257 ..... Human Behavior in the Social Environment .......... (3)
Soc 306 ..... Social Change ..................................................... (3)
IDS 495 ..... Service and Citizenship ........................................ (3)
FA 495 ..... Symposium in the Arts (when appropriate) ............... (3)

Diversity:

Rel 120 ..... Religion in America .............................................. (3)
FA 207 ..... Popular & Classical Music of the World .................... (3)
IS 121 ..... Introduction to Indian Studies ................................. (3)
Phil 215 ..... Contemporary Moral Issues ................................. (3)
Rel 216 ..... Women and Religion ............................................ (3)
A&S 225 ..... Introduction to the Study of Women ......................... (3)
RHS 250 ..... Contemporary Issues in Rehabilitation ................... (3)
Soc 250 ..... Diversity in American Society ............................... (3)
Phil 376 ..... Ethics in Business and Public Administration .......... (3)
Comm 402 ..... International/Intercultural Communication .......... (3)
Psy 421 ..... Individual and Group Differences ......................... (3)
Psy 465 ..... Multicultural Psychology ...................................... (3)

*Note: Students may “double use” courses for the Certificate and for their majors or minors.

Courses (A&S)

200. Introduction to the Nonprofit Sector. 2 credits. An introduction to management and leadership in the nonprofit sector, investigating the history, philosophy, ethics, and organization of nonprofit agencies. Coursework will include introductions on volunteerism, board selection and development, fundraising, the role of a foundation, management and administration, and public relations. The course will combine a review of texts, student research, expert guest lecturers, workshops, and student presentations. F, S

450. Capstone Experience and Development for Nonprofit. 1 credit. Prerequisite: A&S 200. Students will be asked to develop an integrative paper and complete a competency portfolio conveying what they have learned from the nonprofit leadership program. Students are required to attend the American Humanics Management Institute. The American Humanics Management Institute is a 3-4 day, intensive national management institute, organized by students from across the country affiliated with American Humanics, Inc., featuring workshops, seminars, and simulations. The institute is held in early January, between the fall and spring semesters. Students are required to raise funds to cover travel expenses and registration fees (app. $600-800), or pay their own expenses. Fund raising efforts provide a hands-on learning experience prior to the Institute. S

497. Internship for Nonprofit Leadership Certificate. 3-6 credits (repeatable to 6 credits). Prerequisite: A&S 200. Extended to be the cumulative application of the Nonprofit Leadership Certificate competencies for students. The internship is a short-term work experience emphasizing hands-on learning. The internship incorporates education and professional development in a nonprofit agency. F, S, SS
Nursing (Nurs)

http://www.nursing.und.edu/

Adams, C. Anderson, J. Anderson, Christian, Evanson, Gragert, Gregg, Hanson, Harsell, Heintz, Heuer, Hunter, Hurley, Ide, Lindseth, Macejkovic, Martin, Melland (Interim Dean), Millette, Morris, Odermann, Ralph, Roberts, Seal, Semmens, Sperle, Stahl, Stellon, B. Thompson, P. Thompson, Tyree and Yurkovich

ON-CAMPUS TRADITIONAL BSN PROGRAM

The graduate receives the Bachelor of Science in Nursing (B.S.N.) degree and is eligible to take the NCLEX-RN, the national examination required for registered nurse licensure. UND Nursing programs are accredited by the Commission on Collegiate Nursing Education (CCNE) and are approved by the North Dakota Board of Nursing.

Information on any newly approved programs or changes in programs/major since the printing of this catalog will be available on the Nursing web site (see above).

Selected courses may be offered in an online format and the tuition and fee structure may be impacted. While on campus tuition and fees cap at 12 credits, online course tuition is charged per credit regardless of the number of credits. In addition, online course fees may apply.

The nursing program admits students in March (to fill a fall class) and October (to fill a spring class). The application deadline is February 1 (for admission to fall class), and July 1 (for admission to spring class). The application process is online and may be accessed at: www.nursing.und.edu/bsn.

Application. Approximately 50 students are admitted each semester with the actual number determined by the availability of faculty and clinical facilities. Selection is made on the basis of academic record of core courses and points awarded for the personal statement submitted by each applicant and scored by nursing faculty. Students who are resubmitting a qualified application may be eligible for additional consideration. Prospective students should contact their advisor or the College of Nursing Admissions and Records Associate for the specifics of the selection process and procedures. Applicants who are not granted admission for the semester they request are eligible to reapply.

To be eligible for consideration for admission to the nursing major, the student applying must first be admitted to UND, must have an active U-mail account, and must have completed the following courses or equivalents with a grade of C or better:

- English 110
- English 120/125
- General Chemistry with lab (Chem 115/L or Chem 121/L)
- Organic and Biochemistry with lab (Chem 116/L)
- Human Anatomy with lab (Anat 204/L)
- Introduction to Psychology (Psyc 111)
- Introduction to Sociology (Cultural Anthropology or Social Problems may be taken in place of Introduction to Sociology.)
- Developmental Psychology (Psyc 250) or Abnormal Psychology (Psyc 270) and College Algebra (Math 103) or equivalent
- Refers to courses which are used in the “core” GPA calculation for admission.

Additionally, applicants must have earned at least a 2.50 overall and UND GPA (higher core GPAs will be more competitive). College Level Examination Program (CLEP) subject exam results, math placement results, and English Composition waivers will be accepted according to current university policy.

Admission. Upon notice of admission to the nursing program, documentation of the following verifications of immunizations, tests, or certifications must be submitted to the College of Nursing. Failure to do so by the deadline provided can result in loss of nursing placement. A non-refundable $75 deposit on the program fee will also be required. The minimum GPA of 2.50 must be maintained. All immunizations, tests, or certifications must be current and may not expire prior to beginning the nursing curriculum. Updates or recertification must be completed prior to starting classes each semester.

Submit documentation of either:

a. Current CNA certification and CNA course completion; or
b. Current CNA certification and three months of employment as a CNA.

And the following:

- Current medical/hospitalization Insurance or Certification of Assumption of full responsibility for any health treatment costs incurred.
- Proof of immunity to chicken pox (varicella).
- Proof of immunity to measles (rubeola), mumps & rubella (2 MMR immunizations).
- Two negative TB tests (Mantoux) with the last test current for the entire semester of admission; thereafter, students must submit an annual TB test.
- Hepatitis B vaccine series of 3 injections.
- Hepatitis B antibody titre, a test for immunity following vaccination, after the Hepatitis B series is completed. (Anti-HBs is the antibody test to hepatitis B surface antigen).
- Current CPR certification by the American Red Cross or American Heart Association to include adult, infant and child and one- and two-person CPR. Certification must be renewed annually throughout the nursing program.
- Submission of College of Nursing background check with acceptable results.

Additional designated courses or equivalents to complete with a “C” or better prior to beginning nursing courses:

- Microbiology 202/Lab
- Human Physiology 301
- Nutrition 240
- Abnormal Psychology 270 and Developmental Psychology 250

NOTE: Students will be automatically assigned to the catalog active at the time of admission to the Nursing program unless they request otherwise.

Students may petition to establish credit through special examinations according to University policy. Equivalency of courses on other campuses with those at UND should be verified by contacting the College of Nursing as early as possible.

Admission of Transfer Students. Students transferring to the nursing major from other accredited institutions must fulfill the same minimum prerequisite requirements as current University of North Dakota students. The first requirement for admission to the Nursing program is admission to UND. The dates for submission of the application and consideration of applicants are the same for all students. Students seeking to transfer to the College of Nursing from other
accredited institutions are advised to correspond with the College of Nursing before applying for admission to the University of North Dakota. During that admission process the student’s transfer work will be evaluated. Equivalency of courses from other campuses should be verified by contacting the College of Nursing as early as possible. The number of applicants typically exceeds the available spaces; therefore students cannot be guaranteed admission to the nursing major.

Licensed Practical Nurses (LPNs). LPNs interested in pursuing a bachelor’s degree are considered for admission as transfer students. Further information concerning the progression of the LPN student can be obtained on the UND Nursing website (see above). Transcripts of previous academic work must be submitted as part of the application to the University and to the nursing program. Some nursing courses will be waived for applicants who are LPNs.

Additional Expenses. In addition to the regular university tuition and fees, nursing students are charged a deposit of $75 of their first semester nursing program fee, due upon acceptance of a position in the nursing program at UND. This deposit is non-refundable. Costs of laboratory tests and immunizations required for the protection of the student and client, e.g., TB skin test, hepatitis vaccination, and health care insurance costs are the responsibility of the student. There are additional expenses related to background checks, uniforms and clinical equipment, graduation, and licensure. An estimated program cost sheet is available from the College of Nursing web pages. Students are responsible for transportation related to clinical experience. Use of a car, especially for public health nursing, is necessary. Students may complete the practicum course at a distant site. There are travel and housing costs associated with that affiliation.

Standardized Testing. To facilitate success on the licensure exam, students participate in standardized testing as they enter the nursing curriculum, as they progress through the curriculum, and prior to graduation. If, after two attempts, a benchmark score is not attained on exams reflective of course content, students are required to enroll in a one credit remediation course in the next semester. If after enrolling in the remedial course the student does not achieve the benchmark score after retaking the exam twice, the student may not progress in the nursing curriculum. Students must also achieve a benchmark score on an exam predictive of success on the nursing licensing exam administered prior to graduation before being awarded the baccalaureate degree.

Curriculum

Required 129 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements, including 9 credits of Arts and Humanities, 9 credits of Communication and approximately 3 credits of other electives. A minimum of six (6) credits of the Essential Studies requirements must meet the U.S and Global Diversity designations (See University ES listing). It is recommended that students try to complete the majority of these prior to admission to nursing.

II. A minimum overall grade point average of 2.50.

III. The following curriculum:

Freshman level (Pre-Nursing) – Semester One

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Engl 110</td>
<td>College Composition I</td>
<td>3</td>
</tr>
<tr>
<td>*Chem 115 or 115L</td>
<td>Introductory Chemistry and Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Chem 121 or 121L</td>
<td>General Chemistry I and Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>*Psyc 111</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soc 110 or 115</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anth 171</td>
<td>Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 103</td>
<td>College Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

Freshman level (Pre-Nursing) – Semester Two

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Engl 120</td>
<td>Composition II</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engl 125</td>
<td>Technical &amp; Business Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

Sophomore level (Pre-Nursing) – Semester Three

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Chem 116 or 116L</td>
<td>Intro to Organic &amp; Biochemistry/Lab</td>
<td>4</td>
</tr>
<tr>
<td>(will also accept Chem 122L if Biol. 150, 150L, and Biol 151 and 151L are also completed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Anat 204 or 204L</td>
<td>Anatomy for Paramedical Personnel/Lab</td>
<td>5</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Psyc 250</td>
<td>Developmental Psychology</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psych 270</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Fine Arts/Humanities</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Sophomore level (Nursing) – Semester Four

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPT 301</td>
<td>Mechanics of Human Physiology/Lab</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBio 202/202L</td>
<td>Introduction to Medical Microbiology/Lab</td>
<td>5</td>
</tr>
<tr>
<td>(fall only)</td>
<td></td>
<td></td>
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<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mbio 302/L</td>
<td>General Microbiology Lecture/Lab</td>
<td>4</td>
</tr>
<tr>
<td>(spring only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Psyc 270</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Psyc 250</td>
<td>Developmental Psychology</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#Nutr 240</td>
<td>Fundamentals of Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>Oral Communication requirement</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

*Must be completed prior to admission to the Nursing program.

# Must be completed prior to beginning nursing courses.

Junior level (Nursing) – Semester Five

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurs 321</td>
<td>Nursing Procedures</td>
<td>2</td>
</tr>
<tr>
<td>Nurs 322</td>
<td>Communication, Diversity, Families</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurs 323</td>
<td>Professional Role Development I</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurs 324</td>
<td>Functional Changes in Aging (theory only)</td>
<td>2</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurs 371</td>
<td>Adult Nursing Care I</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurs 372</td>
<td>Childbearing Family</td>
<td>2</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurs 374</td>
<td>Assessment across the Life Span</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td>Soc 326 or Psy 241 or Econ 210</td>
<td>3-4</td>
</tr>
<tr>
<td>Fine Arts &amp; Humanities</td>
<td></td>
<td>3</td>
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</table>

Senior level (Nursing) – Semester Six

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurs 325</td>
<td>Advanced Nursing Procedures</td>
<td>1</td>
</tr>
<tr>
<td>Nurs 326</td>
<td>Evidence-Based Practice</td>
<td>2</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurs 373</td>
<td>Adult Nursing Care II Clinical</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurs 374</td>
<td>Public Health Nursing Clinical</td>
<td>2</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
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<tr>
<td>Fine Arts &amp; Humanities</td>
<td></td>
<td>3</td>
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</table>

Senior level (Nursing) – Semester Seven

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Nurs 421</td>
<td>Child Health Nursing Theory</td>
<td>2</td>
</tr>
<tr>
<td>Nurs 471</td>
<td>Child Health Nursing</td>
<td>3</td>
</tr>
<tr>
<td>Nurs 472</td>
<td>Psych/Mental Health Nursing</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td></td>
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<tr>
<td>Nurs 473</td>
<td>Multisystem Complex AH</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>2</td>
</tr>
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</table>

Senior level (Nursing) – Semester Eight

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurs 420</td>
<td>Interprofessional Health Care</td>
<td>1</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurs 425</td>
<td>Practicum Theory</td>
<td>2</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurs 474</td>
<td>Professional Development II</td>
<td>5</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
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<tr>
<td>Nurs 475</td>
<td>Practicum</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurs 476</td>
<td>Complex Childbearing Family</td>
<td>2</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine Arts &amp; Humanities</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

*Chem 116/116L – Intro to Organic & Biochemistry/Lab (4)
*Anat 204/204L – Anatomy for Paramedical Personnel/Lab (5)
*Psyc 250 – Developmental Psychology (4)
*Psych 270 – Abnormal Psychology (3)
Fine Arts/Humanities (3)

#Must be completed prior to admission to the Nursing program.

# Must be completed prior to beginning nursing courses.

PPT 301 – Mechanics of Human Physiology/Lab (4)
MBio 202/202L – Introduction to Medical Microbiology/Lab (5)
(Bio 302/L – General Microbiology Lecture/Lab (4)
*Psyc 270 – Abnormal Psychology (3)
*Psyc 250 – Developmental Psychology (4)
#Nutr 240 – Fundamentals of Nutrition (3)
Oral Communication requirement (3)

*Must be completed prior to admission to the Nursing program.

# Must be completed prior to beginning nursing courses.

PPT 315 – Introduction to Pharmacology (3)
(Nurs 282 – Mental Health Promotion (theory only) (2)
Nurs 284 – Functional Changes in Aging (theory only) (2)
Nurs 285 – Professional Role Development I (theory only) (2)
Nurs 302 – Pathophysiology (theory only) (3)
Nurs 303 – Assessment across the Life Span (4)
(3 hrs theory and 3 hrs lab per week)

Nurs 321 – Nursing Procedures (2)
(Nurs 322 – Communication, Diversity, Families (3)
(3 hrs theory per week)
Nurs 323 – Clinical Skills (3)
Nurs 324 – Functional Changes in Aging (theory only) (2)
Nurs 371 – Adult Nursing Care I (4)
Nurs 372 – Childbearing Family (2)
Nurs 374 – Assessment across the Life Span (4)
(3 hrs theory and 3 hrs lab per week)

Statistics – Soc 326 or Psy 241 or Econ 210 (3-4)
Fine Arts & Humanities (3)

Junior level (Nursing) – Semester Six

Nurs 325 – Advanced Nursing Procedures (2)
Nurs 326 – Evidence-Based Practice (2)
Nurs 373 – Adult Nursing Care II Clinical (4)
Nurs 374 – Public Health Nursing Clinical (2)
Fine Arts & Humanities (3)

Senior level (Nursing) – Semester Seven

Nurs 421 – Child Health Nursing Theory (2)
Nurs 471 – Child Health Nursing (3)
Nurs 472 – Psych/Mental Health Nursing (4)
Nurs 473 – Multisystem Complex AH (4)
Fine Arts & Humanities (3)

Senior level (Nursing) – Semester Eight

Nurs 420 – Interprofessional Health Care (1)
Nurs 425 – Practicum Theory (2)
Nurs 474 – Professional Development II (5)
Nurs 475 – Practicum (4)
Nurs 476 – Complex Childbearing Family (2)
Fine Arts & Humanities (2)

*Chem 116/116L – Intro to Organic & Biochemistry/Lab (4)
*Anat 204/204L – Anatomy for Paramedical Personnel/Lab (5)
*Psyc 250 – Developmental Psychology (4)
*Psych 270 – Abnormal Psychology (3)
Fine Arts/Humanities (3)
Students are encouraged to consider elective nursing courses such as Cooperative Education, Independent Study and Honors; students should obtain supplemental information from their faculty adviser or the College of Nursing Director of Student Affairs.

**Progression and Graduation Requirements**

Students should note that nursing courses are sequenced to build on one another over five semesters. Careful attention should be paid to pre- and co-requisites. Each semester is to be completed in its entirety before progressing to the next semester. Students who need to extend or shorten the number of semesters to complete the curriculum (i.e. part time or LPNs) must see advisor and notify the Admissions & Records Associate so their name may be placed on a waiting list.

1. A 2.50 overall GPA is required for progression at the end of each semester.
2. A student must attain a letter grade of at least a “C” in each of the courses required in the undergraduate nursing curriculum, including all the nursing, science and support courses, to progress to the next semester of nursing courses and for graduation from the College of Nursing.
3. A student earning a “D” or an “F” in any required nursing course may repeat that course only once.
4. A student may only repeat one required nursing course.
5. Benchmark scores on ATI progression assessments and predictor exam must be achieved or the remediation process successfully completed.

Students who do not meet the academic progression criteria will be placed on probation. The nursing program also reserves the right to place students on probation, to suspend, or to dismiss any student in nursing who does not meet the ATI content exam policy requirements or whose performance in relation to client care is unsatisfactory. Additional details and any modifications in policies may be obtained from the Dean of the College, and are available in the College of Nursing undergraduate student handbook.

**ACCELERATED BSN**

This intensive program is designed for individuals who hold a bachelor’s degree in another field and plan to become a nurse. Selected courses may be offered in an online format and the tuition and fee structure may be impacted. While on campus tuition and fees cap at 12 credits, online course tuition is charged per credit regardless of the number of credits. In addition, online course fees may apply.

**Admission Requirements:**
- Earned baccalaureate degree from a regionally accredited institution
- GPA of 3.0 or greater preferred
- Successful interview
- Prerequisite courses listed below (or equivalent):
  - Chemistry 116 (Organic/Biochem)
  - Anatomy 204/204L
  - Microbiology 202/202L or 302/302L
  - Physiology 301
  - Pharmacology 315
  - Statistics
  - Nutrition 240
  - Developmental Psychology

**General Education/Essential Studies Requirements.** Students will be required to meet all UND general education or Essential Studies requirements, as appropriate. Students who have completed their general education requirements at another NDUS institution as recognized by GERTA or at a MnSCU institution will be deemed to have completed their general education/essential studies requirements.

**Curriculum.** Students complete the same nursing courses as traditional students do, in only a four-academic term sequence. The sequence of courses is:

**Spring - Term #1:**
- Accelerated CNA prep ................................................................. 1 week
- Full-term courses:
  - Nurs 302 ........ Pathophysiology (Theory only) ......................... (3)
  - Nurs 303 ........ Assessment Across the Life Span ....................... (4)
  - Nurs 322 ........ Communication, Diversity, Families .................. (3)

**Winter - Term #2:**
- Nurs 284 ........ Functional Changes in Aging (Theory only) .......... (2)
- Nurs 289 ........ Professional Development I (Theory only) .......... (2)
- Nurs 321 ........ Nursing Procedures .......................................... (2)
- (2 hrs theory, 6 hrs lab per week) Term #1 Total Credits (18)

**Summer - Term #3:**
- Full term course:
  - Nurs 372 ........ Childbearing Family ....................................... (2)
  - Nurs 325 ........ Advanced Nursing Procedures ........................ (1)
  - Nurs 371 ........ Adult Nursing Care I ...................................... (4)
  - Nurs 372 ........ Childbearing Family ....................................... (2)
- (2 hrs theory, 12 hrs clinical per week) Term #2 Total Credits (13)

**Fall - Term #4:**
- Full-term course:
  - Nurs 326 ........ Evidence-Based Practice (Theory only) .......... (2)
  - Nurs 421 ........ Child Health Theory (Theory only) .................. (1)
  - Nurs 471 ........ Child Health Nursing Clinical ............................ (2)
  - Nurs 476 ........ Complex Childbearing Family .......................... (2)
  - Nurs 420 ........ Interprofessional Health Care .......................... (1)
  - Nurs 472 ........ Psych/Mental Health Nursing ............................ (4)
- (5 hrs theory, 1.5 hrs clinical per week) Term #3 Total Credits (15)

**Spring - Term #5:**
- Full-term course:
  - Nurs 474 ........ Professional Development II ......................... (5)
  - Nurs 473 ........ Multi-System Complex Adult Health ................. (4)
- (2 hrs theory, 16 hrs clinical per week) Term #4 Total Credits (16)

**Progression and Graduation Requirements:**
1. A 2.50 overall GPA is required for progression at the end of each semester.
2. A student must attain a letter grade of at least a “C” in each of the courses required in the undergraduate nursing curriculum, including all the nursing, science and support courses, to progress to the next semester of nursing courses and for graduation from the College of Nursing.
3. A student earning a “D” or an “F” in any required nursing course may repeat that course only once.
4. A student may only repeat one required nursing course.
5. Benchmark scores on ATI progression assessments and predictor exam must be achieved or the remediation process successfully completed.

Students who do not meet the academic progression criteria will be placed on probation. The nursing program also reserves the right to place students on probation, to suspend, or to dismiss any student in nursing who does not meet the ATI content exam policy requirements or whose performance in relation to client care is unsatisfactory. Additional details and any modifications in policies may be obtained from the Dean of the College, and are available in the college of nursing undergraduate student handbook.

RN/BSN ONLINE OPTION

Students in the RN/BSN option program may attend classes either full or part-time. Thirty semester credits of UND nursing coursework are required (see below). In addition, students must complete all UND Essential Studies requirements, RN/BSN program prerequisites and UND graduation requirements. A minimum of 129 credits and a minimum overall grade point average of 2.50 are required for graduation. Online tuition and fees apply.

Admission Requirements:

The following courses or their equivalents must be either completed at UND or accepted by the nursing program as transfer credit prior to beginning Nursing courses:

- English Composition 110 and 120 or 125
- Psychology 111 (Introductory)
- Developmental Psychology 250
- Sociology 110 (Introductory) or 115 (Social Problems) or Anthropology 171 (Cultural)
- Anatomy 204, 204L
- PPT 301 (Physiology)
- Microbiology 202/202L
- PPT 315 (Pharmacology)
- Nutrition 240 (Fundamentals of Nutrition)
- Statistics course (Soc 326, Psyc 241 or Econ 210)

In addition:

1. A minimum GPA of 2.50 overall and on any UND course work completed.
2. Current, unencumbered RN license.
3. Coursework from completed associate degree from a regionally accredited college or diploma program in nursing. Graduates of diploma programs will have all transferred nursing credits held in escrow until the student has successfully completed six credits in nursing at UND, including the Nursing in Transition course (N350).

Curriculum:

The following are the courses remaining for most RN/BSN students after establishing credit for prior associate degree or diploma education. All are offered through distance delivery. The Public Health Clinical course (Nurs 374) requires daytime clinical hours and can be conducted in a community near the student. A travel fee for one to two faculty clinical site visits may be assessed to student’s business account based on travel distance (procedure pending).

Required Nursing Courses:

- Nurs 282 .... Health Promotion ................................................ (2)
- Nurs 324 .... Public Health Nursing Theory ................................ (2)
- Nurs 374 .... Public Health Nursing Clinical ............................... (2)

Elective Nursing Courses:

A minimum of eight elective nursing credits are to be chosen from the courses listed below. Not all courses are available through distance delivery.

- Nurs 284 .......... Functional Changes in Aging ................................ (2)
- Nurs 305 .......... Nursing Informatics ........................................ (3)
- Nurs 306 .......... Palliative Care ................................................ (2)
- Nurs 394 .......... Independent Study .......................................... (1-4)
- Nurs 400 .......... Special Topics ............................................... ........................... (2-3)
- Nurs 401/501 ....... Complementary Healthcare Therapies ................ ........................... (3)
- Nurs 418 .......... Physical Changes in Aging ............................ (3)
- Nurs 420 .......... Interprofessional Health Care .......................... (1)
- Nurs 425 .......... Nursing Practicum Theory ............................. (2)
- Nurs 473 .......... Multisystem Complex Adult Health .................. (4)
- Nurs 475 .......... Nursing Practicum ......................................... (4)
- Nurs 476 .......... Complex Child Bearing Family ........................ (2)
- Nurs 489 .......... Seniors Honors ................................................ (6-15)

Progression and Graduation Requirements:

1. A 2.50 overall GPA is required for progression at the end of each semester.
2. A student must attain a letter grade of at least a “C” in each of the courses required in the undergraduate nursing curriculum, including all the nursing, science and support courses, to progress to the next semester of nursing courses and for graduation from the College of Nursing.
3. A student earning a “D” or an “F” in any required nursing course may repeat that course only once.
4. A student may only repeat one required nursing course.

In addition, students must meet all UND Essential Studies Requirements. This will typically include an additional three credits of Oral Communications and nine credits of Fine Arts & Humanities. 129 credits are required for graduation.

60 credits must be completed at a four-year school.
36 credits must be upper division (300 level or above).
30 credits must be UND credits.

RN TO MS ONLINE OPTION

The RN to MS option is a program of study designed specifically for qualified, experienced registered nurses who are graduates of an associate degree program in nursing and plan to obtain a master’s degree in nursing, without first completing requirements for a BSN.

1. Students are admitted to the undergraduate program after completing pre-requisite coursework;
2. Students complete the required 20 credits of UND coursework at the baccalaureate level; and
3. Students apply to the Graduate School for completion of one of the master’s in nursing specializations. Online tuition and fees apply.

Pre-Requisite Coursework:

The following courses or their equivalents must be either completed at UND or accepted by the nursing program as transfer credit prior to beginning nursing courses:

- English Composition I & II (6 credits)
- Oral Communications course (3 credits)
- Introduction to Psychology (3 credits)
- Introduction to Sociology (3 credits)
- Human Growth and Development (3 credits)
- Science courses, including Human Anatomy and Physiology, Nutrition and Microbiology (12 credits)
- Arts and Humanities courses (9 credits)
- Statistics (2-3 credits)

Students must complete all UND Essential Studies requirements and RN/MS program pre-requisites.
Admission Requirements (to the undergraduate program):

1. An associate degree in nursing from a regionally accredited institution.
2. Minimum GPA of 3.0 in junior and senior years of undergraduate coursework.
3. Completion of pre-requisite coursework.
5. Minimum of one year of experience as a registered nurse (recommended)

Bachelor-Level Course Requirements:

The following courses must be completed at UND. All are offered through distance delivery.

- **Nurs 282**…Health Promotion ................................................. (2)
- **Nurs 302**…Pathophysiology ................................................ (3)
- **Nurs 324**…Public Health Nursing Theory .................................. (2)
- **Nurs 350**…Nursing in Transition ............................................. (3)
- **Nurs 374**…Public Health Nursing Clinical ................................ (2)
- **Nurs 474**…Professional Development II ................................... (5)
- **Nurs 490**…Transcultural Health Care ...................................... (3)

Admission to the Graduate School:

Following or in the last semester of successful completion of required coursework at the baccalaureate level, students may apply for admission to the UND Graduate School. Depending on the specialization chosen, students will be required to complete 37 to 61 credits of graduate coursework in a combination of online and/or on-campus formats.

Students may opt to complete one of the following specializations:

- Nurse Education (37-39 credits)
- Gerontological Nursing Clinical Nurse Specialist (56-58 credits)
- Gerontological Nurse Practitioner (55-57 credits)
- Public/Community Health CNS (46-48 credits)
- Family Nurse Practitioner (59-61 credits)
- Psychiatric and Mental Health Nursing Clinical Nurse Specialist (53-55 credits)
- Psychiatric and Mental Health Nurse Practitioner (56-58 credits)

Refer to the College of Nursing graduate website (http://www.nursing.und.edu/grad/) for a current schedule of course offerings and specialization requirements.

Undergraduate Nursing Courses

Unless otherwise indicated, nursing courses are open only to those admitted to the Nursing Program or with the consent of the instructor.

The methods for achievement of curriculum/course objectives may be individualized as needed.

NOTE: Some clinical courses may require early morning, evening, night, or weekend clinicals to provide the most varied and rewarding experience for the students. Some learning experiences may be at places distant from Grand Forks.

282. Health Promotion. 2 credits. Pre- or corequisites: Nursing major, Nurs 284, 303. This course focuses on the promotion of health across the lifespan based on national health objectives. Lecture. F, S

284. Functional Changes in Aging. 2 credits. Pre- or corequisites: Nursing major, Nurs 282, 302, 303. This course deals with normal aging and the functional and psychosocial changes that occur. Lecture. F, S

289. Professional Development I. 2 credits. Pre- or corequisites: Nursing major. An introduction to professional nursing practice is provided, with exploration of major factors guiding the practice of nursing. Lecture. F, S

302. Pathophysiology. 3 credits. Prerequisite: Nursing major, PPT 301. The focus of this course is the application of concepts of altered health in the development of clinical manifestations of disease and illness. Lecture. F, S


305. Informatics in Nursing. 3 credits. Prerequisite: Basic keyboard and internet utilization skills are essential for taking this course. This web-enhanced course introduces students to the role of nursing informatics in identifying, collecting, processing, and managing information uniquely relative to nursing and healthcare. Students learn how to assess, develop and use nursing information systems to work more efficiently and effectively, and to improve patient care. The learning environment emphasizes the development of proficiency in the use of the computer as a critical thinking and decision making tool. S

306. Palliative Care. 2 credits. Pre- or corequisite: Current Minnesota or North Dakota RN License. Palliative care is specialized care for individuals with a potentially life-limiting illness, including, but not limited to, chronic, progressive illness, and their families. This course examines palliative nursing care needs common to these individuals and families across the continuum, as well as end-of-life care and bereavement. The emphasis is on nursing practice represented by a holistic, interdisciplinary, client-centered approach and the goals of care include: provision of comfort (versus cure); relief of pain and suffering; and when necessary, provision of support towards a peaceful death. Health care resources and issues related to the provision of palliative care are addressed. SS

321. Nursing Procedures. 2 credits. Prerequisites: Nurs 282, 289, 302, 303. Pre or corequisites: PPT 315, Nurs 371. Acquisition and application of foundational nursing procedures supported by the nursing process and theoretical concepts. Lecture/lab. F, S

322. Communication, Diversity, Families. 3 credits. Prerequisites: Nurs 282, 284, 289, 302, 303. This course introduces students to elements of the nurse patient relationship, the assessment of diverse families, use of therapeutic communication, and application of trans-cultural concepts. Lecture, F, S

323. Adult Nursing Care II. 2 credits. Prerequisites: Nurs 321, 322, 371, 372, PPT 315. Corequisites: Nurs 325, 373. This course focuses on the nursing care of adult patients with a variety of conditions, with a primary emphasis on acute health alterations. Lecture. F, S, SS


325. Advanced Nursing Procedures. 1 credit. Prerequisites: Nurs 321, 322, 371, 372. Corequisites: Nurs 323, 373. Advanced nursing procedures are acquired and applied through simulated laboratory experiences. Laboratory. F, S, SS

326. Evidence-Based Practice. 2 credits. Prerequisites: Nurs 321, 322, 371, 372, and Soc 210 or Psy 241, or Econ 210. Corequisites: Nurs 323 and 373. The course focuses on evidence-based practice in nursing with the emphasis on the philosophy, models, and application of evidence to practice. Students will apply research findings, clinical expertise, and patient preferences to a clinical problem. F, S

350. Nursing in Transition. 3 credits. This course covers two distinct essentials for nurses returning for their master’s degree. The first portion of the course explores concepts preparing the registered nurse student for entry into baccalaureate nursing and continuing socialization in the profession. The second portion provides an orientation to resources essential for the successful program completion. F

363. Test Taking Strategies. 1 credit, repeatable to 4. Content includes: test taking strategies, completion of a personal Learning Plan, completion of practice questions related to the ATI test(s) the student needs to retake, non-proctored exams, and success passing of the ATI test(s) the students needs to take. SU grading. F, S, SS

371. Adult Nursing Care I. 4 credits. Prerequisites: Nurs 284, 289, 302, 303. Pre- or corequisite: PPT 315. Corequisite: Nurs 321. This theory and clinical course focuses on the nursing care of adults in different settings with a variety of conditions, with a primary emphasis on concerns of the elderly. Caring and professional behaviors are implemented as a member of the health care team to promote, maintain, and/or restore optimum health of individuals in selected clinical settings. Successful completion of the non-credit clinical experience is required. Lecture/Clinical. F, S, SS

372. Childbearing Family. 2 credits. Prerequisites: Nurs 282, 284, 289, 302, 303. Corequisites: Nurs 321, 322. This course concentrates on the delivery of nursing care to the healthy childbearing family. Lecture/Clinical. Successful completion of the non-credit clinical component of the course is required. F, S

373. Adult Nsg Care II Clinical. 4 credits. Prerequisites: Nurs 321, 322, 371, 372. Corequisites: Nurs 323, 325, 326. Application of nursing care for adult patients with a variety of conditions, with a primary emphasis on acute health alterations. Caring, professional behaviors are implemented as a member of the health care team to promote, maintain and/or restore optimum health of individuals in acute clinical settings. Clinical. F, S, SS


389. Honors Tutorial. 3-6 credits. Supervised independent study in nursing for students enrolled in the 4-year Honors Program.

394. Independent Study. 1-4 credits. May be offered at the discretion of the student, faculty member, and college. Supervised independent study of non-honors students in nursing. May be repeated up to 9 credits. Open to juniors and seniors in the nursing program.

397. Cooperative Ed: Nursing. 1-2 credits per term. Prerequisites: Nursing major, Nurs 321, 371, minimum overall GPA of 2.50. An experiential learning experience in nursing integrating clinical work experience, nursing theory and evaluation. De-
signed to enhance the student’s prior course work in nursing. Qualified nursing students are employed by selected healthcare agencies on either the parallel or summer plan. Hours are arranged by mutual agreement among student, coordinator, and employer.

Clinical. S/U Grading only. F, S, SS

400. Special Topics. 1-4 credits. May be open to non-majors. Elective opportunities offered in the College of Nursing which may be a combination of special projects, seminars, and clinical experience.

401. Complementary Healthcare Therapies: Interdisciplinary Implications for Self-Care, Practice and Research. 3 credits. The focus of this elective course is the analysis of theory, research, and practice of complementary health therapies. The goal of the course is to provide skills training in any specific technique. Instead, the course is intended to augment the health care professional’s education by providing a broad overview of selected complementary therapies commonly used in the United States. Legal and ethical implications will be analyzed.

418. Physical Changes in Aging. 3 credits. Focus is on common physiological changes of aging and their impact on the older adult’s ability to function. Lecture/discussion open to non-majors.

420. Interprofessional Health Care. 1 credit. Prerequisite: Nurs 473. The focus of this course is learning to work effectively with an interprofessional health care team using a shared patient-centered approach. Case studies will be the primary teaching strategy. Professions include: physical therapy, nursing, occupational therapy, medicine, social work, communication science disorders, clinical lab science, physician assistant, and dietetics. Seminar. F, S

421. Child Health Nursing Theory. 2 credits. Prerequisites: Nurs 323, 324, 325, 326, 373, 374. Complex care and nursing management of the acute and chronically ill child within the context of the family and the community. Lecture/Discussion. F, S

425. Practicum I. 2 credits. Prerequisites: Nurs 471, 472, 473. Corequisite: Nurs 475. Emphasis is on concepts related to assuming a professional nurse role. Analysis and evaluation focus on the transition process, nursing regulations, quality improvement, and other concepts contributing to professional performance. Lecture/Discussion. F, S

471. Child Health Nursing. 1 credit. Prerequisites: Nurs 323, 324, 325, 326, 373, 374. Pre- or corequisite: Nurs 421. Complex care and management of the vulnerable, high risk child and the ill child within the context of the family and the community. Lecture/Discussion/Clinical. F, S

472. Psych/Mental Health Nursing Clinical. 4 credits (2 lecture, 2 clinical). Prerequisites: Nurs 323, 324, 325, 326, 373, 374. Emphasis is on interactive processes, and dynamics of human diversity and behavior in mental health promotion, maintenance, and restoration. Lecture/Discussion/Clinical. F, S

473. Multisystem Complex Adult Health. 4 credits. Prerequisites: Nurs 323, 324, 325, 326, 373, 374. Complex concepts are integrated into the management of nursing care of adults with multisystem health problems. Lecture/Clinical. F, S

474. Professional Development II. 5 credits. Prerequisites: Nurs 471, 472, 473. Focus is on the development of the professional nursing role within a complex and dynamic health care environment, with exploration of issues critical to leadership in nursing. Lecture/Discussion/Clinical. F, S

475. Practicum II. 4 credits. Prerequisites: Nurs 471, 472, 473. Corequisite: Nurs 425. This is an intensive clinical experience providing application of content from all previous courses. Emphasis is on the application of concepts related to professional nursing role development, transition process, and evaluation processes used in the delivery of health care. Clinical. F, S

476. Complex Childbearing Family. 2 credits. Prerequisites: Nurs 471, 472, 473. This course concentrates on the delivery of nursing care to complex, high risk childbearing families. Lecture/Clinical. F, S

489. Senior Honors Thesis. 1 to 8 credits; total not to exceed 9. Prerequisite: consent of the department and approval of the Honors Committee. Supervised independent study culminating in a thesis.

490. Transcultural Health Care Theories, Research and Practice. 3 credits. Prerequisite: Junior standing or permission of instructor. Analysis of theories, research, and practice of transcultural health care. Students develop awareness of transcultural health care theories, research, and practice related to transcultural health care. Students develop awareness of the biological, psychological, and sociological aspects of clients of selected cultural group and communities offered in the College of Nursing which may be a combination of special projects, seminars, and clinical experience.

The major in Community Nutrition enables students to develop a thorough understanding of the science of nutrition as well as the ability to communicate nutrition principles effectively and accurately to the public. The focus of study is on the role of nutrition in achieving and maintaining health, emphasizing changing needs throughout the life cycle. Through course work and supervised practice experiences, graduates will be prepared to complete community nutrition assessments and to work individually or collaboratively with other professionals in identifying problems and developing, conducting and evaluating interventions to improve the overall health of individuals and communities. Students majoring in Community Nutrition select from two options. To graduate, the Community Nutrition major must earn a “C” or better in all nutrition, foods, and science courses and must maintain a minimum grade point average of 2.2. A Community Nutrition graduate is eligible to become a Licensed Nutritionist (L.N.) in the state of North Dakota.

The Coordinated Program in Dietetics combines academic preparation with supervised practice experiences for students who wish to become a Registered Dietitian (R.D.). Students work in a variety of settings to assist clients to improve or maintain nutritional health. Upon completion of this degree, the graduate is eligible to take the examination for professional registration and to apply for active membership in the American Dietetic Association. Students apply for admission to the professional phase of the program during the second semester of the sophomore year or when they have completed the pre-professional requirements. A minimum grade point of 2.60 and a minimum of a “C” grade in all science, foods, and nutrition courses are required for acceptance, progression, and graduation. The Coordinated Program in Dietetics is fully accredited by the Commission on Accreditation for Dietetics Education of the American Dietetic Association (120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995; phone 312-899-0040, ext. 540), a specialized accrediting body recognized by the Council for Higher Education Accreditation and the United States Department of Education.

Information about changes in these majors since the printing of this catalog will be available on the department website at: http://www.nursing.und.edu/nutrition.

College of Nursing

B.S. IN COMMUNITY NUTRITION

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. Prerequisite Courses:

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Engl 110</td>
<td>College Composition I</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 125</td>
<td>Technical and Business Writing</td>
<td>(3)</td>
</tr>
<tr>
<td>*Chem 121, 121L</td>
<td>General Chemistry I &amp; II and Laboratories</td>
<td>(8)</td>
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<tr>
<td>*Chem 240, 240L</td>
<td>Survey of Organic Chemistry and Laboratory</td>
<td>(5)</td>
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<tr>
<td>*BMB 301</td>
<td>Biochemistry</td>
<td>(5)</td>
</tr>
<tr>
<td>Anat 204/204L</td>
<td>Anatomy for Paramedical Personnel and Laboratory</td>
<td>(5)</td>
</tr>
<tr>
<td>PPT 301</td>
<td>Human Physiology</td>
<td>(4)</td>
</tr>
<tr>
<td>Psy 111</td>
<td>Introduction to Psychology</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 103</td>
<td>College Algebra</td>
<td>(3)</td>
</tr>
<tr>
<td>Mkt 201</td>
<td>Personal Marketing</td>
<td>(3)</td>
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<tr>
<td>Soc 326</td>
<td>Sociological Statistics</td>
<td>(3)</td>
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<tr>
<td>or</td>
<td>Psy 241 Introduction to Statistics</td>
<td>(4)</td>
</tr>
<tr>
<td>Comm 110</td>
<td>Fundamentals of Public Speaking</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 212</td>
<td>Interpersonal Communication</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 366</td>
<td>Business and Professional Speaking</td>
<td>(3)</td>
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<tr>
<td>RH 200</td>
<td>Helping Skills in Community Services</td>
<td>(3)</td>
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<tr>
<td>T&amp;D 252</td>
<td>Child Development</td>
<td>(3)</td>
</tr>
<tr>
<td>or</td>
<td>Psy 250 Developmental Psychology</td>
<td>(4)</td>
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III. Professional Requirements:

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
</table>
III. Required Courses:

N&D 100 Introduction to Nutrition and Dietetics ................. (1)
N&D 200 Nutrition Promotion Strategies .......................... (2)
N&D 220 Foodservice Safety and Sanitation ..................... (1)
Nut 240 Fundamentals of Nutrition ............................ (3)
N&D 241 Maternal and Child Nutrition ......................... (2)
N&D 242 Nutrition in the Aging Process ....................... (2)
N&D 335 World Food Patterns .................................... (3)
N&D 342 Community Nutrition .................................... (3)
N&D 400 Professional Issues .................................... (2)
N&D 441 Advanced Nutrition ................................... (3)
N&D 494 Research in Nutrition and Dietetics .................... (1)
N&D 498 Supervised Practice in Nutrition and Dietetics ....... (4)

IV. Choice of either Option A or Option B.

Option A:

N&D 260 Principles of Foods and Food Science .................. (5)
N&D 340 Foodservice Systems Production ....................... (3)
N&D 440 Foodservice Systems Management ..................... (1)
N&D 494 Research in Nutrition and Dietetics ................. (2)

Option B:

Soc 335 The Family ............................................. (3)
PXW 327 Fitness for Life ....................................... (3)
N&D 348 Sports Nutrition ........................................ (1)
Soc 355 Drugs and Society ..................................... (3)
PPT 315 Human Pharmacology .................................... (3)
PPT 410 Drugs Subject to Abuse ................................ (2)
Soc 352 Aging ................................................... (3)
Psy 355 Adulthood and Aging .................................... (3)

* Mgmt 305 Managerial Concepts may be substituted for N&D 340 and 440.

V. Electives or minor.

In consultation with advisor, the student will select a minor or electives to meet the University minimum of 125 semester hours of credit for graduation.

B.S. IN DIETETICS

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The following curriculum:

Pre-professional requirements:

Engl 110 College Composition I ................................... (3)
Engl 125 Technical and Business Writing ...................... (3)
Anat 204 and 204L Principles of Food and Food Science .... (5)
Chem 121, 121L, 122, 122L General Chemistry I, II and Laboratories ...... (8)
Math 103 College Algebra ........................................ (3)
Mkt 201 Personal Marketing ....................................... (3)
N&D 100 Introduction to Nutrition and Dietetics ............ (1)
N&D 200 Nutrition Promotion Strategies ....................... (2)
Nut 240 Fundamentals of Nutrition ............................ (3)
N&D 241 Maternal and Child Nutrition ......................... (2)
N&D 242 Nutrition in the Aging Process ....................... (2)
N&D 260 Principles of Foods and Food Science ............... (5)
N&D 335 World Food Patterns .................................... (3)
PPT 301 Mechanics of Human Physiology ..................... (4)
Psy 111 Introduction to Psychology ............................ (3)
RHS 200 Helping Skills in Community Services ............... (3)

Professional Dietetics Requirements:

BBM 301 Biochemistry ............................................ (3)
Mgmt 305 Managerial Concepts ................................ (3)
Psy 241 Introduction to Statistics .............................. (4)
Soc 326 Sociological Statistics ................................ (3)
N&D 220 Foodservice Safety and Sanitation .................... (1)
N&D 340 Foodservice Systems Production ..................... (2)
N&D 342 Community Nutrition ................................ (3)
N&D 350 Medical Nutrition Therapy I ........................ (2)
N&D 400 Professional Issues ................................... (2)
N&D 440 Foodservice Systems Management .................. (1)
N&D 441 Advanced Nutrition ................................... (4)
N&D 450 Medical Nutrition Therapy II ......................... (3)
N&D 480 Interprofessional Health Care ......................... (1)
N&D 491 Dietetic Seminar ....................................... (1)
N&D 494 Research in Nutrition and Dietetics ............... (3)
N&D 498 Supervised Practice in Nutrition and Dietetics .... (4)

MINOR IN NUTRITION

A minor in Nutrition requires successful completion of at least 20 credits taken from the following list of courses. Selection of courses should be made in consultation with a faculty member in the Department of Nutrition and Dietetics.

N&D 100 Introduction to Nutrition & Dietetics .................. (1)
N&D 200 Nutrition Promotion Strategies ....................... (2)
N&D 220 Foodservice Safety and Sanitation ..................... (1)
Nut 240 Fundamentals of Nutrition ............................ (3)
N&D 241 Maternal and Child Nutrition ......................... (2)
N&D 242 Nutrition in the Aging Process ....................... (2)
N&D 260 Principles of Foods & Food Science ................ (5)
N&D 335 World Food Patterns .................................... (3)
N&D 340 Foodservice Systems Production ..................... (2)
N&D 342 Community Nutrition ................................ (3)
N&D 348 Sports Nutrition ........................................ (1)
N&D 400 Professional Issues ................................... (2)
N&D 440 Foodservice Systems Management ................ (1)
N&D 441 Advanced Nutrition ................................... (4)
N&D 494 Research in Nutrition and Dietetics ............... (3)

Other courses may be counted toward the minor with written approval of a faculty member in the Department of Nutrition and Dietetics.

Courses

100. Introduction to Nutrition and Dietetics. 1 credit. The philosophy, history, future trends, and career options in nutrition and dietetics will be discussed. S/U grading only. S

200. Nutrition Promotion Strategies. 2 credits. Prerequisites: Nutr 240, N&D 241 and 242. Study of communication and educational theories and techniques used to promote nutritional well-being with applications for a culturally diverse population. S

220. Foodservice Safety and Sanitation. 1 credit. The study of food safety and sanitation throughout the foodservice system. Upon successful completion of the course material and examination, the student will hold ServSafe® Certification. F

Nut 240. Fundamentals of Nutrition. 3 credits. Basic principles of nutrition with application for individuals and family groups. F/S

241. Maternal and Child Nutrition. 2 credits. Prerequisite: Nutr 240. Investigation and application of nutrition as it impacts the growth and development of humans, including pregnancy, infancy, childhood, and adolescence with emphasis on recommendations for promoting healthy lifestyles for each life stage. F

242. Nutrition in the Aging Process. 2 credits. Prerequisite: Nutr 240. Application of physiological, socio-psychological, and educational aspects of nutrition as it impacts the health and well-being of people as they age. F

260. Principles of Foods and Food Science. 5 credits. Prerequisite: College level chemistry course. Introduction to food selection and preparation principles, including consumer needs, sensory evaluation, meal and menu planning, and food sanitation. Application of scientific principles in relationship to food composition, physical properties, and chemical reactions. S

335. World Food Patterns. 3 credits. Examination of the food patterns of selected world population groups considering the effect of social, cultural, and economic practices on nutritional values. S

340. Foodservice Systems Production. 2 credits. Prerequisites: N&D 260. Principles of food production as applied to preparation, service, and evaluation of foods; use and operation of food service equipment. F

342. Community Nutrition. 3 credits. Prerequisites: N&D 241, 242 or consent of instructor. Application of nutrition principles to populations in various community environments and stages of life cycle with consideration given to interrelated health, social, and economic concerns. S

348. Sports Nutrition. 1 credit. Prerequisites: Nutr 240 & PPT 301. Overview of the specialized nutritional needs of the athlete. S/2

350. Medical Nutrition Therapy I. 2 credits. Prerequisites: N&D 241, 242 and PPT 301. The study and application of nutritional assessment techniques, nutrition care planning methodologies, interviewing and counseling skills, and medical nutrition therapy for common medical conditions. F

400. Professional Issues. 2 credits. Prerequisites: Senior status and consent of instructor. Analysis of professional issues including but not limited to grantmanship, marketing, professional presentations, and complementary therapies in nutrition and dietetics. Development of skills to address such issues. F

440. Foodservice Systems Management. 1 credit. Prerequisite: N&D 340. Applies principles of management to quantity and quality food production and analysis. F

441. Advanced Nutrition. 4 credits. Prerequisites: Nutr 240, Chem 116 or 240, and PPT 301. A comprehensive investigation of the nutritional needs of humans with emphasis on nutritional biochemistry and current issues. S

University of North Dakota
Occupational Safety and Environmental Health (OSEH)

http://business.und.edu/dept/programs/bsoseh.cfm

Diez (Program Coordinator)

The Occupational Safety and Environmental Health (OSEH) program is a 58-hour major leading to the baccalaureate degree, bachelor of science. The OSEH program is administered by the Department of Technology. It has a 31-semester hour core of interdisciplinary coursework, which provides a sound professional background. The remaining 27 hours are selected from one of two technical concentrations: Industrial Safety or Industrial Hygiene. The degree program draws coursework from 12 academic departments and utilizes resources from the University’s Office of Safety and Environmental Health.

Admission Process

Admission to the occupational safety and environmental health major program of study is on a competitive basis. Ten students may be admitted per academic year. Students not meeting these minimum requirements may be admitted with probationary status upon recommendation of the Occupational Safety and Environmental Health Admissions Committee.

Admission Requirements

A. A student must have completed the equivalent of 58 semester hours of coursework.

B. A student must have completed the following courses (or equivalents) with a minimum grade of C:

- Chemistry 121 & 122 & Laboratories ............... 8 hours
- Math 103 ......................................................... 3 hours
- ISys 117/317 .................................................... 4 hours
- Phys 161 and Laboratory ............................. 4 hours
- Bioi 150 & Laboratory ................................. 4 hours

C. A student must have completed 15 hours in residence at the University of North Dakota with a minimum 2.2 GPA. Transfer students will have official transcripts evaluated to determine the 15-hour requirement.

Admission Procedure

Obtain the application packet and submit:

A. The application form
B. One reference (sent directly to the University of North Dakota by the person writing the reference)
C. An official transcript of previous coursework (sent by your institution directly to UND).
D. Essay on “Rationale for Applying for Admission to the Occupational Safety and Environmental Health Program, University of North Dakota” (part of application packet).
E. The submitted materials will be examined, analyzed, and a decision will be made on your application. You will receive written notice of that decision. The decision may be that you have been accepted, placed on the waiting list for a succeeding semester, or denied for admission.

College of Business and Public Administration

B.S. IN OCCUPATIONAL SAFETY AND ENVIRONMENTAL HEALTH

Required 125 credits (36 of which must be numbered 300 or above and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).
II. OSEH Admission Requirements (see above)

Occupational Safety and Environmental Health Curriculum:

General Core: (Required) 31 credit hours

58 credits to include:

- Math 146 .......... Applied Calculus I ......................................................... (3)
- Anat 204 .......... Anatomy for Paramedical Personnel ............................ (3)
- Econ 210 .......... Intro to Business & Economic Statistics ....................... (3)
- Psy 301 .......... Industrial & Organizational Psychology .......................... (3)
- TECH 203 ......... Production Processes: Manufacturing .................... (3)
- OSEH 345 .......... Emergency Response ............................................ (3)
- PWX 310 .......... First Aid .................................................................. (2)
- Engl 125 .......... Business & Technical Writing .................................... (3)
- Acct 315 .......... Business in the Legal Environment ............................. (3)
- Mgmt 300 .......... Principles of Management ......................................... (3)
- Mgmt 302 .......... Human Resources Management ............................. (3)

Plus one of the following two options:

Industrial Safety Concentration (Option I)

Required: 27 credits including:

1. The following 15 credits:

- OSEH 305 .......... Fire Safety ................................................................. (2)
- OSEH 325 .......... Construction Safety .................................................. (3)
- OSEH 355 .......... Inspections ............................................................... (1)
- OSEH 405 .......... Industrial Hygiene ................................................. (3)
- OSEH 425 .......... OSEH Seminar ....................................................... (3)
- OSEH 440 .......... Industrial Safety ...................................................... (3)

2. 12 credits selected from the following:

- CIEN 444 ........ Contracts and Specifications .................................... (3)
- TECH 122 .......... Computer Aided Design/Drafting ............................ (3)
- TECH 337 .......... Cooperative Education ........................................... (1-3)
- TECH 400 .......... Teaching Technology Education ............................ (3)
- OSEH 226 ........ Transportation Safety ............................................ (2)
- OSEH 365 .......... Radiation ................................................................. (2)
- OSEH 375 .......... Asbestos ................................................................. (2)
- OSEH 395 .......... Hazardous Materials Management ........................ (3)
- OSEH 435 .......... Risk Management .................................................. (2)
- OSEH 465 .......... Product Safety and Liability ................................. (3)

Industrial Hygiene Concentration (Option II)

Required: 27 credits including:

1. The following 17 credits:

- Chem 209 .......... Quantitative Analysis ............................................ (4)
- OSEH 405 .......... Industrial Hygiene ................................................. (3)
- PPT 410 .......... Drugs Subject to Abuse ............................................ (2)
- OSEH 425 .......... OSEH Seminar ....................................................... (3)

2. 10 credits selected from the following:

- TECH 122 .......... Computer Aided Design/Drafting ............................ (3)
- TECH 337 .......... Cooperative Education ........................................... (1-3)
- TECH 397 .......... Cooperative Education ........................................... (1-3)
- TECH 400 .......... Teaching Technology Education ............................ (3)
- OSEH 355 .......... Inspections ............................................................... (1)
- OSEH 365 .......... Radiation ................................................................. (2)
- OSEH 375 .......... Asbestos ................................................................. (2)
Graduation Requirements for the BSOEHE Degree

Students must achieve the following to graduate with the Bachelor of Science in Occupational Safety and Environmental Health administered through the Department of Technology and the College of Business and Public Administration.

1. Meet the applicable graduation requirements of the College of Business and Public Administration.
2. Have a 2.50 GPA in the major program of study.
3. Meet the standard for the exit examination of the student’s selected concentration(s).
4. Successful completion of the mid-program review, portfolios, and the written report.

Retention Standards for the BSOEHE Degree

To remain a student in good standing, the student must attain the following:

1. A cumulative GPA of 2.20 and a minimum of 2.50 in the major program of study.
2. Submit a portfolio of materials upon completion of 24 credits in the major for a mid-program evaluation of successful progress. Included in this portfolio will be a position paper relating to the goals, objectives, and responsibilities of the safety and health professional.
3. Upon completion of 35 credits of the major, a written report will be submitted that outlines the student’s philosophical position in relation to the student’s selected concentration within the Occupational Safety and Environmental Health major.

Students not achieving the GPA standard, or deemed to not be making satisfactory progress as a result of the mid-program review or not achieving a satisfactory review of the written report, will be placed on probation for one semester. At the conclusion of that semester, the student will be reevaluated and either returned as a student in good standing or dropped from the program. After two semesters, the student may apply for readmission to the major program of study.

Courses

226. Transportation Safety. 3 credits. An introductory course in transportation safety pertaining to personalized and fleet transportation systems. Emphasis will be on human characteristics related to driving, driving improvement, and state/national laws.
305. Fire Safety. 2 credits. Prerequisite: Chem 122. Students will explore and familiarize themselves with those codes that are used to ensure fire-safe environments in structures of all types. The student will learn how to apply these codes to various structures, occupancies, and situations.
325. Construction Safety. 3 credits. A study of the rules and regulations of construction. Emphasis will be focused on management techniques, program development, recordkeeping documentation, and training requirements of the construction industry.
345. Emergency Response. 2 credits. Prerequisites: Anat 204 and PEXS 310. Emphasis will focus on the knowledge of regulatory requirements. Students will be versed in planning activities, the tools, protective equipment and emergency response/predisastrophy procedures needed by those who respond to emergencies. Students will participate in laboratory.
355. Inspections. 1 credit. Prerequisite: IT 440. Special consideration is given to the problems associated with interactions with management as related to regulatory matters. An awareness of the various rules and regulations which affect the workplace are part of the overview presented by this course.
365. Radiation. 2 credits. Prerequisite: Chem 122. Special emphasis is given to the problems associated with the proper and safe handling of Radioactive Materials in both the sealed and unsealed forms. Consideration is given to the regulatory requirements which might face a licensee.
375. Asbestos. 2 credits. A study of asbestos, its characteristics, the rules and regulations regarding asbestos abatement, and the tools, protective equipment, and procedures utilized for asbestos abatement.
385. Instrumentation. 2 credits. A study of the rules, regulations, requirements for the sampling analysis and monitoring of the business and industry work place environments. Emphasis will be placed on the instrumentation, calibration and other techniques required for managing the process, developing a comprehensive program, record keeping requirements, documentation, and training requirements.
395. Hazardous Materials Management. 3 credits. Prerequisite: Chem 122. Students will study the problems associated with proper, safe handling, and disposal of hazardous materials. Special consideration will be given to regulatory requirements, exposure limits, protective measure to be employed in response to hazards faced by employees who must handle these materials. Regulatory and environmental protection issues are addressed as they relate to current industry operations to include the recognition, evaluation, control and disposal of hazardous materials as they relate to industry. Demonstrations, field trips and group activities will be an integral aspect of this course.
405. Industrial Hygiene. 3 credits. Prerequisites: Anat 204, Chem 122. Hazards in the workplace as they relate to our health will be addressed. The course will include the recognition, evaluation, control of hazards as they relate to industry.
425. Occupational Safety and Environmental Health Seminar. 3 credits. A study of emerging issues and concerns related to the Occupational Safety and Environmental Health profession. Involvement of practicing safety and health professionals and regulatory agency officials provide insight into the evolution of safety and health policies.
435. Risk Management. 2 credits. The focus of this course will be on the global perspective of loss control measuring efforts in the minimization of financial insurance and workers compensation liabilities.

Retirement

Occupational Therapy (OT)

Occupational Therapy

See Graduate School section

Peace Studies (PS)

http://www.und.edu/dept/artsci/

The Peace Studies courses listed below may be taken either as elective courses or as part of a Peace Studies program in Interdisciplinary Studies (IDS). For information on the major in Interdisciplinary Studies, see Interdisciplinary Studies listing and consult the Director of IDS in O’Kelly Hall, Room 129. You may also consult the Geography Department in O’Kelly/Ireland Hall.

The Peace Studies courses are taught by faculty from the departments of philosophy and religion, history, education, economics, English, geography, psychology, sociology, languages, and the natural and physical sciences. The goal is to encourage critical scholarly thinking and action by students and faculty in the growing areas of interest in issues of peace, war, geopolitics, social justice and human rights. The courses are excellent preparation for graduate study in a range of legal, governmental, social service, educational, theological and international fields. The major requires 36 credits, including at least 23 credits as listed below (all but Independent Study are required). Other courses may be selected to focus on an area of interest, such as those from the Chinese Studies minor, or from the courses cross-listed under Peace Studies in the Schedule of Courses.

Courses

101. Introduction to Peace Studies. 3 credits. An introduction to the major content of the Peace Studies Program: problems of peace and war in the post-cold war age, alternative means of conflict resolution, a history of nonviolence as a moral and political philosophy, and a variety of social justice issues. F (will become geopolitics course in Fall, 2009. Please check online for updated details.)

Phil 215. Contemporary Moral Issues. 3 credits. An introduction to the problems connected with moral choice. This course examines the moral judgments that follow from the values held by a wide variety of people today on topics ranging from abortion to race, sexual behavior, the environment, etc. F,S
Philosophy and Religion

http://www.und.edu/dept/philrel/

Baldwin, Lawrence (Chair), Lindholm, Miller, Poochigian and Weinstein

The two disciplines of Philosophy and Religion represent humankind’s abiding interest in the fundamental questions of life, truth, and value. Questions about the meaning of life, the significance of truth, the access to knowledge, and the ability to live ethically have been studied by philosophers and theologians from the time of Socrates and before. Philosophy seeks answers which, chiefly, refer to human capacities and ideals and to the world of experience in which we live; Religion will often include postulates about divine forces and spiritual realities in the answers it frames. The two disciplines tend to be more distinct in Western culture; philosophers and theologians have often been in bitter conflict both with each other and with religious authorities. In Eastern cultures, however, philosophy and religion overlap — often appearing as complements. In both East and West these two fields of study represent the longest and most basic traditions of literature and the intellectual life. Though Philosophy and Religion both address questions of ultimate meaning, each discipline preserves its own literary history and its own scholarly tradition.

Every student can benefit from coursework in Philosophy and Religion. Most courses in the department fulfill Essential Studies Requirements in Arts and Humanities. Several major programs require or recommend specific courses to their students. A two to five course series of courses in Philosophy and Religion can be designed to complement major programs in nursing, engineering, science, business, criminal justice studies, as well as humanities disciplines. Minor programs (21 hours) in Philosophy, Religion and Ethics can also give depth and breadth to any major program. Neither Philosophy nor Religion requires a large technical vocabulary even in upper level courses.

Those students who wish to pursue a major or a second major in Philosophy and Religion must follow one of the two programs of concentration:

1. B.A. in Philosophy and Religion: Philosophy Concentration
2. B.A. in Philosophy and Religion: Religion Concentration

College of Arts and Sciences

B.A. WITH A MAJOR IN PHILOSOPHY AND RELIGION: PHILOSOPHY CONCENTRATION

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:
I. Essential Studies Requirements (see University ES listing).
II. Philosophy Concentration requirements.

33 major hours, including:
Phi 101 ....... Introduction to Philosophy .....................................(3)
Phi 220 ....... Introduction to Logic ............................................(3)
3 hours from: Religion Curriculum

6 hours from:
Phi 300 ...... Ancient Philosophy ..............................................(3)
Phi 301 ...... Medieval Philosophy ............................................(3)
Phi 302 ...... Renaissance and Enlightenment ..............................(3)
Phi 303 ...... Kant and the Nineteenth Century ............................(3)

Philosophy and Religion (Phil and Rels)

Pharmacology, Physiology and Therapeutics (PPT)

http://www.med.und.nodak.edu/depts/pharm/

Benoit, Brown-Borg, Combs, Doze, Geiger, Ghribi, Haselton, Henry, Lei, Murphy, Picklo, Porter and Rosenberger

The undergraduate mission of the Department of Pharmacology, Physiology and Therapeutics is to provide students majoring in Allied Health and Science programs with a basic foundation in pharmacology and physiology. Individual courses in pharmacology and physiology are required for various Allied Health and Science programs, the Athletic Trainers program, and the Chemical Use/Abuse Awareness minor in Social Work. Emphasis is placed on concept relevance in each of the courses to the students’ respective professional careers. While meeting each student’s academic program requirements, it also enhances each student’s opportunity to further their education in the health sciences at the graduate and professional level.

Educational objectives for individual pharmacology courses include the biological consequences of prescription and over-the-counter drugs, the mutual interactions of athletic performance and drug effects, and substances of abuse. Educational objectives for the physiology course cover general physiology from the level of molecules to the whole organism, with emphasis on the homeostatic mechanisms. The Department also fosters and encourages the participation of undergraduate students in ongoing faculty-directed research through an independent study option.

Courses

Undergraduate Courses

301. Human Physiology. 4 credits. Prerequisites: Anat 204 and either Biol 150 and 150 lab or Chem 116 and 116 lab or Chem 121 and 121 lab. A study of the normal function of the human body with particular consideration given to the necessary background needed by students pursuing a course of study in Allied Health Sciences. There are five hours of formal classroom study including two hours of laboratory and an optional review period each week. F, S

315. Human Pharmacology. 3 credits. Prerequisites: PPT 301 and Chem 116 and 116 lab, or Chem 121 and 121 lab or Chem 122 and 122 lab. A survey of the more important drugs used in medicine, including basic principles, clinical uses and possible adverse effects. S

410. Drugs Subject to Abuse. 2 credits. Prerequisite: advanced undergraduate standing. Biochemical, pharmacological, behavioral and therapeutic aspects of substance abuse. S

492. Research in Pharmacology, Physiology and Therapeutics. 1-4 credits, repeatable up to a maximum of 6 credits. Prerequisite: consent of instructor. Laboratory research under faculty supervision. F, S, SS

499. Readings in Pharmacology, Physiology and Therapeutics. 1-4 credits. Prerequisites: consent of instructor. Topics and credits to be arranged with the instructor. F, S, SS
MINOR IN PHILOSOPHY AND RELIGION: PHILOSOPHY CONCENTRATION

Required 21 credits in Philosophy:

6 hours from:
- Phil 300 ... Ancient Philosophy ........................................ (3)
- Phil 301 ... Medieval Philosophy ........................................ (3)
- Phil 302 ... Renaissance and Enlightenment .................. (3)
- Phil 303 ... Kant and the Nineteenth Century .......... (3)
- Phil 383 ... Asian Philosophy ............................................ (3)

3 hours from Western Traditions:
- Rels 101 ... Religions of the West ....................................... (3)
- Rels 328 ... Development of Christian Doctrine .......... (3)
- Rels 334 ... Judaism ........................................................... (3)
- Rels 338 ... Contemporary Christianities ................. (3)
- Rels 355 ... Islam ................................................................. (3)

3 hours from Asian Traditions:
- Rels 102 ... Religions of Asia ............................................. (3)
- Rels 315 ... Daoism and Confucianism ....................... (3)
- Rels 320 ... Hinduism .......................................................... (3)
- Rels 380 ... Buddhism ....................................................... (3)
- Rels 410 ... Asian Religions in the United States ....... (3)

3 hours from Biblical Studies:
- Rels 221 ... Jewish Scripture/Old Testament .......... (3)
- Rels 231 ... Christian Scripture/New Testament ... (3)
- Rels 300 ... Jesus in Gospel and History ................. (3)
- Rels 301 ... Life and Religion of Paul ...................... (3)
- Rels 321 ... Prophets and Prophecy ......................... (3)

6 hours from Contemporary Problems and Ideas:
- Rels 120 ... Religion in America ................................... (3)
- Rels 216 ... Women and Religion ................................. (3)
- Rels 245 ... Death and Dying ........................................... (3)
- Rels 250 ... East and West in Religion .................... (3)
- Rels 305 ... Mysticism ......................................................... (3)
- Rels 309 ... Atheism, Theism and Secularism .......... (3)
- Rels 342 ... Religious Ethics ............................................ (3)
- Rels 423 ... Psychology of Religion ......................... (3)
- Rels 431 ... Religious Violence and the Apocalyptic Mind (3)
- Rels 466 ... Sex, Gender and Religion .................... (4)

12 hours of electives may be chosen from any of the above listed courses, as well as Rels 399, Selected Topics; Rels 491, Seminar in Religion; and Rels 494, Independent Studies in Religion.

MINOR IN PHILOSOPHY AND RELIGION:
RELIGION CONCENTRATION

Required 21 credits including:
- Rels 100 ... Introduction to Religious Inquiry .................. (3)
- Religion Electives ............................................................... (18)

9 hours from:
- Rels 309 ... Atheism, Theism, and Secularism ........... (3)
- Rels 431 ... Religious Violence and the Apocalyptic Mind (4)
- Rels 466 ... Sex, Gender, and Religion .................... (4)
- CHH 340 ... Professional Integrity in Engineering .... (3)
- ME 340 ... Professional Integrity in Engineering .... (3)

For other possibilities, check with advisors in the department.

MINOR IN ETHICS

Ethics, the study of right action and the good life, lies at the core of the human experience. It is also essential for those who wish to engage in business, politics, relationships, and self-examination. What ought we to do? How should we live? When should we help others and how often should we help ourselves? Everyone has asked these questions but few have allowed themselves the opportunity to really study them and to examine their own beliefs. The minor in ethics provides just such an occasion.

Through the minor in ethics, students will be able to examine classic texts (of philosophy, religion, and other subjects) and apply their lessons to day-to-day life. Through debates and discussions, students and teachers will identify the assumptions and beliefs that guide people’s actions and ask whether some are preferable to others or, even, whether any ethical approach is defensible at all. The classes in the minor work well with those of other disciplines—whatever your major, ethics can help you do your job better, learn more from your current classes, and prepare yourself for whatever comes your way.

Courses in Philosophy

Since a major in philosophy involves a rigorous study of basic questions about human life and action, knowledge, truth, and values, it is recognized as providing a sound base for those who plan to continue their education in one of the professional specialties such as law, medicine, or the ministry. More recently, liberal arts degrees in fields which “make you think” have become increasingly valued in business and government. Majoring in philosophy also prepares a student for graduate work in any of the fields which “make you think.”

For other possibilities, check with advisors in the department.
383. Asian Philosophy. 3 credits. Study of major philosophical systems of India, China and/or Japan. On demand.

389. Philosophical Themes. 1-3 credits. This course provides an opportunity for detailed examination of important philosophic themes. Topics will vary depending on faculty and student interests. Investigations into philosophy of religion, foundations of logic, African American philosophy, political correctness, and many others are possible. May be repeated for a maximum of 6 credits. On Demand.

408. Philosophy of Human Nature. 3 credits. A consideration of philosophic problems arising from the methodology of the behavioral sciences. Of special relevance to students majoring in Psychology, Political Science, Economics, Anthropology or Sociology. S/2

412. Philosophy of Law. 3 credits. An investigation of the nature of both law and legal reasoning. Study of the nature of law focuses on theories of natural law, legal positivism, and legal realism. Legal reasoning concerns justified interpretation of precedent and statute within the common law tradition. Additional topics dealt with as time allows, encompass such issues as the justification of punishment and enforcement of morals.

425. Metaethics: Is Ethics Possible? 3 credits. A study of traditional problems in ethical theory including the foundations of ethical philosophy, the nature of the good, ethical relativism, free will versus determinism. Although case studies and contemporary examples will appear in discussions, the central focus of the course will be historical and theoretical. F/3

430. Philosophy of Science and Technology. 3 credits. A study of the philosophic aspects of science and technology. Problems include, what makes a theory scientific?, is there a scientific “method”? , can one believe in science and religion at the same time?, how can we tell whether a technological enterprise is a reasonable risk or a negligent gamble?, how should a technological advance be controlled? S/3

440. Metaphysics: What is Real? 3 credits. A study of the basic categories by which things are understood. Topics include such issues as appearance and reality, substance, particular and general, space and time, and personal identity. F/3

465. Existentialism. 3 credits. An examination of the nature of human existence and its relationship to freedom. This course investigates the consequences of one’s choices and their effects on identity, ethics, and on other people. By examining the works of such philosophers as Kierkegaard, Sartre, Camus, de Beauvoir, and others, students will investigate the ways in which human beings construct their own identities and develop their own ethical and political standards. S/3

470. Epistemology: What Can We Know and How Can We Know It? 3 credits. Inquiry into the nature and limits of knowledge as distinguished from belief; types of knowledge; the role of reason and sense experience in empirical knowledge. S/3

491. Seminar in Philosophy. 3-6 credits. Prerequisites: Junior or senior standing and consent of the instructor. A consideration of selected philosophical problems or classic texts of mutual interest to departmental faculty and more advanced students. Previous work in philosophy or related disciplines is recommended. On Demand.

494. Independent Study in Philosophy. 1-3 credits. May be repeated to 8 credits. Prerequisite: consent of instructor. Supervised tutorial on an individual basis. Typically, a student will work independently to a considerable extent. In other cases, the course may take the form of regularly scheduled meetings. F, S

Courses in Religion

Religions at the University are seen as creative, living modes of experience, culture, beliefs, rituals and ethics—that enable people around the globe to make sense of their lives. By studying and to a limited degree projecting ourselves into, various religions, we are better able to appreciate the outlooks and values of other societies and gain new insight into what gives meaning and worth to our own lives. The academic study of religion is not based upon assumptions regarding the truth or falsity of any particular religious tradition. Rather, we guide students to learn a variety of scholarly approaches in order to develop their own critical understandings of the subject.

The study of religion is an integral part of a liberal education. It is also an enrichment for courses of study in preparation for careers in business, education, health care, social and psychological services. Courses in religion are a good preparation for many areas of postgraduate studies, including law, medicine, and the ministry. Our curriculum is designed to prepare students to engage actively as responsible citizens in the global community.

100. Introduction to Religious Inquiry. 3 credits. An introduction to the questions posed by those seeking religious truth as well as the methods and tools used by all religious traditions. This course is designed as a foundational entry into the academic study of religion, well suited for students with little or no training in the academic study of religion. F

101. Religions of the West. 3 credits. A survey of the classical stories, rituals, and symbols of religious culture in Western societies, as it developed from ancient times to the present. F

102. Religions of Asia. 3 credits. This course is an introduction to the characteristic beliefs and practices of selected religions that developed in Asia: Hinduism, Buddhism, Confucianism, Daoism and Shinto. We will devote special attention to scriptures and other classic literature of the traditions. Students will gain an appreciation of the
vitality and enduring significance of each of the religions as a way of life for large numbers of people. 


203. World Religions. 3 credits. A general survey of the beliefs and practices of major world religions, with a focus on Islam, Hinduism, Buddhism, Daoism, and new religious traditions. 

216. Women and Religion. 3 credits. An examination of the role of women's experiences in religious thought, symbols and traditions, beginning with the centrality of goddess and mythic female figures, to the shift from matriarchy to patriarchy in the major cultures of the world and the consequent suppression of women's experiences by patriarchal society, up to the current trend towards reformation and reconstruction of traditional religions by contemporary women theologians and religious thinkers. 

221. Jewish Scripture/Old Testament. 3 credits. An introduction to the academic study of this ancient literature that includes an investigation of its historical, cultural, and religious contexts, as well as an examination of the fundamental interpretive approaches employed by biblical scholars. 

231. Christian Scripture/New Testament. 3 credits. An introduction to the academic study of the New Testament that includes an investigation of its historical, cultural, and religious contexts, as well as an examination of the fundamental interpretive approaches employed by biblical scholars. 

245. Death and Dying. 3 credits. An examination of various perspectives on death and dying in our own and other cultures with a view to coping with the problems of mortality and immortality. Medical, psychological, philosophical, and religious aspects contributing to an understanding of the meaning of death will be offered by resource people whose experience will lend assistance to the student's confronting the reality of death and dying. Lecture and discussion. 

250. East Asia in Religion. 3 credits. A critical and comparative study of people's religious orientation between Eastern and Western traditions. 

300. Jesus in Gospel and History. 3 credits. A study of one of the most significant personalities in religious history. Biblical and non-biblical texts which have defined and described Jesus will be examined. 

301. Life and Religion of Paul. 3 credits. A study of the Pauline themes underlying the Christian faith as seen through the writings of this creative religious personality. Emphasis on current Pauline studies. 

305. Mysticism. 3 credits. A study of mystics and their writings from the Eastern and Western traditions and the application of methods of religious inquiry into the presence of mystical phenomena. 

309. Atheism, Theism, and Secularism. 3 credits. Exploration of the basic theoretical and ethical options regarding the ultimate meaning and value of human life, with a study of the impact the rise of secularism has had on religious faith. on demand. 

315. Daoism and Confucianism. 3 credits. An introduction to two major religious and philosophical traditions indigenous to China and important throughout the world; like China, it now also comprises about one-fifth to one-sixth of the earth's population. This class will introduce students to the region's preponderant traditional religions by contemporary women theologians and religious thinkers. 

320. Hinduism. 3 credits. The Indian subcontinent is one of the great historic centers of world civilization, and it has extended its cultural influence throughout Asia and the world; like China, it now also comprises about one-fifth to one-sixth of the earth's population. This class will introduce students to the region's preponderant religious and philosophical tradition of Hinduism, treating topics such as understandings of the gods, teachings of a universal soul, reincarnation, views on sex and gender roles, and the caste system, and Hinduism and globalization. We will treat examples of Hinduism from the ancient to contemporary periods, devoting special attention to selections of classic texts. 

321. Prophets and Prophecy. 3 credits. This course investigates the religious phenomenon of prophecy in both traditional contexts (ancient Israelite religion and the ancient near east, early Christianity and the Greco-roman world), as well as in its present day manifestations within a variety of indigenous cultures and contemporary religions. 

326. Development of Christian Doctrine. 3 credits. An introduction to the origins of early Christianity as a movement, the struggle among competing interpretations of the Christian faith to establish orthodoxy, and the development of Christian thought and practice through the Protestant Reformation. 

334. Judaism. 3 credits. Comparative Jewish thought in cultural context and as manifest in Jewish literature. Topics to be studied include the sacred, the human community, the role of Israel, ethics, the Holocaust. 

336. Contemporary Christianities. 3 credits. A survey of modern Christian thought from the Protestant Reformation to the contemporary era, with an emphasis on the variety of Christian practices and theologies in the twenty-first century. 

342. Religious Ethics. 3 credits. Problems concerning the presuppositions of religious ethics and their application to personal moral issues and to such areas of community life as business, race relations, war and peace. 

355. Islam. 3 credits. This course provides an overview of Islam, the faith of more than one billion persons throughout the world. This course explores the history, beliefs and practices of Islam, ethics, writings, and experiences of Muslims in diverse cultures, with an emphasis on understanding the development of Islam in the 20th and 21st centuries. This course develops critical and creative thinking, careful reading and analysis of complex texts and issues, writing and research skills, and the ability to empathize with a diversity of contexts and viewpoints. On demand. 

380. Buddhism. 3 credits. A historical and critical survey of different Buddhist schools in India, China, Tibet, and Japan. 

399. Selected Topics. 1-3 credits. A selected topic in the area of religious studies such as Atheism, Religion and Public Life, Lessons of the Holocaust, Religion and the Environment, Greco-Roman Religion, African American Religious History, Women Religious Writers. 

410. Asian Religions in the United States. 3 credits. A survey of Asian religions in the U.S., with special attention paid to the ways in which Asian religions are becoming Americanized and American popular culture is becoming Easternized. 

423. Psychology of Religion. 3 credits. The psychological significance of various types of religious experience, personal and social. An examination of classical psychological statements about religion including James, Allport, Kierkegaard, Freud, and Jung. 

431. Religious Violence and the Apocalyptic Mind. 3 credits. This course examines contemporary examples of religious violence by placing them within a broader context of ancient and modern examples of apocalyptic thought. 

460. Sex, Gender and Religion. 4 credits. This course presents issues generated by the interrelationship of sex, sexual orientation and gender with religion. Included in our investigation are examination of the various interpretations of sacred texts which produce discourses of sexual control, establish moral authority and seek to define sexual identity. Other discourses are those created from other religious experiences and therefore resist those of the dominant society. S/2

480. Religion Capstone. 3 credits. This class provides an opportunity for students to reflect further upon, and integrate what they have learned in the religion program and their entire university experience. Topics to be considered include diverse expressions and meanings of religion; cross-cultural understanding and dialogue; the affects on religious studies of patriarchy, colonialism and heterosexism; religion and violence; and religion and contemporary culture. The class addresses the Essential Studies goals of thinking and learning, and diversity. 

491. Seminar on Religion. 3 credits. Prerequisites: Junior or Senior standing and some upper level work in Religion or consent of the instructor. A consideration of the selected topics or religious classics of mutual interest to departmental staff and advanced students in Religion. On Demand. 

494. Independent Studies in Religion. 1-3 credits, may be repeated to 8 credits. Prerequisite: consent of the instructor. Supervised reading and study on an individual basis. F, S

Physical Education, Exercise Science and Wellness (PXW)

The Department of Physical Education, Exercise Science and Wellness (PXW) believes that individuals and society benefit from physical activity. The mission of the Department is to promote enhanced quality of life through participation in physical activity, exercise, and sport for the people of North Dakota and beyond. Specifically, this mission is accomplished through: 1) the provision of quality teacher education and other professional preparation programs at both the undergraduate and graduate levels (see Kinesiology); 2) creative and scholarly activity which leads to discovery and dissemination of professional and disciplinary knowledge; and 3) contribution of professional expertise and talents as a service to the community, university and profession.

Graduates have the opportunity to pursue careers in physical education teaching, health, fitness and wellness education, leadership and management, athletic coaching, or to continue their education in graduate or professional studies.

Basic Instruction Program Courses (BIP). The Department of PXW also provides beginner, intermediate and advanced instruction for all students of the University in a wide variety of activities, such as aquatics, individual sports and activities (including combative sports, dance, fitness and conditioning, gymnastics, outdoor pursuits, racquet sports, strength training, and target sports) and team
sports. Credits obtained from participation in these activity courses may count toward the credits required for graduation. These credits may be earned by enrolling in the various activities offered under the PXW 100-118 (beginner), 120-138 (intermediate), and 140-158 (advanced) course numbers. Specific course offerings are listed in the current schedule of courses. Students are generally required to bring their own equipment, although in some cases, equipment is provided by the department. Each BIP course has a $30 fee to help pay for the cost of equipment, instruction and administrative costs. There may also be fees assessed for some activities that require facility rental.

Undergraduate programs offered by the Department of Physical Education, Exercise Science and Wellness in the College of Education and Human Development are:

A. Major in Physical Education, Exercise Science and Wellness: consists of a common core of courses with one of three options: teacher education option (Option A), which leads to a teacher certification to teach physical education in grades K-12, related area option (Option B), which allows a student to study physical education, exercise science and wellness and a related subdiscipline; and exercise science and wellness applications area (Option C) for those students who wish to find employment in wellness/fitness fields or pursue graduate or professional studies.

B. Minor in Athletic Coaching: offered to students who wish to prepare for athletic coaching.

C. Minor in Health Education: provides partial preparation for school health teaching.

B.S.P.X.W.

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The College of Education and Human Development Requirements (see College listing).

III. Prerequisite courses, 19 credits, including: (*courses may be used to satisfy the Essential Studies requirements).

Chem 115/115L ... Introductory Chemistry and Laboratory* ................................ (4)
Psyc 111 .......... Introduction to Psychology* .................................................. (3)
Soc 110 ............. Introduction to Sociology* .................................................. (3)
Anat 204/204L ... Anatomy for Paramedical Personnel and Laboratory .......... (5)
PPT 301 ............ Mechanics of Human Physiology ....................................... (4)

IV. PXW core requirements, 30 credits including:

Nutr 249 ........... Fundamentals of Nutrition ................................................. (3)
PXW 276/276L ... Motor Learning and Laboratory .............................................. (3)
PXW 310 ............ First Aid and CPR .............................................................. (2)
PXW 326 ............ Fundamentals of Physical Conditioning ............................... (3)
PXW 332/332L ... Biomechanics and Laboratory ............................................. (4)
PXW 355 ............ Applied Motor Development ................................................ (3)
PXW 401 ............ Sport Sociology ................................................................. (3)
PXW 402/402L ... Exercise Physiology and Laboratory ..................................... (4)
PXW 404 ............ Adapted Activities Programming ....................................... (2)
PXW 440 ............ Sport Psychology ............................................................... (3)

V. One of the following options:

A. Teacher Education/Certification Option

Students seeking certification to teach physical education must be admitted to the Teacher Education program. Students must also complete the PXW core requirements (listed above) plus additional courses specific to the preparation for teaching in physical education, including the following courses:

PXW 205 ............ Physical Education for the Elementary Grades ................... (3)
PXW 220-238 ... Movement Performance and Analysis .................................... (9)
PXW 323 ............ Introduction to Teaching in Physical Education and Sport Settings ................................................... (3)
PXW 323L ........... Introduction to Teaching in Physical Education and Sport Settings Laboratory ............................................. (1)
PXW 400 ............ Methods and Materials for Teaching Physical Education in the Secondary School ................................................... (3)
PXW 400L ........... Methods and Materials for Teaching Physical Education in the Secondary School Laboratory ............................................. (1)
PXW 403 ............ School Health Education .................................................... (2)

PXW 406 ............ Strategies for Teaching Physical Education in the Elementary School .......................................................... (3)
PXW 406L ......... Strategies for Teaching Physical Education in the Elementary School Laboratory ................................................... (1)
PXW 491 ............ Senior Teaching Seminar ....................................................... (1)

Additional requirements for the teacher education/certification option include:

1. Admission to the Teacher Education program (see details in the UND Catalog under the College of Education and Human Development or on the Teacher Education website.)

2. Courses in the Department of Teaching and Learning: 250, 252, 339, 345, and 433.

3. PXW 327—Fitness for Life (3 credits).

4. Satisfactory development of a teacher education portfolio at three points in the program (see the Department of Teaching and Learning for details).

5. Teaching and Learning 487—Student Teaching at both elementary and secondary levels (16 credits total; 8 credits each level).

B. Related Areas Option

PXW core requirements, plus the following:

1. Students will complete another major and/or minor in a subject area related to physical education, exercise science and wellness.

2. PXW 220-238: Movement Performance and Analysis, 3 credits total (1 aquatic, 1 individual sport/activity, and 1 team sport).

3. The remaining credits to satisfy the University minimum Graduation Requirements of 125 credits will be chosen from elective courses with the consent of the adviser.

C. Exercise Science and Wellness Applications Area Option

PXW core requirements, plus the following (for an additional minimum of 24 credits):

Required courses include:

PXW 220-238 ... Movement Performance and Analysis (1 aquatic, 1 individual sport/activity and 1 team sport) (3)
PXW 446 ......... Exercise Testing and Prescription ........................................... (3)
PXW 497 ......... Internship .................................................................................. (4-10)

Electives:

PXW 207/207L ... Prevention and Care of Injuries and Laboratory ................... (3)
PXW 240 ............ Introduction to Wellness ....................................................... (2)
PXW 327 ............ Fitness for Life ................................................................. (3)
PXW 375 ............ Fundamentals of Group Exercise Instruction ....................... (3)
PXW 376 ............ Professional Skills in Personal Training .............................. (3)
PXW 434 ............ Strength Training: Coaching Methods ............................... (2)

MINOR IN ATHLETIC COACHING

Required 27 credits, including:

PXW 241 ............ Introduction to Coaching ..................................................... (1)
PXW 207/207L ... Prevention and Care of Injuries and Laboratory ................... (3)
PXW 220-238 ... Movement Performance and Analysis ................................... (3)
PXW 323 ......... Introduction to Teaching in Physical Education and Sport Settings ................................................... (3)
PXW 323L ......... Introduction to Teaching in Physical Education and Sport Settings Laboratory ................................................... (1)
PXW 325 ......... Youth and Children in Sport .................................................. (3)
PXW 326 ......... Fundamentals of Physical Conditioning ............................... (3)
PXW 341 ......... Organization and Administration of Athletics ........................ (2)
PXW 420-438 ... Coaching Methods (3 courses that are 2 credits each to coincide with specific PXW 220-238 courses) .................. (6)
PXW 498 ............ Practicum in Coaching .......................................................... (2)

Students interested in a Minor in Athletic Coaching should consult with an adviser in Physical Education, Exercise Science and Wellness before beginning the Minor. Doing so is necessary to ensure that courses are appropriately tracked toward the practicum.

MINOR IN HEALTH EDUCATION

Required 14 credits, including:

PXW 310 ............ First Aid and CPR .............................................................. (2)
PXW 327 ............ Fitness for Life ................................................................. (3)
PXW 403 ......... School Health Education ..................................................... (2)

Nutr 240 ............ Fundamentals of Nutrition ............................................... (3)

and 7-10 credits, to include one course from each of the following 3 groups:

Group 1:

Biol 124 ............ Environmental Science .................................................... (2)
Geol 103 ............ Introduction to Environmental Issues ............................... (3)

Group 2:

Psyc 299 ......... Human Sexuality ............................................................... (3)
T&L 252 ......... Child Development ............................................................ (3)
Soc 335 ......... The Family ................................................................. (3)

For specific course content, see the current schedule of classes. F,S,SS

various outdoor pursuit activities (e.g., camping, cycling, cross-country skiing, etc.). For specific course content, see the current schedule of classes. F,S,SS

same activity or consent of the instructor. These courses provide intermediate level instruction in various types of strength training (e.g., body building, power lifting, weight training, etc.). For specific course content, see the current schedule of classes. F,S,SS

Target Sports II. 1 credit. Prerequisite: PXW 115 in the same activity or consent of the instructor. These courses provide intermediate level instruction in various target sports (e.g., trapshooting, skeet). For specific course content, see the current schedule of classes. F,S,SS

Team Sports II. 1 credit. Prerequisite: PXW 116 in the same activity or consent of the instructor. These courses provide intermediate level instruction in various team sports (e.g., baseball, basketball, football, ice hockey, soccer, volleyball, etc.). For specific course content, see the current schedule of classes. F,S,SS

Physical Education, Exercise Science and Wellness Courses

104. Aquatics I. 1 credit. These courses are designed for beginners. They include instruction in various aquatics-related activities (e.g., swimming, diving, etc.). For specific course content, see the current schedule of classes. F,S,SS

105. Combative Sports I. 1 credit. These courses are designed for beginners. They include instruction in various combative sports (e.g., boxing, kickboxing, etc.). For specific course content, see the current schedule of classes. F,S,SS

107. Dance I. 1 credit. These courses are designed for beginners. They include instruction in various dance types (e.g., balletroom, hip-hop, etc.). For specific course content, see the current schedule of classes. F,S,SS

111. Individual Sports / Activities I. 1 credit. These courses are designed for beginners. They include instruction in various individual sport and activities (e.g., golf, ice skating, track and field events, etc.). For specific course content, see the current schedule of classes. F,S,SS

112. Fitness and Conditioning I. 1 credit. These courses are designed for beginners. They include instruction in various fitness and conditioning activities (e.g., aerobic exercise, pilates, yoga, etc.). For specific course content, see the current schedule of classes. F,S,SS

113. Racquet Sports I. 1 credit. These courses are designed for beginners. They include instruction in various racquet sports (e.g., badminton, racquetball, tennis, etc.). For specific course content, see the current schedule of classes. F,S,SS

114. Strength Training I. 1 credit. These courses are designed for beginners. They include instruction in various types of strength training (e.g., body building, power lifting, weight training, etc.). For specific course content, see the current schedule of classes. F,S,SS

115. Target Sports I. 1 credit. These courses are designed for beginners. They include instruction in various target sports (e.g., trapshooting, skeet). For specific course content, see the current schedule of classes. F,S,SS

116. Team Sports I. 1 credit. These courses are designed for beginners. They include instruction in various team sports (e.g., baseball, basketball, football, ice hockey, soccer, volleyball, etc.). For specific course content, see the current schedule of classes. F,S,SS

117. Gymnastics I. 1 credit. These courses are designed for beginners. They include instruction in types of gymnastics (e.g., artistic, trampolining, tumbling, etc.). For specific course content, see the current schedule of classes. F,S,SS

118. Military Conditioning I. 1 credit. This course is designed for beginners. It includes instruction in military conditioning. F,S,SS

119. Sports Officiating. 1 credit. Knowledge of the rules and techniques for officiating various sports. Offered by sport; credit is repeatable by sport. On Demand.

124. Aquatics II. 1 credit. Prerequisite: PXW 104 in the same activity or consent of the instructor. These courses provide intermediate level instruction in various aquatics-related activities (e.g., swimming, diving, etc.). For specific course content, see the current schedule of classes. F,S,SS

125. Combative Sports II. 1 credit. Prerequisite: PXW 105 in the same activity or consent of the instructor. These courses provide intermediate level instruction in various combative sports (e.g., boxing, kickboxing, etc.). For specific course content, see the current schedule of classes. F,S,SS

127. Dance II. 1 credit. Prerequisite: PXW 107 in the same activity or consent of the instructor. These courses provide intermediate level instruction in various dance types (e.g., balletroom, hip-hop, etc.). For specific course content, see the current schedule of classes. F,S,SS

128. Fitness and Conditioning II. 1 credit. Prerequisite: PXW 108 in the same activity or consent of the instructor. These courses provide intermediate level instruction in various fitness and conditioning activities (e.g., aerobic exercise, pilates, yoga, etc.). For specific course content, see the current schedule of classes. F,S,SS

131. Individual Sports / Activities II. 1 credit. Prerequisite: PXW 111 in the same activity or consent of the instructor. These courses provide intermediate level instruction in various individual sport and activities (e.g., golf, ice skating, track and field events, etc.). For specific course content, see the current schedule of classes. F,S,SS

132. Outdoor Pursuits II. 1 credit. Prerequisite: PXW 112 in the same activity or consent of the instructor. These courses provide intermediate level instruction in various outdoor pursuit activities (e.g., camping, cycling, cross-country skiing, etc.). For specific course content, see the current schedule of classes. F,S,SS

133. Racquet Sports II. 1 credit. Prerequisite: PXW 113 in the same activity or consent of the instructor. These courses provide intermediate level instruction in various racquet sports (e.g., badminton, racquetball, tennis, etc.). For specific course content, see the current schedule of classes. F,S,SS

134. Strength Training II. 1 credit. Prerequisite: PXW 114 in the same activity or consent of the instructor. These courses provide intermediate level instruction in various types of strength training (e.g., body building, power lifting, weight training, etc.). For specific course content, see the current schedule of classes. F,S,SS

135. Target Sports II. 1 credit. Prerequisite: PXW 115 in the same activity or consent of the instructor. These courses provide intermediate level instruction in various target sports (e.g., trapshooting, skeet). For specific course content, see the current schedule of classes. F,S,SS

144. Aquatics III. 1 credit. Prerequisite: PXW 124 in the same activity or consent of the instructor. These courses provide advanced level instruction in various aquatics-related activities (e.g., swimming, diving, etc.). For specific course content, see the current schedule of classes. F,S,SS

145. Combative Sports III. 1 credit. Prerequisite: PXW 125 in the same activity or consent of the instructor. These courses provide advanced level instruction in various combative sports (e.g., boxing, kickboxing, etc.). For specific course content, see the current schedule of classes. F,S,SS

147. Dance III. 1 credit. Prerequisite: PXW 127 in the same activity or consent of the instructor. These courses provide advanced level instruction in various types of strength training (e.g., body building, power lifting, weight training, etc.). For specific course content, see the current schedule of classes. F,S,SS

151. Individual Sports / Activities III. 1 credit. Prerequisite: PXW 131 in the same activity or consent of the instructor. These courses provide advanced level instruction in various individual sport and activities (e.g., golf, ice skating, track and field events, etc.). For specific course content, see the current schedule of classes. F,S,SS

152. Outdoor Pursuits III. 1 credit. Prerequisite: PXW 132 in the same activity or consent of the instructor. These courses provide advanced level instruction in various outdoor pursuit activities (e.g., camping, cycling, cross-country skiing, etc.). For specific course content, see the current schedule of classes. F,S,SS

153. Racquet Sports III. 1 credit. Prerequisite: PXW 133 in the same activity or consent of the instructor. These courses provide advanced level instruction in various racquet sports (e.g., badminton, racquetball, tennis, etc.). For specific course content, see the current schedule of classes. F,S,SS

154. Strength Training III. 1 credit. Prerequisite: PXW 134 in the same activity or consent of the instructor. These courses provide advanced level instruction in various types of strength training (e.g., body building, power lifting, weight training, etc.). For specific course content, see the current schedule of classes. F,S,SS

155. Target Sports III. 1 credit. Prerequisite: PXW 135 in the same activity or consent of the instructor. These courses provide advanced level instruction in various target sports (e.g., trapshooting, skeet). For specific course content, see the current schedule of classes. F,S,SS

156. Team Sports III. 1 credit. Prerequisite: PXW 136 in the same activity or consent of the instructor. These courses provide advanced level instruction in various team sports (e.g., baseball, basketball, football, ice hockey, soccer, volleyball, etc.). For specific course content, see the current schedule of classes. F,S,SS

157. Gymnastics III. 1 credit. Prerequisite: PXW 137 in the same activity or consent of the instructor. These courses provide advanced level instruction in various types of gymnastics (e.g., artistic, trampolining, tumbling, etc.). For specific course content, see the current schedule of classes. F,S,SS

158. Military Conditioning III. 1 credit. Prerequisite: PXW 138 in the same activity or consent of the instructor. This course provides advanced level instruction in military conditioning. F,S,SS

205. Physical Education for the Elementary Grades. 3 credits. A study of contemporary programs in elementary physical education. Emphasis on appropriate movement experiences for children.
and knowledge in various aquatics-related activities (e.g., swimming, diving, etc.). These are professional preparation courses for PXW majors. For specific course content, see the current schedule of classes. F,SS

225. Combinative Sports: Movement Performance and Analysis (MP&A). 1 credit, course may be repeated as long as content varies, to a maximum of 12 credits for the PWX 220-239 series. Prerequisite: matching PXW 105, 125, 145, or performance equivalent in same area. These courses focus on the development of performance, performance analysis and knowledge in various combative sports (e.g., boxing, kickboxing, etc.). These are professional preparation courses for PXW majors. For specific course content, see the current schedule of classes. F,SS

227. Dance: Movement Performance and Analysis (MP&A). 1 credit, course may be repeated as long as content varies, to a maximum of 12 credits for the PWX 220-239 series. Prerequisite: matching PXW 107, 127, 147, or performance equivalent in same area. These courses focus on the development of performance, performance analysis and knowledge in various dance types (e.g., ballroom, hip-hop, etc.). These are professional preparation courses for PXW majors. For specific course content, see the current schedule of classes. F,SS

228. Fitness and Conditioning: Movement Performance and Analysis (MP&A). 1 credit, course may be repeated as long as content varies, to a maximum of 12 credits for the PWX 220-239 series. Prerequisite: matching PXW 108, 128, 148, or performance equivalent in same area. These courses focus on the development of performance, performance analysis and knowledge in various fitness and conditioning activities (e.g., aerobic exercise, pilates, yoga, etc.). These are professional preparation courses for PXW majors. For specific course content, see the current schedule of classes. F,SS

231. Individual Sports / Activities: Movement Performance and Analysis (MP&A). 1 credit, course may be repeated as long as content varies, to a maximum of 12 credits for the PWX 220-239 series. Prerequisite: matching PXW 111, 131, 151, or performance equivalent in same area. These courses focus on the development of performance, performance analysis and knowledge in various individual sports and activities (e.g., golf, ice skating, track and field events, etc.). These are professional preparation courses for PXW majors. For specific course content, see the current schedule of classes. F,SS

232. Outdoor Pursuits: Movement Performance and Analysis (MP&A). 1 credit, course may be repeated as long as content varies, to a maximum of 12 credits for the PWX 220-239 series. Prerequisite: matching PXW 112, 132, 152, or performance equivalent in same area. These courses focus on the development of performance, performance analysis and knowledge in various outdoor pursuit activities (e.g., camping, cycling, cross-country skiing, etc.). These are professional preparation courses for PXW majors. For specific course content, see the current schedule of classes. F,SS

233. Racquet Sports: Movement Performance and Analysis (MP&A). 1 credit, course may be repeated as long as content varies, to a maximum of 12 credits for the PWX 220-239 series. Prerequisite: matching PXW 113, 133, 153, or performance equivalent in same area. These courses focus on the development of performance, performance analysis and knowledge in various racquet sports (e.g., badminton, racquetball, tennis, etc.). These are professional preparation courses for PXW majors. For specific course content, see the current schedule of classes. F,SS

234. Strength Training: Movement Performance and Analysis (MP&A). 1 credit, course may be repeated as long as content varies, to a maximum of 12 credits for the PWX 220-239 series. Prerequisite: matching PXW 114, 134, 154, or performance equivalent in same area. These courses focus on the development of performance, performance analysis and knowledge in various types of strength training (e.g., body building, power lifting, weight training, etc.). These are professional preparation courses for PXW majors. For specific course content, see the current schedule of classes. F,SS

235. Target Sports: Movement Performance and Analysis (MP&A). 1 credit, course may be repeated as long as content varies, to a maximum of 12 credits for the PWX 220-239 series. Prerequisite: matching PXW 115, 135, 155, or performance equivalent in same area. These courses focus on the development of performance, performance analysis and knowledge in various target sports (e.g., trap shooting, skeet). These are professional preparation courses for PXW majors. For specific course content, see the current schedule of classes. F,SS

236. Team Sports: Movement Performance and Analysis (MP&A). 1 credit, course may be repeated as long as content varies, to a maximum of 12 credits for the PWX 220-239 series. Prerequisite: matching PXW 116, 136, 156, or performance equivalent in same area. These courses focus on the development of performance, performance analysis and knowledge in various team sports (e.g., baseball, basketball, football, ice hockey, soccer, volleyball, etc.). These are professional preparation courses for PXW majors. For specific course content, see the current schedule of classes. F,SS

237. Gymnastics: Movement Performance and Analysis (MP&A). 1 credit, course may be repeated as long as content varies, to a maximum of 12 credits for the PWX 220-239 series. Prerequisite: matching PXW 117, 137, 157, or performance equivalent in same area. These courses focus on the development of performance, performance analysis and knowledge in various types of gymnastics (e.g., artistic, trampolineing, tumbling, etc.). These are professional preparation courses for PXW majors. For specific course content, see the current schedule of classes. F,SS

240. Introduction to Wellness. 2 credits. Designed to encourage personal awareness and responsibility for the maintenance of health and well-being. This course will study the multi-dimensional nature of wellness and the pivotal role that each dimension plays in personal self fulfillment. F

241. Introduction to Coaching. 1 credit. An introduction and overview of relevant philosophy, sport psychology, sport pedagogy, sport physiology, sport medicine and sport management confronting coaches. Corequisite: F

276. Motor Learning. 3 credits. Corequisite: PXW 276L. Prerequisite: PXW majors only or consent of the instructor. Consideration of various factors which may affect learning and performance in human movement activities. S

299. Special Topics. 1-4 credits, repeatable to 9. Specialized topics related to physical education, exercise science and wellness. On demand.

305. Health Physical Education and Elementary Education Teachers. 3 credits. Prerequisite: Accepted to Teacher Education, Early Childhood Education or Elementary Education major. This course provides background information and skills for the early childhood and elementary teacher to implement coordinated health education in the elementary grades and how to provide support and effective instruction in elementary physical education. F,SS

309. Water Safety Instruction. 2 credits. Prerequisite: Current Senior Lifesaving Certificate. Scientific movement principles, theories and techniques as they apply to the teaching and conduct of aquatic activities. Laboratory teaching assignments. On demand.

310. First Aid and CPR. 2 credits. Recommended Advanced First Aid and CPR practices for the care of persons who have been injured or suddenly become ill. F

323. Introduction to Teaching in Physical Education and Sport Settings, 3 credits. Prerequisite: PXW 220-239 series requirements. Corequisite: PXW 323L. Strategy for classroom management, planning, instruction, and assessment of teacher and student behavior. Special emphasis on systematic development of a variety of teaching skills through practice and feedback in individual and small group situations. On demand.

323L. Introduction to Teaching in Physical Education and Sport Settings Laboratory, 1 credit. Prerequisites: PXW 220-239 series requirements. Corequisite: PXW 323L. Specialized experiences in laboratory and field settings for the purpose of developing teaching skills for physical education and sport settings. On demand.

325. Youth and Children in Sport. 3 credits. Analysis of research findings in physical education, exercise science and wellness with applications to coaching children and youth in sport. F

326. Fundamentals of Physical Conditioning, 3 credits. Prerequisite: PXW majors only or consent of the instructor. A study of the basic knowledge, principles, and methods of physical conditioning for health, fitness and wellness benefits, and for athletic performance improvement. F

327. Fitness for Life, 3 credits. A classroom course focusing on advanced concepts of lifetime fitness and wellness from a consumer perspective. Emphasis is on the development of personal programs for fitness and wellness. F

331. Organization and Administration of Athletics, 2 credits. Principles and practices of the management of intra-scholastic athletic program, S

355. Applied Motor Development, 3 credits. Prerequisite: PXW majors only or consent of the instructor. Changes in motor performance which occur with age; physical and mental development as they relate to these changes. F

356. Professional Skills in Personal Training, 3 credits. Prerequisite: PXW 326. The fundamental knowledge and practical skills needed to lead a group exercise class. On demand.

357. Professional Skills in Personal Training, 3 credits. Prerequisite: PXW 326. The fundamental knowledge and practical skills necessary to provide personal training for individuals and/or small groups. On demand.

397. Cooperative Education. 1-4 credits, repeatable to 16. Prerequisite: PXW majors only. Part of the educational system where PXW majors can earn academic credit for career oriented, content driven field experiences. Arranged by mutual agreement among student, department, and employer. S/U grading only. F,SS


400L. Methods and Materials for Teaching Physical Education in the Secondary School—Laboratory, 1 credit. Prerequisites: PXW 406L and admission to Teacher Education. Corequisite: PXW 400L. Supervised experiences in the secondary school for the purpose of developing teaching skills for physical education and sport settings. On demand.

401. Sport Sociology, 3 credits. Prerequisite: Soc 110. The critical exploration of the function of sports in American culture, in an interdisciplinary fashion, with a focus on the contemporary scene. F

402. Exercise Physiology, 4 credits. Prerequisite: PXW or Athletic Training majors only, or consent of the instructor; PPT 301 (or Human Physiology equivalent). The acute and chronic effect of the type, intensity and duration of exercise on physiological functions. F

403. School Health Education, 2 credits. Provides prospective health educators with a cursory look at health curriculum construction and investigation of different methods, techniques and classroom devices for health education. F

404. Adapted Activities Programming, 2 credits. Prerequisite: PXW majors only or consent of the instructor. Information about specific handicaps and adaptations of various activities that individuals may participate in. S

405. Strategies for Teaching Physical Education in the Elementary School, 3 credits. Prerequisites: 205, 323, and admission to Teacher Education. Corequisite: PXW 406L. The development of skills and knowledge related to teaching physical education to young children. On demand.

406. Strategies for Teaching Physical Education in the Elementary School—Laboratory, 1 credit. Prerequisites: PXW 323L, 205, and admission to Teacher Education. Corequisite: PXW 406L. Supervised experiences in the elementary school for the
purpose of developing teaching skills for physical education and sport settings. On demand.

424. Aquatics: Coaching Methods. 2 credits. Repeatable with different sports to a maximum of 10 credits in the PXW 420-439 series. Prerequisite: matching PXW 224 in the same area. These courses focus on methods employed in coaching specific aquatic-related activities (e.g., swimming, diving, etc.). For specific course content, see the current schedule of classes. F, S, SS

425. Combative Sports: Coaching Methods. 2 credits. Repeatable with different sports to a maximum of 10 credits in the PXW 420-439 series. Prerequisite: matching PXW 225 in the same area. These courses focus on methods employed in coaching specific combative sports (e.g., boxing, kickboxing, etc.). For specific course content, see the current schedule of classes. F, S, SS

427. Dance: Coaching Methods. 2 credits. Repeatable with different sports to a maximum of 10 credits in the PXW 420-439 series. Prerequisite: matching PXW 227 in the same area. These courses focus on methods employed in teaching specific dance types (e.g., ballet, hip-hop, etc.). For specific course content, see the current schedule of classes. F, S, SS

428. Fitness and Conditioning: Coaching Methods. 2 credits. Repeatable with different sports to a maximum of 10 credits in the PXW 420-439 series. Prerequisite: matching PXW 228 in the same area. These courses focus on methods employed in instructing specific various and conditioning activities (e.g., aerobic exercise, pilates, yoga, etc.). For specific course content, see the current schedule of classes. F, S, SS

431. Individual Sports/Activities: Coaching Methods. 2 credits. Repeatable with different sports to a maximum of 10 credits in the PXW 420-439 series. Prerequisite: matching PXW 231 in the same area. These courses focus on methods employed in coaching specific individual sport and activities (e.g., golf, ice skating, track and field events, etc.). For specific course content, see the current schedule of classes. F, S, SS

432. Outdoor Pursuits: Coaching Methods. 2 credits. Repeatable with different sports to a maximum of 10 credits in the PXW 420-439 series. Prerequisite: matching PXW 232 in the same area. These courses focus on methods employed in coaching specific outdoor pursuits activities (e.g., camping, cycling, cross-country skiing, etc.). For specific course content, see the current schedule of classes. F, S, SS

433. Racquet Sports: Coaching Methods. 2 credits. Repeatable with different sports to a maximum of 10 credits in the PXW 420-439 series. Prerequisite: matching PXW 233 in the same area. These courses focus on methods employed in coaching specific racquet sports (e.g., badminton, racquetball, tennis, etc.). For specific course content, see the current schedule of classes. F, S, SS

434. Strength Training: Coaching Methods. 2 credits. Repeatable with different sports to a maximum of 10 credits in the PXW 420-439 series. Prerequisite: matching PXW 234 in the same area. These courses focus on methods employed in coaching specific strength training (e.g., body building, power lifting, weight training, etc.). For specific course content, see the current schedule of classes. F, S, SS

435. Target Sports: Coaching Methods. 2 credits. Repeatable with different sports to a maximum of 10 credits in the PXW 420-439 series. Prerequisite: matching PXW 235 in the same area. These courses focus on methods employed in coaching specific target sports (e.g., trapshooting, skeet). For specific course content, see the current schedule of classes. F, S, SS

436. Team Sports: Coaching Methods. 2 credits. Repeatable with different sports to a maximum of 10 credits in the PXW 420-439 series. Prerequisite: matching PXW 236 in the same area. These courses focus on methods employed in coaching specific team sports (e.g., baseball, basketball, football, ice hockey, soccer, volleyball, etc.). For specific course content, see the current schedule of classes. F, S, SS

440. Sport Psychology. 3 credits. Prerequisite: Psy 111. Examination of psychological constructs influencing the competitive sport process and physical activity. S

446. Exercise Testing and Prescription. 3 credits. Prerequisites: PXW 326 and 402. Theory and practice of administering exercise, fitness and wellness tests, and using the results in exercise prescription and programming. On demand.

491. Senior Teaching Seminar. 1 credit. Corequisite: T&L 447. A critical analysis of problems, professional obligations and careers in teaching physical education. F

494. Directed Studies/Research. 1-4 credits, repeatable up to 9 credits. Prerequisite: Consent of the instructor. An in-depth study or participation in a research project in a subject area selected by the student under faculty supervision. F, S, SS

495. Service Learning. 2 credits. Prerequisites: required coursework from PXW 220-239 series. Independent and group study of professional placement and leadership in physical education, exercise science and wellness settings. Practical experiences in these settings within the community. Includes lectures, site visits, and fieldwork hours. F, S, SS

496. Field Study. 1-8 credits. Prerequisite: Consent of instructor and upper division status. Placement of student in a practical setting under university faculty supervision. F, S, SS

497. Internship. 4-12 credits. Prerequisite: PXW majors only. Provides practical experience for new PXW majors by working directly with elderly, health and human service organizations under the supervision of professionals and faculty. Credits are taken in one semester for paid or volunteer part-time work. S-U grading only. F, S, SS

498. Practicum in Coaching. 2 credits. Prerequisite: PXW 420-439 in the assigned sport in which the student will coach. Supervised experiences in a school setting for the purpose of developing skills and techniques for coaching. F, S, SS
measurement technique. The aim is to prepare the student to work as part of a research team in an industrial, government or academic setting. In addition to the core, the student must complete:

EE 206 .......... Circuit Analysis ............................................................ (3 cr)
EE 321 .......... Electronics I ................................................................. (3 cr)
EE 308 .......... Electronics Lab ............................................................ (2 cr)
Phys 402 .......... Computers in Physics ............................................... (3 cr)
EE 452 .......... Microprocessors ............................................................ (3 cr)

In addition, students electing the applied physics track should select an instrument project as a means of satisfying the research core requirement, Phys 415.

III. Astrophysics track: This option is for students with special interest in astronomy, astrophysics, space exploration or aerospace applications. The following are required:

Phys 110 .......... Intro. Astronomy .......................................................... (3 cr)
Phys 110L ...... Intro. Astronomy Lab ................................................... (1 cr)
Phys 434 .......... Nuclear Physics ............................................................ (3 cr)
Phys 460 .......... Intro. Astrophysics I .................................................... (3 cr)
Phys 461 .......... Intro. Astrophysics II ................................................... (3 cr)

To satisfy the research requirement, Phys 415, students in the astrophysics track should select an approved astrophysics project.

IV. Computers in Physics track: This choice provides extensive experience using computers for running experiments, analyzing data, doing computer simulations and calculations in physics. The student should be prepared to learn programming languages. The following are required.

CSCI 160 ......... Computer Sci. I ............................................................... (4 cr)
CSCI 161 ......... Computer Sci. II ............................................................ (4 cr)
Phys 402 .......... Computers in Phys. ...................................................... (3 cr)

For the Computers in Physics track, students should seek out computational research projects for Phys 415, or laboratory projects involving computer instrumentation.

V. Materials Science track: This option provides the strongest foundation in solid state and materials science. Required are:

1. Phys 320 .......... Intro. Materials Sci. ................................................... (3 cr)
2. Phys 420 .......... Topics in Materials ................................................... (3 cr)

Students in this track should select approved research projects in materials science as a means of satisfying the Phys 415 requirement.

MINOR IN PHYSICS

Required 20 credits in Physics. The specific courses should be chosen in consultation with the department.

Courses

110/110L. Introductory Astronomy. 3 credits/1 credit. An introductory study of the universe. The solar system, stars, stellar evolution, galaxies, black holes, big bang cosmology, and the accelerating universe. The astronomy laboratory 110L is optional for 1 credit. F, S

130/130L. Natural Science—Physics. 4 credits. Corequisite: 130L for 130. For non-science major, this is a hands-on, inquiry-based course on the workings of science. Emphasis is on critical thinking and the use of the scientific method. Topics will include: electricity, force, motion, and energy. The laboratory is a corequisite of this course. S

140. Physics for Poets. 3 credits. An introduction to the fundamental concepts of physics, especially those developed in the twentieth century. A knowledge of elementary algebra is recommended; the course is designed for students with a limited mathematical background. No laboratory. On demand.


150L. Physics for Aerospace Sciences Laboratory. 1 credit. Corequisite: Phys 150. F, S

161/161L, 162/162L. Introductory College Physics I & II. 8 credits. Corequisites: 161L for 161; 162L for 162. An introduction to the principles and concepts of physics with the application of minimal mathematics, sufficient to show the logical progression from one topic to the next. General physics for those who do not plan to take an advanced course in science. Topics: Newtonian mechanics and gravitation, work and energy, solids and fluids, vibrations and waves, electricity and magnetism, and optics. The laboratory is a corequisite of each course. Physics 161 has no mathematical prerequisite but knowledge of elementary algebra is recommended. Physics 161 is offered in the fall and Physics 162 in the spring. F, S

211/211L. College Physics I/Laboratory. 4 credits. Prerequisite: Math 103. This non-calculus introductory physics course is recommended for pre-medical or pre-professional students. Topics: Newtonian mechanics and gravitation, work and energy, solids and fluids, heat and thermodynamics. The laboratory is a corequisite for this course. A student may not receive credit for Physics 211, 211L, Physics 212, 212L and also Physics 161, 161L, and Physics 162, 162L. F, S

212/212L. College Physics II/Laboratory. 4 credits. Prerequisite: Phys 211. This non-calculus general physics course sequence recommended for pre-medical or pre-professional students. Topics: vibrations and waves, electricity and magnetism, light and optics. F

251/251L. University Physics I/Laboratory. 4 credits. Prerequisite: Math 165. Corequisite: Phys 251L. The university physics sequence is for students majoring in science and engineering. Topics normally covered in Phys 251 include Newtonian mechanics and gravitation, work and energy, rotational dynamics, vibrations and waves, mechanics of solids and fluids, basic kinetic theory, equations of state and the first and second laws of thermodynamics. The laboratory is a corequisite for Phys 251. S

252/252L. University Physics II/Laboratory. 4 credits. Prerequisite: Math 166, Phys 251 and 251L. Corequisite: Phys 252L. Topics normally covered include electricity, magnetism, electromagnetic waves, light and geometrical optics. The laboratory is a corequisite for Phys 252. F, S

253/253L. University Physics III/Laboratory. 4 credits. Prerequisite: Math 265, Phys 252 and 252L. Corequisite: Phys 253L. Modern physics, a survey covering physics of the 20th and 21st centuries. Topics normally covered include theory of relativity, discovery of quantum phenomena, basic quantum mechanics, overview of atomic, nuclear and solid state physics, statistical physics, quantum fluids and superconductivity, fundamental forces and the physics of elementary particles. This course is a prerequisite for most advanced courses in advanced physics. The lab is a corequisite for Phys 253. S

294. Selected Topics in Physics. 1 credit. Prerequisite: 8 hours of College Physics or consent of instructor. May be repeated to a maximum of 4 hours. Credit may not be applied toward a major in physics. On demand.

317. Mechanics I. 3 credits. Prerequisites: Phys 251 and Math 266, or approval of department. Motion of a single particle, central forces and simple oscillatory systems. F/2


320. Introductory Materials Science. 3 credits. Prerequisite: Phys 253 or approval of department. An introduction to solid state physics with emphasis on applications. F/2

324. Thermal Physics. 3 credits. Prerequisite: Phys 253 or approval of instructor. Thermodynamics with an introduction to statistical physics. S/2

325. Optics. 3 credits. Prerequisites: Phys 253 or approval of department. Geometrical and physical optics with an emphasis on physical optics. S/2

325L. Optics Laboratory. 1 credit. Corequisite: Phys 325. Laboratory to accompany Physics 325. S/2

327. Electricity and Magnetism I. 3 credits. Prerequisites: Phys 253 or approval of instructor. A quantitative treatment of electro-magnetic theory with an introduction to Maxwell’s equations. F/2


402. Computers in Physics. 3 credits. Prerequisites: Phys 252 and knowledge of a higher-level computer programming language, or consent of instructor. Computer applications in physics, that may include data analysis, numerical simulation, symbolic and algebraic programming, parallel computing, computer interfacing and/or experimental physics applications. S/2

415. Research Experience. 3 credits. Prerequisite: Phys 253 or advisor’s consent. The students will engage in research activities of a research physics faculty member or may take part in a physics department approved external research program such as an NSF-funded REU program.

420. Advanced Topics in Materials Science. 3 credits. Prerequisite: Phys 320. The application of physics to design, synthesis and characterization of materials of current interest. S/2

428. Advanced Physics Laboratory. 2 credits. Prerequisite: Phys 253 or approval of instructor. Advanced undergraduate experiments in physics, using modern techniques and instrumentation. Classic experiments leading to the current understanding of physical theory. F/2

431. Quantum Mechanics I. 3 credits. Prerequisite: Phys 253 and 317 or approval of department. Corequisite: 317. An introduction to quantum mechanics with applications to atomic structure. F/2

432. Quantum Mechanics II. 3 credits. Prerequisite: Phys 431 or consent of instructor. Further development of basic quantum theory with application to atomic, molecular, solid state and nuclear physics. S/2

434. Nuclear Physics. 3 credits. Prerequisite: Phys 253 or approval of instructor. Introduction to the theory of atomic nuclei, fundamental forces and sub-atomic particles. F/2

437. Introduction to Solid State Physics. 3 credits. Prerequisite: Phys 253 or approval of instructor. A general introduction to solid state phenomena. F/2

460. Introduction to Astrophysics. 3 credits. Prerequisite: Phys 253 or consent of instructor. Nature of stars. Topics include celestial mechanics, relativity, optics, stellar birth, stellar interiors and evolution, nucleosynthesis, stellar death, compact objects, black holes, neutron stars, white dwarfs, binaries and variable stars. Some topics include the use of computer tools to solve problems. F/2
Political Science (Pols)

http://business.und.edu/dept/pols/

Harsell, Hultquist, Jendrysik (Chair), Jensen (Adviser), Light, Scheurer, Sum, Urlacher and Wood

The Major in Political Science

Political science majors will find a rigorous, dynamic, and intellectually demanding program that will promote academic excellence and civic engagement while preparing students for a wide range of career options.

Political science majors must complete challenging and thought-provoking courses culminating in a capstone. Each course, as well as the entire major sequence, will broaden and deepen student knowledge and build a set of core skills and competencies. The major’s core includes courses in the major subfields in political science: American Government, Comparative Politics, International Relations, Political Theory, and Public Administration. Students will use the elective coursework to develop a “curricular pathway.” A student’s curricular pathway may explore one of the major subfields more deeply; alternatively, the curricular pathway may be applied to more narrowly defined areas of political science. Examples of narrower pathways include, but are not limited to, Political Behavior, the Politics of Gender or Race, Public Law, or Public Policy. Another option open to students is to form a generalist concentration in the major by purposely selecting courses from different subfields to fulfill the elective coursework requirement. Students are encouraged to work closely with their faculty adviser to determine a pathway that is appropriate and desirable. Political Science majors must follow 36 credit hours plus external department requirements.

College of Arts and Sciences

B.A. WITH MAJOR IN POLITICAL SCIENCE

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. Core Curriculum:

Introductory-level coursework (6 hours):
- Pols 115 or 117, American Government I (3)

Intermediate-level coursework (6 hours) selected from the following:
- Pols 210, Comparative Politics (3)
- Pols 220, International Politics (3)
- Pols 225, Comparative Politics (3)
- Pols 250, Politics of Public Administration (3)

Advanced-level coursework (9 hours):
- Pols 300, Introduction to Research Methods (3)
- Pols 310, Introduction to Political Thought (3)
- Pols 305 or 306, Constitutional Law (3)
- Pols 405, Political Behavior (3)
- Pols 424, Public Policy Making Process (3)

A Capstone experience:
- Pols 495, Senior Colloquium (3)

Political science majors also will take 12 hours of electives, normally at the intermediate level or above.

Majors also will meet the following requirements based on courses offered in other departments:

a) Level II proficiency in a foreign language
b) Econ 202, Principles of Macroeconomics, or equivalent (3 credits)
c) Econ 210, Introduction to Business and Economic Statistics, or equivalent undergraduate statistics course such as Psy 241 or Soc 326

MINOR IN POLITICAL SCIENCE

Students who minor in political science will complete 21 hours of coursework, including 15 hours of Core courses and at least 6 hours of electives. The minor’s Core normally will include the following courses:

Introductory-level coursework (3 hours):
- Pols 115 or 117, American Government I (3)

Intermediate-level coursework (6 hours) selected from the following:
- Pols 220, International Politics (3)
- Pols 225, Comparative Politics (3)
- Pols 230, Politics of Public Administration (3)

Advanced-level coursework (6 hours) selected from the following:
- Pols 300, Introduction to Research Methods (3)
- Pols 310 or 318, Political Theory (3)
- Pols 305 or 306, Constitutional Law (3)
- Pols 405, Political Behavior (3)

Political science minors also will take 6 hours of electives, normally at the intermediate level or above.

Courses

115. American Government I. 3 credits. An introduction to political science through the study of the American political system: The Constitution, the political processes; the structure, powers and procedures of the Presidency, Congress, and the Judiciary. F,S

116. State and Local Government. 3 credits. Structure, function and problems of state and local government; executive, legislative, and judicial processes; federalism and metropolitan government. F,S

230. Foreign Politics. 3 credits. Examination of the nature of international relations, the structure and processes of the international system, and topics of contemporary international politics. F, S

231. International Human Rights. 3 credits. Examination of factors that contribute to human rights violations and domestic, multilateral, and bilateral efforts to combat such violations. F, S

232. Issues in Comparative Politics. 3 credits, repeatable to 6. Examination of current issues in comparative politics with particular emphasis on the dynamics of change in political systems. F, S

233. Political Theory. 3 credits. Examination of the major thinkers and of the trends and developments in political thought. F

428. Advanced Political Analysis. 3 credits. An advanced seminar on contemporary political issues, with topics varying each semester. F, S

461. Introduction to Astrophysics II. 3 credits. Prerequisite: Phys 460 or approval of instructor. Galaxies and the universe. Topics include structure and evolution of galaxies, the Milky Way, stellar populations, globular clusters, interstellar medium, big bang, Hubble and the distance scale, radio galaxies, quasars, jets, blazars, clusters and superclusters of galaxies and cosmology. Some topics include the use of computer tools to solve problems. S/2

492. Special Problems. 1-3 credits. Prerequisite: approval of the department. F, S

499. Senior Honors. 1-15 credits
327. Transitions to Democracy. 3 credits. Based on the liberal democratic theory, the course will investigate the different processes and components that are associated with successful democratization. The course will evaluate multiple case studies, including those found in Southern Europe, Latin America and Post-communist Europe. The course will conclude with an assessment of cases beginning to democratize presently. S/2

361. Nonprofit Management. 3 credits. This course is an overview of the management of nonprofit organizations. Content includes the history and legal foundation of nonprofits, leadership, marketing, management of employees and volunteers, and operations management. F/S

393. Problems in Political Science. 1-3 credits. Students study special topics under the direction and supervision of a member of the staff. Repeatable when topics vary. FS

397. Cooperative Education. 1-3 credits. Repeatable to 6 credits. Prerequisite: 3.00 GPA; 12 hours in Pols; course related to cooperative experience; permission of department. Compensated on-the-job experience in various areas of political science. S/U grading only. FS

404. Urban Politics and Administration. 3 credits. Prerequisite: Pols 115. Analysis of the socio-economic context of urban America and its impact on politics, policy, and administration. S

405. Political Behavior. 3 credits. Prerequisite: Pols 115. A review of the role of the public in a democracy focusing on the formation and content of public opinion; the means of communicating that opinion to government, and the impact of that opinion on policy. F

432. Public Policy Making Process. 3 credits. Prerequisite: Pols 115. Two-thirds of the class is devoted to understanding the stages of the policy process: (1) Problem Identification and Agenda Setting; (2) Policy Formulation; (3) Policy Adoption; (4) Policy Implementation; and (5) Policy Evaluation. The last third applies the model to substantive policy areas such as health, environment, education. S

433. The Administrator and Public Affairs. 3 credits. Designed to make students aware of the political and community implications of public administration in a democratic society. Reviews and analyzes the political environment of public administration and considers various techniques for accommodating democratic influences in the administrative process. S/2

437. Administrative Processes. 3 credits. Prerequisite: Pols 250. Explanation of theoretical and practical aspects of personnel and financial management in the public sector. S

480. Administrative Internship. 1-3 credits. Prerequisites: 3.00 GPA; 12 hours in Pols; course related to internship experience; permission of department. On-the-job training in a governmental position with final report and analysis of the agency by the intern. Prior approval of instructor required before enrollment. S/U grading only. FS

491. Readings in Political Science. 1-3 credits. Prerequisites: 3.00 GPA; 12 hours in Pols; course related to readings; permission of department. Selected readings with oral and written reports. Consent of instructor required prior to enrollment. F/S

493. Professional Project in Public Administration. 3 credits. Prerequisite: Senior standing. A capstone course in Public Administration where students will independently develop a paper under supervision, which demonstrates the ability to use the knowledge and skills of public administration to address public administration issues. This course is designated for Public Administration majors only. S

495. Senior Colloquium. 3 credits. Prerequisite: Senior standing. A capstone course in Political Science designed to integrate the subareas of the discipline. The development of the discipline, its great thinkers, and current directions will be examined. This course is designed for majors only. S

497. Senior Tutorial. 2 credits. Prerequisite: Senior or consent of instructor. Corequisite: Pols 432 and Pols 495. A course which requires mentoring introductory students in Political Science. Further, students will undertake supervised independent research culminating in a major paper. This course is designed for majors only. S

B.A. OR B.S. WITH MAJOR IN PSYCHOLOGY

Required 125 credits (36 of which must be numbered 300 or above and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

Required major courses:

Psyc 111 ............. Introduction to Psychology* ................................................. (3)
Psyc 120 ............. Orientation to the Major ......................................................... (1)
Psyc 241 ............. Introduction to Statistics ......................................................... (4)
Psyc 303 ............. Research Methods in Psychology ......................................... (4)
Psyc 405 ............. History and Systems of Psychology ..................................... (3)

One laboratory-based course:

Psyc 433 ............. Psychology of Learning .......................................................... (4)
Psyc 434 ............. Motivation and Emotion ......................................................... (4)
Psyc 435 ............. Physiological Psychology ...................................................... (4)
Psyc 436 ............. Perception ................................................................................. (4)
Psyc 437 ............. Psychophysics ........................................................................... (4)
Psyc 439 ............. Cognitive Psychology .............................................................. (4)

At least 3 additional credits of 400-level coursework, NOT including 405, 485, 489, 492, 493 or 494. *Psyc 111 is prerequisite to all other psychology classes.

Required in other departments:

Level II proficiency in a foreign language, or equivalent proficiency in 8 credits of American Sign Language.

Math 103 ............. College Algebra ......................................................................... (3)

One of the following combinations:

Biol 111/111L .... Concepts of Biology with Laboratory & 
Biol 150/150L .... General Biology I with Laboratory ......................................... (8)

or

Biol 150/150L .... General Biology I with Laboratory & 
Biol 151/151L .... General Biology II with Laboratory ........................................ (8)

or

Biol 150/150L .... General Biology I with Laboratory & 
Anat 204/204L ... Anatomy for Paramedical Personnel with Laboratory .......... (9)

or

Biol 111/111L .... Concepts of Biology with Laboratory & 
Anat 204/204L ... Anatomy for Paramedical Personnel with Laboratory .......... (9)

Additional requirements for B.A.:

Level IV proficiency in a foreign language OR 8 additional hours of Arts and Humanities beyond those used for other requirements.

Additional requirements for B.S.:

Eight additional hours from the following list, beyond those utilized for other requirements:

Any classes from the anatomy, biology, chemistry, geology, mathematics, or physics departments.

Any class listed under the Area IV general education requirements from the following departments: atmospheric sciences, anthropology, geography, nutrition and dietetics, honors, or space studies.

MINOR IN PSYCHOLOGY

Required 20 credits, including:

Psyc 111 ............. Introduction to Psychology ......................................................... (3)
Psyc 250 ............. Developmental Psychology .................................................. (4)
Psyc 270 ............. Abnormal Psychology .............................................................. (3)

Students receiving teaching certification in secondary education (except CSD) must also include:

Psyc 241 ............. Introduction to Statistics ......................................................... (4)
Psyc 303 ............. Research Methods in Psychology ......................................... (4)

OPTIONAL EMPHASIS

Although no student majoring in psychology is required to complete an emphasis, students may choose to do so in order to gain greater background in their areas of interest in the field of psychology. There are five emphases that students may select from: Psychology of Education and Learning; Psychology of Human Development; Biological and Physiological Psychology; Social and Cultural Psychology; and Clinical Science. It is also possible to earn a research emphasis. Students are encouraged to contact the department or the department’s web site for a description of each emphasis. Courses taken in the core curriculum may count toward completion of an emphasis. Students may complete more than one emphasis and courses listed under more than one emphasis may be counted toward completion of multiple emphases. Students wishing to be recognized for completing one or more emphases must apply with the Psychology Department no later than the deadline for applying to graduate and no earlier than the start of the semester of their intended graduation. Students with declared emphases will receive documentation from the Psychology Department following their graduation.

Psychology (Psyc)

http://www.und.edu/dept/psych/

Antes, Bradley, Derenne, Ferraro, Finstad, Grabe, Holm, King, McDonald, Miller, Peters, Petros, Plumm, Poltavski, Ruthig, Terrance, Terrell, Weatherly (Chair) and Wise

College of Arts and Sciences

The Department of Psychology offers B.A. and B.S. degrees in psychology, and also a minor in psychology. There is a core curriculum, described below, that all majors must complete. In addition, students who major in psychology may choose to complete an emphasis, or area of focus within psychology. The emphases are described after the listing of the core curriculum requirements.
Courses

Psychology 111 is the prerequisite for all other Psychology courses.

111. Introduction to Psychology. 3 credits. A survey of the scientific study of behavior and mental processes, with consideration of the nature and scope of psychology as a science and a profession. F, S

120. Orientation to the Major. 1 credit. An introduction to careers available to students majoring in psychology and the coursework and other experiences valuable in pursuing those careers. F, S

210. Human Sexuality. 3 credits. This course provides an overview of human sexuality—covering anatomical and physiological aspects, psychological aspects, behavioral aspects, and social/cultural aspects. F, S

213. Educational Psychology. 3 credits. Human development; perceptual processes; learning; the home, the school and personality; psychology of school subjects; evaluation of pupils. F, S

241. Introduction to Statistics. 4 credits. Prerequisite: Math 103. Descriptive and inferential statistics as applied to psychological measurement and experimentation. F, S

250. Developmental Psychology. 4 credits. A survey of the psychology of human life span development including intellectual, social, and emotional aspects of the normal individual and emphasizing childhood and adolescent development. F, S

270. Abnormal Psychology. 3 credits. A survey of the classification, symptoms, and etiology of psychological disorders and behavior pathology. F, S

294. Individual Research. 1-4 credits, repeatable to 4. Prerequisite: Consent of instructor. Introductory experience as a research assistant in a research laboratory. A total of 45 hours is typically required over the course of the semester per credit. F, S, SS

299. Special Topics in Psychology. 1-3 credits. On demand.

301. Industrial and Organizational Psychology. 3 credits. Prerequisite: any basic statistics course. Selection, training, motivation, job satisfaction, human engineering and working environments as applied to business and industry. F

303. Research Methods in Psychology. 4 credits. Prerequisites: Math 103, Psych 241. Methods of gathering knowledge in psychology with special emphasis on the experimental method. F, S

311. Behavior Modification and Therapy. 3 credits. Theory and practice in the application of operant and classical conditioning procedures to humans in applied settings. S

315. Health Psychology. 3 credits. A biopsychosocial approach is used to examine basic concepts, theories, and research in health psychology from the perspectives of the patient, caregiver, health care provider, and researcher. F/2

355. Adolescence and Aging. 3 credits. Prerequisite: 3 credits of Psychology. Basic findings and theoretical issues in the study of human aging from biopsychological and socio-psychological perspectives with an emphasis on the individual. F

360. Introduction to Personality. 3 credits. Examination of basic concepts in the field of personality. F, S

361. Social Psychology. 3 credits. Research on individual behavior in its social context: how the individual acts upon the social environment, and interacts with other individuals. (No longer equivalent to Soc 361). S

362. Psychology and Law. 3 credits. Psychological examination of the legal system, including what psychologists have learned about the law, the many different legal topics psychologists study, and the great promise that psychology holds for improving the legal system. F/2

365. Psychology of Women. 3 credits. Examination of topics relevant to women that are often ignored in traditional psychology courses, such as gender bias in research, gender identity and roles, sexuality and violence. S/2

366. Conflict Management. 3 credits. This course provides students with an understanding of conflict, its dynamics, major theoretical explanations, and methods of resolution. Students will also learn some basic conflict resolution skills and processes. F/2

395. Practical Experiences in Psychology. 1-4 credits, repeatable to 8. Prerequisites: Junior or senior status, completed Psy 303 with a grade of C or above, minimum GPA of 2.0. A practical work experience associated with the student’s academic study of psychology. Arranged by mutual agreement among student, department, and placement site. S/U grading only. F, S, SS

397. Cooperative Education. 1-4 credits, repeatable to 8. Prerequisites: Junior or Senior status, completed Psy 303 with a grade of C or above, minimum GPA of 2.0. A practical work experience associated with the student’s academic study of psychology. Arranged by mutual agreement among student, department and employer. Students need to contact the Cooperative Education office. F, S, SS

405. History and Systems of Psychology. 3 credits. Prerequisite: Psy 303 and senior status. A consideration of the historical background and development of problem areas in psychology and a survey of contemporary psychological theories. F, S

421. Diversity Psychology. 3 credits. Prerequisites: Psy 241 and 250 or consent of instructor. A course in multicultural psychology focusing on attitudes, stereotyping and prejudice, interpersonal relationships, social cognition, personality and the self, and group behavior. F

465. Multicultural Psychology. 3 credits. Prerequisite: Psy 241. Examination of cross-cultural work in psychology with attention to race, ethnicity, and culture. Special emphasis is given to research, training, and treatment issues with minority groups, including the American Indian and other cultural groups. On demand.

478. Introduction to Clinical Psychology. 3 credits. Prerequisites: Psy 241, 270 or consent of instructor. A systematic survey of the field of clinical psychology; basic concepts in diagnosis, psychotherapy, research and professional problems. F

475. Psychological Helping Skills. 3 credits. Prerequisite: Psy 111, 270, 303. This course introduces students to basic helping skills used by mental health professionals and reviews empirically supported models of the helping and change process. Students are given frequent opportunities to apply the skills learned. S/2

485. Seminar in Psychology. 1-3 credits. Prerequisite: consent of instructor. On demand.

489. Senior Honors Thesis. 1 to 15 credits; total not to exceed fifteen. Prerequisite: consent of the Department and approval of the Honors Committee. Supervised independent study culminating in a thesis. F, S

492. Individual Projects in Psychology. 1-4 credits. Repeatable to 8 credits. Prerequisite: consent of instructor. This course is intended to provide students with in-depth experiences not covered adequately in usual course offerings. These experiences may include independent research projects or extensive readings on topics of interest. F, S, SS

493. Tutoring in Psychology. 2 credits. Repeatable to 4 credits. Prerequisite: consent of instructor. S/U grading only. F, S

494. Advanced Individual Research. 1-4 credits, repeatable to 8 credits. Prerequisite: Psy 303 and consent of instructor. Advanced experience as a research assistant in a research laboratory. A total of 45 hours is typically required over the course of the semester per credit. F, S, SS

499. Advanced Special Topics in Psychology. 1-3 credits. Prerequisite: consent of instructor. On demand.

Public Administration (Pols)

http://business.und.edu/dept/pols/

Harsell, Hultquist, Jensen (Adviser), Jendrysik (Chair), Light, Scheurer, Sum, Urlacher and Wood

The Department of Political Science and Public Administration offers undergraduate programs leading to the Bachelor of Science with a major or minor in Public Administration. The B.S.P.A. is offered through the College of Business and Public Administration. The Department also offers the B.A. with a major or minor in Political Science through the College of Arts and Sciences. (See Political Science listed separately in this catalog.) The Public Administration program has a core of liberal arts courses combined with courses from the administrative sciences. The Political Science program provides students with a broad background in the liberal arts. The communication and analytical skills emphasized in both programs prepare students for employment in the public, not-for-profit, and private sectors; graduate studies; law school; and teaching.

The Department also offers a graduate program through the Graduate School leading to the Masters of Public Administration. Some students may qualify for a 5-year undergraduate Public Admin-
B.S.P.A. WITH MAJOR IN PUBLIC ADMINISTRATION

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The applicable College of Business and Public Administration Requirements (see BPA listing).

III. The Following Curriculum:

Pre-Public Administration Core

Acct 200, 201 Elements of Accounting I & II .............................................(6)

Mgmt 305 Managerial Concepts, or its Equivalent ..............................................(3)

Econ 201 Principles of Microeconomics .................................................................(3)

Econ 202 Principles of Macroeconomics ...............................................................(3)

Econ 210 Introduction to Business and Economic Statistics ...............................(3)

Math 103 College Algebra .....................................................................................(3)

Pols 115, 116 American Government I, State and Local Government ...............(6)

Comm 110 Fundamentals of Public Speaking .....................................................(3)

Pols 250 Politics of Public Administration .........................................................(3)

IV. General Public Administration

Required:

Econ 324 Public Finance .......................................................................................(3)

Pols 300 Introduction to Research Methods ........................................................(3)

Pols 309 Legislative and Executive Processes ......................................................(3)

Pols 404 Urban Politics and Administration .......................................................(3)

Pols 432 Public Policy Making Process ..............................................................(3)

Pols 437 Administrative Processes .....................................................................(3)

Pols 493 Professional Projects in Public Administration .....................................(3)

Mgmt 300 Principles of Management ................................................................(3)

Mgmt 310 Organizational Behavior .....................................................................(3)

Select 6 hours from:

Econ 324 Public Finance .......................................................................................(3)

Mgmt 305 Managerial Concepts, or its Equivalent ............................................(3)

(BPA students may not use Mgmt 305) .................................................................(3)

Pols 309 Legislative and Executive Processes ......................................................(3)

Pols 433 Administrator and Public Affairs .........................................................(3)

Pols 480 Administrative Internship ....................................................................(2-6)

Soc 431 Organizations and Behavior ..................................................................(3)

Mgmt 400 Organizational Theory and Analysis ..................................................(3)

Electives (consult with adviser for Public Administration): courses in political science, management, economics, history, sociology, anthropology, geography, accounting, and psychology.

MINOR IN PUBLIC ADMINISTRATION

Required 21 credits, including:

Pols 250 Politics of Public Administration .............................................................(3)

Pols 300 Introduction to Research Methods, or its Equivalent ...........................(3)

Pols 432 Public Policy Making Process ..............................................................(3)

Pols 437 Administrative Processes .....................................................................(3)

Select 6 hours from:

Econ 324 Public Finance .......................................................................................(3)

Mgmt 305 Managerial Concepts, or its Equivalent ............................................(3)

(BPA students may not use Mgmt 305) .................................................................(3)

Pols 309 Legislative and Executive Processes ......................................................(3)

Pols 433 Administrator and Public Affairs .........................................................(3)

Pols 480 Administrative Internship ....................................................................(2-6)

Soc 431 Organizations and Behavior ..................................................................(3)

Note: Other courses may be elected with the consent of the Department.

Courses

115. American Government I, 3 credits. An introduction to political science through the study of the American political system: The Constitution; the political processes; the structure, powers and procedures of the Presidency, Congress, and the Judiciary. F, S


250. Politics of Public Administration, 3 credits. Prerequisites: Pols 115. Introduction to the development of public administration in the United States and to the concepts and methods used in its practice. The political aspects of the public bureaucracy, contemporary issues are also highlighted. F, S

300. Introduction to Research Methods, 3 credits. General consideration of research methods and data analysis in political science and the social sciences. F

300. Intergovernmental Relations, 3 credits. Analyzes the growing interrelationship of federal, state and local governments with emphasis on financial aspects. F/2

309. Legislative and Executive Processes, 3 credits. A survey of the organization, functions and interaction of the American legislative and executive branches of government. S

404. Urban Politics and Administration, 3 credits. Prerequisite: Pols 115. Analysis of the socio-economic context of urban America and its impact on politics, policy, and administration. S

432. Public Policy Making Processes, 3 credits. Prerequisite: Pols 115. Two-thirds of the class is devoted to understanding the stages of the policy process: (1) Problem Identification and Agenda Setting; (2) Policy Formulation; (3) Policy Adoption; (4) Policy Implementation; and (5) Policy Evaluation. The last third applies the model to substantive policy areas such as health, environment, education. S

433. The Administrator and Public Affairs, 3 credits. Designed to make students aware of the political and community implications of public administration in a democratic society. Reviews and analyzes the political environment of public administration and considers various techniques for accommodating democratic influences in the administration. S/2


480. Administrative Internship, 2-6 credits. Prerequisite: 12 hours in Political Science. On-the-job training in a government position with final report and analysis of the agency by the intern. Prior approval of instructor required before enrollment. S/U grading only. F, S

493. Professional Project in Public Administration, 3 credits. Prerequisite: Senior standing. A capstone course in Public Administration where students will independently develop a paper under supervision, which demonstrates the ability to use the knowledge and skills of public administration to address public administration issues. The course is designed for Public Administration majors only: S

Note: Additional elective courses are listed under Political Science.

Recreation and Tourism Studies (RTS)

http://www.und.edu/dept/rts/

Heggie and Schroeder (Program Coordinators)

The belief that individuals and society benefit from recreational pursuits, tourism, and travel experiences underlies the mission of the Recreation and Tourism Studies program, which is to promote enhanced quality of life through recreation, tourism, travel, leisure and activity for the people of North Dakota and beyond. The Recreation and Tourism Studies program works toward this mission through the professional preparation of students for careers in the recreation and tourism, and parks; developing students' theoretical bases of knowledge and analytical skills; and contributing to society and the profession through the development of a program of research and other scholarly activity, providing leadership and technical assistance to local and regional organizations, and being actively involved in professional organizations on the state, regional, and national levels.

Educational Programs

Part of the Department of Counseling Psychology and Community Services, the Recreation and Tourism Studies program offers a major which leads to a Bachelor of Science degree in Recreation and Tourism Studies.

College of Education and Human Development

B.S. IN RECREATION AND TOURISM STUDIES

Students may apply for admission to the Recreation and Tourism Studies program at any time following the completion of 24 semester hours. A cumulative GPA of 2.20 or higher and successful completion of Psy 111, Soc 110 and Comm 110 are required for admission. Students interested in admission should consult the RTS program.

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The College of Education and Human Development Requirements (see EHD listing).

III. Recreation and Tourism Studies Prerequisites:

Comm 110 Fundamentals of Public Speaking .....................................................(3)

Psy 111 Introduction to Psychology ......................................................................(3)

Soc 110 Introduction to Sociology ........................................................................(3)
IV. Recreation and Tourism Studies Core Requirements:

RTS 201 ............... Recreation and Society ................................................. (3)
RTS 202 ............... Introduction to the RTS Profession ........................................ (1)
RTS 204 ............... Group Leadership ................................................................. (3)
RTS 260 ............... Inclusion in Recreation Settings ............................................ (1)
RTS 272 ............... Recreation and the Natural Environment ............................ (3)
RTS 322 ............... Recreation and Event Planning ........................................... (3)
RTS 323 ............... Recreation and Event Implementation .................................. (3)
RTS 385 ............... Professional Development I ............................................... (1)
RTS 398 ............... Field Experience (1-1) .................................................. (2)
RTS 421 ............... Research and Evaluation Methods ...................................... (3)
RLS 485 ............... Professional Development II ................................................. (1)

V. Recreation and Tourism Studies Emphasis Area (18 credits):

A. Tourism/Commercial Recreation

RTS 370 ............... Principles of Tourism ......................................................... (3)
Enter 201 ............... The Entrepreneur and the Economy ................................ (3)
Enter 301 ............... Accounting and Financial Concepts .................................... (3)
Enter 302 ............... Management and Marketing Concepts ............................... (3)

B. Community Recreation

RTS 442 ............... Recreation Administration ............................................... (3)
RTS 479 ............... Recreation Areas and Facilities ........................................... (3)
Mgmt 305 ............... Managerial Concepts ...................................................... (3)

C. Outdoor Recreation

Mgmt 305 ............... Managerial Concepts ...................................................... (3)
RTS 442 ............... Recreation Administration ............................................... (3)
RTS 470 ............... Interpretive Methods ......................................................... (3)

TOTAL RTS Core Credits ................................................................. (41)

MINOR IN RECREATION AND TOURISM STUDIES

Required for the Recreation and Tourism Studies minor:

RTS 201 ............... Recreation and Society ................................................. (3)
Elect at least 17 credits of RTS courses as approved by an RTS advisor.

201. Recreation and Society. 3 credits. Orientation to recreation, including the role of recreation in American society and diverse populations, cultures, and nationalities.

202. Introduction to the RTS Profession. 1 credit. Prerequisite: RTS 201, RTS majors only. Introduction to the recreation, parks and leisure services profession.

204. Group Leadership. 3 credits. Development of understanding of and ability to utilize leadership and group facilitation strategies to enhance individual’s recreation and tourism experiences.

260. Inclusion in Recreation Settings. 3 credits. Study of individuals with disabling conditions and their leisure-related needs with emphasis on integration strategies and legislation that facilitate community involvement.
Department of Counseling Psychology and Community Services, which is part of the College of Education and Human Development.

Students may apply for admission to the Rehabilitation and Human Services major at any time after the completion of 45 semester credits (including RHS 250). An overall GPA of 2.5, completion of 40 hours of rehabilitation-related volunteer work, and a written statement of interest in professional rehabilitation practice are also required for admission. Students interested in applying for admission should contact the program coordinator.

To encourage students who are majoring in Rehabilitation and Human Services to extend their studies to include a graduate degree, the Department of Counseling Psychology and Community Services (CPCS) offers a Combined Program in Counseling with a Rehabilitation Emphasis. The Combined Program allows students to earn a bachelor’s degree in Rehabilitation and Human Services and a master’s degree in Counseling with a Rehabilitation Emphasis in approximately five years. This would be a year less than is typically required to complete these degrees separately. Please see Counseling Psychology and Community Services Department in the Graduate section of the catalog.

**College of Education and Human Development**

**B.S. IN REHABILITATION AND HUMAN SERVICES**

Required 125 credits which must include the following:

I. Essential Studies Requirements (see University ES listing).

II. College of Education and Human Development requirements (see EHD listing).

III. Core Curriculum (35 credits):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHS 200</td>
<td>Helping Skills in Community Services</td>
<td>(3)</td>
</tr>
<tr>
<td>RHS 250</td>
<td>Contemporary Issues in Rehabilitation</td>
<td>(3)</td>
</tr>
<tr>
<td>RHS 309</td>
<td>Medical and Psychosocial Aspects of Disability I</td>
<td>(3)</td>
</tr>
<tr>
<td>RHS 310</td>
<td>Medical and Psychosocial Aspects of Disability II</td>
<td>(3)</td>
</tr>
<tr>
<td>RHS 455</td>
<td>Rehabilitation Process</td>
<td>(3)</td>
</tr>
<tr>
<td>RHS 457</td>
<td>Vocational Development in Rehabilitation</td>
<td>(3)</td>
</tr>
<tr>
<td>RHS 465</td>
<td>Professional Issues in Rehabilitation</td>
<td>(2)</td>
</tr>
<tr>
<td>RHS 475</td>
<td>Testing and Assessment</td>
<td>(3)</td>
</tr>
<tr>
<td>RHS 491</td>
<td>Rehabilitation Field Seminar</td>
<td>(2)</td>
</tr>
<tr>
<td>RHS 497</td>
<td>Internship in Rehabilitation</td>
<td>(10)</td>
</tr>
</tbody>
</table>

IV. Extra Departmental Requirements (44 credits):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAdm 101</td>
<td>Introduction to Business</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 125</td>
<td>Technical and Business Writing</td>
<td>(3)</td>
</tr>
<tr>
<td>History</td>
<td>Any Course</td>
<td>(3)</td>
</tr>
<tr>
<td>Literature</td>
<td>Any Course (English department)</td>
<td>(3)</td>
</tr>
<tr>
<td>Mgmt 305</td>
<td>Managerial Concepts</td>
<td>(3)</td>
</tr>
<tr>
<td>Political Science</td>
<td>Any Course</td>
<td>(3)</td>
</tr>
<tr>
<td>Psych 250</td>
<td>Developmental Psychology</td>
<td>(3)</td>
</tr>
<tr>
<td>SWK 317</td>
<td>Social Work Research</td>
<td>(10)</td>
</tr>
<tr>
<td>Soc 361</td>
<td>Social Psychology</td>
<td>(10)</td>
</tr>
<tr>
<td>Statistics</td>
<td>Any Course</td>
<td>(3)</td>
</tr>
</tbody>
</table>

V. At Least One Concentration from the Following (10 credits):

1. **Substance Abuse**

   *SWK 315 Substance Use and Abuse* (2)

   *Plus a minimum of 8 credits from the following:*

   - T&L 350 Development and Education of the Adolescent (3)
   - RTS 201 Recreation and Society (3)
   - RTS 360 Inclusion in Recreation Settings (3)
   - PPT 315 Introduction to Pharmacology (3)
   - PPT 410 Drugs Subject to Abuse (2)
   - Psych 270 Abnormal Psychology (3)
   - Soc 355 Drugs and Society (3)
   - Other courses as approved by Program Coordinator

2. **Mental Health**

   *RHS 375 Community Living Topics: Severe Mental Illnesses* (3)

   *Plus a minimum of 7 credits from the following:*

   - RTS 201 Recreation and Society (3)
   - RTS 360 Inclusion in Recreation Settings (3)
   - Psych 270 Abnormal Psychology (3)
   - Psych 360 Introduction to Personality (3)
   - T&L 319 Introduction to ED, LD and IDD (3)
   - Other courses as approved by Program Coordinator

3. **Gerontology**

   *SWK 313 Orientation to Gerontology* (3)

   *Plus a minimum of 7 credits from the following:*

   - CSD 404 Aging in the Communication Process (3)
   - RTS 201 Recreation and Society (3)
   - RTS 360 Inclusion in Recreation Settings (3)
   - Nurs 346 Physical Changes in Aging (3)
   - Psych 355 Adulthood and Aging (3)
   - Soc 356 Aging (3)
   - Other courses as approved by Program Coordinator

4. **Developmental Disabilities**

   *RHS 375 Community Living Topics: Developmental Disabilities* (3)

   *Plus a minimum of 7 credits from the following:*

   - RTS 201 Recreation and Society (3)
   - RTS 360 Inclusion in Recreation Settings (3)
   - T&L 315 Education of Exceptional Students (3)
   - T&L 319 Inclusive Strategies (3)
   - T&L 421 Transition to Adult Life (2)
   - CSD 101 American Sign Language I (2)
   - Other courses as approved by Program Coordinator

**MINOR IN REHABILITATION AND HUMAN SERVICES**

(20 credits)

I. Required Courses (15 credits):

1. RHS 250 Contemporary Issues in Rehabilitation (3)
2. RHS 309 Medical and Psychosocial Aspects of Disability I (3)
   or RHS 310 Medical and Psychosocial Aspects of Disability II (3)
   or OT 432, PT 409, or Nurs 360 for respective majors (3)
3. RHS 455 Rehabilitation Process (3)
4. RHS 457 Vocational Development in Rehabilitation (3)
5. RHS 475 Testing and Assessment (3)

II. Elective Courses (5 credits from the following):

   - Anth 171 Introduction to Cultural Anthropology (3)
   - Anth 379 Culture Area Studies (3)
   - Anth 465 Culture, Illness and Health (3)
   - IS 121 Introduction to Indian Studies (3)
   - IS 151 White Images of Native Americans (3)
   - IS 281 American Indian Issues (3)
   - IS 370 North American Indians (3)
   - RELS 101 Introduction to Religion (West) (3)
   - RELS 102 Introduction to Religion (East) (3)
   - RELS 116 Women and Religion (3)
   - Soc 250 Diversity in American Society (3)
   - Soc 340 Sociology of Gender and Sex Roles (3)
   - Soc 436 Social Inequality (3)
   - CSD 101 American Sign Language I (2)
   - Other courses as approved by RHS advisers

**Courses**

**200. Helping Skills in Community Services**

3 credits. This course provides the student with the basic knowledge and skills associated with the helping process, including interviewing skills, as practiced in a variety of community services settings. A special focus will be on the problem-solving process and interaction skills used in direct service activities with individuals. Helping skills require a knowledge of interpersonal relationships and the effective use of interpersonal behaviors. This combination of knowledge and skills will benefit any individual wanting to increase effectiveness when working with people. S/U grading. F, S, SS

**250. Contemporary Issues in Rehabilitation**

3 credits. This course introduces students to the profession of rehabilitation and examines how persons with disabilities are viewed in our society. Topics include: community and national rehabilitation agencies, political and social influences on rehabilitation programs, conceptualization of
disability, attitude development and change, building accessible and inclusive communities, and transforming the media. Opportunities for involvement with agencies providing rehabilitation services will be provided. S, SS

309. Medical & Psychosocial Aspects of Disability I. 3 credits. This course provides a basic medical and psychosocial understanding of physical disability for human service workers. It is the first of a two-course sequence which covers medical terminology; causes, treatment, and prognosis of major disabilities; and the vocational and psychosocial impact of these disabilities. F

310. Medical and Psychosocial Aspects of Disability II. 3 credits. This course provides a basic medical and psychosocial understanding of developmental, psychiatric, and learning disabilities for human service workers. It is the second of a two-course sequence which covers medical terminology; causes, treatment, and prognosis of major disabilities; and the vocational and psychosocial impact of these disabilities. F

375. Community Living Topics. 3 credits. Repeatable to a maximum of 6 credits. This course provides an introduction to independent living for special populations, such as individuals with physical disabilities, developmental disabilities, or serious emotional disturbances. Topics include community-based programming, the deinstitutionalization movement, legislative issues, and the concepts of integration, inclusion, and normalization. S

455. Rehabilitation Process. 3 credits. This course examines the history, philosophy, and ethical standards of the rehabilitation profession. Topics include the following: experiences of people with disabilities throughout history, legislation affecting persons with disabilities, public and private rehabilitation systems, case management principles, role and function of rehabilitation counselors, principles of independent living, and community resource utilization in rehabilitation programs. F

457. Vocational Development in Rehabilitation. 3 credits. This course examines the relationship between work and disability in American society. Topics include the following: theories of career decision making, work values, employment opportunities and barriers for people with disabilities, sources of occupational information, job accommodations, vocational planning and job development, work adjustment training, affirmative action guidelines, and vocational placement strategies. S

465. Professional Issues in Rehabilitation. 2 credits. Prerequisites: Consent of instructor. This course is designed to provide an integrative experience for the senior Rehabilitation and Human Services student. The focus of the course will be on the exploration of the philosophical and ethical base of the profession and professional education. Professional issues and ethical dilemmas will provide the context for further development and application of critical thinking and decision making skills. F

475. Testing and Assessment. 3 credits. This course introduces the student to basic principles of testing and assessment that can be used with individuals who have disabilities. Various approaches to evaluation are explored, including assessment interviewing, psychometric testing, work samples, and situational assessment. S

491. Rehabilitation Field Seminar. 2 credits. Prerequisite: RHS 446. Corequisite: RHS 497. This seminar is designed to integrate the rehabilitation curriculum content with actual rehabilitation practice while in the internship. This is accomplished through journaling, written assignments, presentations, and seminar discussions. F, SS

497. Internship in Rehabilitation. 10 credits. Prerequisite: RHS 465. Corequisite: RHS 491. S/U grading only. This course consists of a one semester block placement requiring 480 total hours (40 hours weekly) in an approved rehabilitation agency with an approved rehabilitation field instructor. The agency-based practicum, guided by a student’s learning plan, provides students with learning opportunities to develop and to integrate rehabilitation knowledge, values and skills at the beginning level of generalist practice. Learning opportunities emphasize the integration of research, problem solving processes and skills, knowledge of rehabilitation programs and policies, understanding disability issues, use of self, and values and ethics of the rehabilitation profession. Upon completion of the internship, students will have experienced practice with individuals, groups, families, organizations and communities. Field instructors in conjunction with department faculty complete midterm and final evaluations of student performance. Applications for Field Instruction are submitted two semesters preceding the beginning of this course. F, SS

499. Special Topics. 1-3 credits, repeatable to 12. Prerequisite: consent of instructor. Supervised instruction or research which explores topics related to rehabilitation and human services. F, S, SS

The program is conducted by North Dakota State University faculty on the UND campus. Students interested in participating in the program should contact: Air Force ROTC Detachment 610, 255 Centennial Drive, Armory Building, Room 2, Stop 8360, University of North Dakota, Grand Forks ND 58202, (701) 777-0437/4732.

The program is conducted in two phases: the General Military Course for first year students and sophomores, and the Professional Officer Course for juniors and seniors. Each student must register for the appropriate leadership laboratory course (AS 210 for first year and sophomore or AS 410 for juniors and seniors) during each term. Students must complete a field training course before entry into the Professional Officer Course.

General Military Course (GMC)

The four-year program begins with the General Military Course (AS 111, 112, 211, 212). The GMC covers the mission and structure of the Air Force, examines life in the Air Force, and includes the study of strategy, doctrine, and missions of aerospace power from balloons to the space age. Instruction is provided in Air Force career opportunities, educational benefits, and life and work as an Air Force officer.

Field Training

Air Force ROTC Field Training is offered during the summer months at Maxwell AFB, Alabama. Students in the four-year program participate in four weeks of field training during the summer after their sophomore year. Students applying for entry into the two-year program must successfully complete five weeks of field training prior to enrollment in AFROTC.

The major areas of study in the four-week field training program include junior officer training, aircraft and aircrew indoctrination, survival training, base functions, the Air Force environment, and physical training.

The five-week field training course covers the same areas of study as the four-week program and includes an additional one-week of academic instruction in general military courses.

Leadership Laboratory (AS 210, 1 credit and AS 410, 1 credit; repeatable). Instruction is conducted within the framework of a cadet organization and includes a progression of experiences designed to develop each student’s leadership potential. Leadership laboratory involves a study of Air Force customs and courtesies, drill and ceremonies, career opportunities in the Air Force, and the life and work of an Air Force junior officer. Students develop their leadership potential in a practical and supervised laboratory, which can include field trips to Air Force installations throughout the United States. AS 210 is a corequisite of AS 111, 112, 211 and 212. AS 410 is a corequisite of AS 321, 322, 441, and 442.

Professional Officer Course (POC)

The Professional Officer course (AS 321, 322, 441, 442) taken during the student’s junior and senior years, concentrates on four main themes: communication skills, national security studies, and the principles and practices of management and leadership in the U.S. Air Force.

Courses (AS)

110. Air Force ROTC Fitness. 1 credit. Repeatable. Introduction to various AFROTC team sports. Promotes benefits of being physically fit and maintaining Air Force fitness standards. F/S

111. The Foundations of the United States Air Force I. 1 credit. Corequisite: AS 210. This course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force. F


210. Leadership Laboratory. 1 credit. Repeatable. Introduction to Air Force customs and courtesies, drill and ceremonies, and military commands. S/U grading. F/S

211. The Evolution of USAF Air and Space Power I. 1 credit. Corequisite: AS 210. Leadership Laboratory. Introduction to Air Force heritage and leaders, Quality Air Force concepts, ethics and values, leadership, group leadership problems, and the application of communication skills. F

Reserve Officer Training Corps

Air Force (AFROTC)

http://www.ndsu.edu/afrotc/

UND students may participate in the Air Force Reserve Officer Training Corps program through an agreement between UND, North Dakota State University and the Air Force. The purpose of this program is to enable qualified students (undergraduate and graduate) to become commissioned officers in the United States Air Force. Upon completion of the program and graduation from UND, students are commissioned as second lieutenants in the United States Air Force.
Social Work

T. Rand, Adviser

The Social Science related fields concentration offers the student a variety of courses in Anthropology, Economics, Geography, History, Political Science and Sociology. The program is designed to permit the student to achieve a moderate concentration in one field and complementary work in all others. Students wishing to complete a “teaching major” in Social Science should instead follow the BSEd program in Social Studies (see Department of Teaching and Learning listing).

College of Arts and Sciences

B.A. WITH MAJOR IN SOCIAL SCIENCE

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The Following Curriculum:

1. 60 credits
2. Select courses in the pattern listed below from Anthropology, Economics, Geography*, History, Political Science, and Sociology. At least 24 credits must be in Upper Level work.
3. 21 credits in one department
4. 12 credits in another department
5. 9 credits in each of three of the remaining departments

* For Geography courses carrying Social Science credit, see University ES listing.

Social Work

http://www.und.edu/dept/socialwo/

Barkdull, Gjesfeld, Haga, Heitkamp (Chair and BSSW Program Director), Phillips, Quinn, Reeves and Schneweis

The Department of Social Work offers a Bachelor of Science in Social Work (BSSW) and a Master of Social Work (MSW) degree. The mission of the Department of Social Work at the University of North Dakota is to prepare competent baccalaureate and master’s level social workers, develop and disseminate applied scholarship, and serve the community and region, in order to:

- Empower vulnerable, oppressed and disadvantaged populations and communities;
- Maximize opportunities for every individual to realize his or her highest potential;
- Promote social justice and respect for diversity at every level of society; and
- Contribute to the development and well-being of communities in North Dakota and the region.

The goals of the Bachelor of Science in Social Work program, first accredited by the Council on Social Work Education in 1974, are to prepare entry-level generalist social work practitioners and to prepare students for graduate social work education. Social work courses were first offered at the University of North Dakota in 1905; the social work program was formally established in 1939. The Council on Social Work Education (2002) states, “The purposes of social work education are to prepare competent and effective professionals, to develop social work knowledge, and to provide leadership in the development of service delivery systems. Social work education is grounded in the profession’s history, purposes, and philosophy and is based on a body of knowledge, values, and skills. Social work education enables students to integrate the knowledge, values, and skills of the social work profession for competent practice.”

Students interested in declaring social work as a major notify the BSSW program director who will assign an advisor. Students will meet with their assigned advisor, who will work with the student throughout the remainder of their career at UND.

Accreditation

The Bachelor of Science in Social Work is accredited by the Council on Social Work Education.

Admission Requirements and Process

Criteria for Admission:

1. Completion of SWK 255 and 257
2. Overall GPA of 2.75
3. Grade of B or higher in SWK 255 and 257
5. Completion of 45 semester hours of coursework at the end of the term in which the application is submitted.
6. Students may apply during any term including fall, spring, summer. Deadlines will be published each term on the Department of Social Work webpage. To apply for admission to the program, students complete the application, available on the Department’s website, in consultation with their advisor.

The application process is competitive. All factors including grade point average, strength of written materials, and volunteer experience will be given consideration in admissions decisions. The BSSW director will notify the student of the decision regarding admission. Following admission, students are required to sign the following statements: 1) that they are aware they will need to pass the required BSSW comprehensive exam prior to graduation; 2) that they will adhere to the National Association of Social Workers (NASW) Code of Ethics and the University of North Dakota Code of Student Life.

Provisional admission may be considered when a student: 1) requests such admission; 2) is making steady progress towards meeting the admissions criteria; 3) has a workable plan for success, including a timeline for achievement; and 4) has met with the advisor. The plan must be approved by the student, the advisor and the BSSW Coordinator.
**Progression Through the Program and Graduation Requirements**

After admission to the social work program, a student must maintain an overall GPA of 2.75, and a GPA of 2.75 in all social work courses. Students must attain a C or better in social work courses. Transfer credit for courses follows university and Council on Social Work Education (CSWE) requirements. All transfer social work courses must be from an accredited BSSW program.*

No credit is given for life experience. Students must complete the required social work courses (39 credit hours).

Field Instruction comprises 12 credits of BSSW students’ requirements. The field instruction placement in a human service organization is the capstone experience for BSSW students. The field experience integrates knowledge, values and skills from completed social work courses. Application dates will be published each term. These courses fulfill the capstone requirement for essential studies at UND.

Students are required to pass the comprehensive exam administered by the Department of Social Work prior to graduation.

*See articulation agreements for exceptions.

**Licensing and Professional Organizations**

All students are encouraged to participate in the Student Social Work Club. Students who qualify for Phi Alpha, the National Social Work Honor Society, will be invited to join. Students are eligible for membership in the National Association of Social Workers. Graduates are eligible to apply for licensing at the baccalaureate level in states that require credentialing.

**College of Education and Human Development**

**B.S. IN SOCIAL WORK**

Required 125 credits (36 of which must be numbered 300 or above, 60 of which must be from a 4-year institution, and the last 30 credits at UND) including:

I. Essential Studies Requirements (see University ES listing).

II. The following curriculum.

A. Social Work (39 hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWk 255 ---------------</td>
<td>(4)</td>
</tr>
<tr>
<td>SWk 257 ---------------</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 357 ---------------</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 424 ---------------</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 442 ---------------</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 444 ---------------</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 454 ---------------</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 481 ---------------</td>
<td>(5)</td>
</tr>
<tr>
<td>SWk 482 ---------------</td>
<td>(5)</td>
</tr>
<tr>
<td>SWk 483 ---------------</td>
<td>(5)</td>
</tr>
<tr>
<td>SWk 484 ---------------</td>
<td>(1)</td>
</tr>
</tbody>
</table>

B. Liberal Arts Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psy 111 ---------------</td>
<td>(3)</td>
</tr>
<tr>
<td>Soc 110 ---------------</td>
<td>(3)</td>
</tr>
<tr>
<td>Poli 115 ---------------</td>
<td>(3)</td>
</tr>
<tr>
<td>Advanced Social Sciences Courses (200-level or above) (15)</td>
<td></td>
</tr>
<tr>
<td>Statistics ---------------</td>
<td>(2-3)</td>
</tr>
<tr>
<td>Human Biology content course (3)</td>
<td></td>
</tr>
<tr>
<td>Global Diversity or United States Diversity courses (6)</td>
<td></td>
</tr>
</tbody>
</table>

Courses used to fulfill the approved minor requirements may also be used to meet the above requirements whenever appropriate and applicable.

**Fast Track Program**

The student who has secured a bachelor’s degree in a related field and wishes to secure a bachelor’s degree in social work can complete the “Fast Track Program.” The Fast Track Program allows a student to secure a BSSW in one year. A BSSW degree is required to enroll in the full-time MSW program. Satisfactory completion of a bachelor’s degree in a related field and prerequisites of statistics and human biology from an accredited institution are required. Fast Track students must fulfill essential studies requirements or have the equivalent to graduate with a BSSW degree from UND.

If accepted into the Fast Track Program, the schedule to complete the undergraduate degree in one year* is as follows:

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>SWk 255 Introduction to Social Work</td>
<td>(4)</td>
</tr>
<tr>
<td></td>
<td>SWk 257 HHSE I</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>SWk 317 Social Work Research</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>SWk 424 Generalist SWK Individuals and Families</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Social Work Elective</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td>15</td>
</tr>
<tr>
<td>Spring</td>
<td>SWk 357 HHSE II</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>SWk 434 Generalist SWK Task and Treatment Groups</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>SWk 442 Social Policy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SWk 454 Generalist SWK Communities and Organizations</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td>12</td>
</tr>
<tr>
<td>Summer</td>
<td>SWk 481 Field Instruction I</td>
<td>(5)</td>
</tr>
<tr>
<td></td>
<td>SWk 482 Field Instruction Seminar I</td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td>SWk 483 Field Instruction II</td>
<td>(5)</td>
</tr>
<tr>
<td></td>
<td>SWk 484 Field Instruction Seminar II</td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td>12</td>
</tr>
</tbody>
</table>

* Students needing to fulfill essential studies requirements may require a longer period to complete the Fast Track.

**Elective Social Work Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWk 311 Child Welfare</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 312 Social Work and the Legal Process</td>
<td>(2)</td>
</tr>
<tr>
<td>SWk 313 Orientation to Gerontology</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 315 Substance Use and Abuse</td>
<td>(2)</td>
</tr>
<tr>
<td>SWk 397 Cooperative Education</td>
<td>(1-6)</td>
</tr>
<tr>
<td>SWk 489 Seniors Honor Thesis</td>
<td>(1-3) (repeateable to a maximum 6 credits)</td>
</tr>
<tr>
<td>SWk 493A Special Topics</td>
<td>(1-3) (repeatable to a maximum 9 credits)</td>
</tr>
</tbody>
</table>

**MINORS**

Students may also choose a minor outside the College of Education and Human Development and the Department of Social Work. The student should consult with the respective College and Department for course requirements for their chosen minor.

**Gerontology Minor**

The interdisciplinary minor in gerontology enhances professionals’ capacity to work with older persons. It requires five courses in four disciplines. Students select another 6 credits to earn 21 credits in coursework related to gerontology.

**Required:**

1) Twelve credit hours:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWk 313 Orientation to Gerontology</td>
<td>(3)</td>
</tr>
<tr>
<td>Nurs 418 Physical Changes of Aging</td>
<td>(3)</td>
</tr>
<tr>
<td>Psy 355 Adulthood and Aging</td>
<td>(3)</td>
</tr>
<tr>
<td>Soc 352 Aging</td>
<td>(3)</td>
</tr>
</tbody>
</table>

2) Nine hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSD 365 Aging and Communication Processes</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 215 Contemporary Moral Issues</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 121 Indian Studies</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 300 Technology and Society</td>
<td>(3)</td>
</tr>
<tr>
<td>Nutr 240 Fundamentals of Nutrition</td>
<td>(3)</td>
</tr>
<tr>
<td>Psy 331 Behavior Modification and Therapy</td>
<td>(3)</td>
</tr>
<tr>
<td>Psy 421 Individual and Group Differences</td>
<td>(3)</td>
</tr>
<tr>
<td>Rels 245 Death and Dying</td>
<td>(3)</td>
</tr>
<tr>
<td>RLS 360 Inclusion in Recreational Setting</td>
<td>(3)</td>
</tr>
</tbody>
</table>
Chemical Use Abuse/Awareness Minor

Required (20 credits) including:

1) The following:
- PPT 410*  Drugs Subject to Abuse  (2)
- Soc 355  Drugs and Society  (3)
- SWk 315  Substance Use and Abuse  (2)

2) Thirteen credits from the following:
- Coun 529*  Dynamics of Addiction  (3)
- IS 380  Indians in the 21st Century  (3)
- PPT 499  Readings in Pharm & Toxicology  (1-4)
- Psyc 360*  Introduction to Personality  (3)
- Psyc 270*  Abnormal Psychology  (3)
- Soc 115  Social Problems  (3)
- Soc 335*  The Family  (3)
- RHS 309  Medical & Psychosocial Aspects of Disability I  (3)
- T&L 350*  Development & Education of the Adolescent  (3)
- Comm 301  Psychology of Communication  (3)

* Course required for licensing in addiction counseling in North Dakota.
+ Student must be senior status or graduate level to enroll in this course.

Other Minors

Additional minors that the social work major should consider are Communication, Criminal Justice Studies, Indian Studies, Psychology, Rehabilitation, Sociology, or Spanish.

Addiction Counselor Training Program

The Department of Social Work is designated as an Addiction Counselor Training Program by the North Dakota Board of Addiction Counseling Examiners. Students who successfully complete the course of study, the clinical training requirements and the licensure examination are eligible for licensing as addiction counselors in the State of North Dakota.

Students are admitted to this training on two levels. The first level includes social work majors who also complete the minor in Chemical Use Abuse/Awareness (required courses for licensing in addiction counseling, or their equivalent) and the nine-month/1,400 hours practicum in a certified addiction facility. Students must meet all requirements for a social work major in addition to the minor requirements and the addiction practicum requirement. This generally involves a five-year program of study.

The second level relates to graduate students in Counseling who must meet the required graduate program of study, the required addiction courses, and the nine-month practicum. For more complete details, please contact the Department of Social Work or the Department of Counseling Psychology and Community Services.

Courses

255. Introduction to Social Work, 4 credits. An introduction to the social work profession including: the development of the profession, generalist practice, the problem-solving process, the strengths perspective, social work values and ethics, levels of practice (individual, family, group, community and organization), and fields of practice; 40 hours of volunteer experience. F, S


311. Child Welfare, 3 credits. Preparation for child welfare work. Child protection services, juvenile court procedures, day care services, the rights of children, foster homes and adoption. S

312. Social Work and the Legal Process, 2 credits. Introduction to the legal system’s interaction with the human service delivery system. F

313. Orientation to Gerontology, 3 credits. Introduction to gerontology including an overview of the field of gerontology, theories of aging, interdisciplinary teaming, demographics, and programs. F

315. Substance Use and Abuse, 2 credits. Introduction to the dynamics of drug addiction and related issues, with special emphasis on alcohol. S

317. Social Work Research, 3 credits. Prerequisite or corequisite: SWk 255. Qualitative and quantitative methods of social work research and evaluation. Develop skills to engage in research-informed practice and practice-informed research. F, S

357. Human Behavior and the Social Environment II, 3 credits. Prerequisites or corequisites: Soc 110. Application of social work theory and research across the life span, with social systems theory as the conceptual framework. Theories regarding development of groups, communities and organizations. F, S

397. Cooperative Education, 1-6 credits. Prerequisite: consent of instructor. Individually supervised experiences in a human service agency. Integrates social work theory with practice. Contact the Cooperative Education Office. F, S, SS

424. Generalist Social Work Practice with Individuals and Families, 3 credits. Prerequisite: Admission to the BSSW Program. Generalist practice with individuals and families within the context of evidence-based interventions. Develop skills to engage, assess, intervene, and evaluate social work practice with individuals and families. F, S

434. Generalist Social Work Practice with Task and Treatment Groups, 3 credits. Prerequisite: Admission to the BSSW Program. Generalist practice with individuals and families within the context of evidence-based interventions. Develop skills to engage, assess, plan, intervene, and evaluate social work practice with groups. F, S

442. Social Policy, 3 credits. Prerequisite: Admission to the BSSW program. Corequisites: SWk 317, SWk 357 and statistics. Knowledge of social welfare policy and basic skills required for policy analysis. F, S

454. Generalist Social Work Practice with Communities and Organizations, 3 credits. Prerequisite: Admission to the BSSW program. Corequisites: SWk 357. Generalist practice with organizations and communities within the context of evidence-based interventions. Develop skills to engage, assess, intervene, and evaluate social work practice with communities and organizations. F, S

481. Field Instruction I, 5 credits. Prerequisite: Admission to field program. Corequisite: SWk 482. Also can be taken with SWk 483 for a one-semester block placement in an approved social welfare agency. Provides learning opportunities in generalist social work practice using the problem-solving process within the strengths and ecological systems perspectives. Connect the theoretical and conceptual contributions of the classroom with the practical world of the practice setting. S/U grading only. F, S, SS

482. Field Instruction Seminar I, 1 credit. Corequisite: SWk 481. Integrates classroom content with actual practice. F, S, SS

483. Field Instruction II, 5 credits. Prerequisite or corequisite: SWk 481. Corequisite: SWk 484. Provides learning opportunities in generalist social work practice using the problem-solving process within the strengths and ecological systems perspectives. Connect the theoretical and conceptual contributions of the classroom with the practical world of the practice setting. S/U grading only. F, S, SS

484. Field Instruction Seminar II, 1 credit. Corequisite: SWk 483. F, S, SS

489. Senior Honors Thesis, 1-3 credits, repeatable to a maximum 6 credits. Supervised independent study culminating in a thesis. F, S

493A (regular grading) 493B (S-U grading), Special Topics, 1-3 credits. Repeatable to a maximum 9 credits. Prerequisite: SWk 255 or consent of instructor. Individually or group supervised research or interdepartmental studies and seminars in social work related areas. F, S, SS

Sociology

http://www.und.edu/dept/soc/ Badahdah, Driscoll, Herbeck, Langstraat, Minnotte, Pedersen, Staples, Stofferahn, Tiemann (Chair) and White

This department offers a major and minor in sociology. In addition, there is a graduate program leading to the M.A. The undergraduate programs in sociology are outlined below.

Graduate seminars, reading courses, and courses with eight or nine as the last digit may be repeated for credit at the discretion of the department. Some sociology background is usually necessary for upper level courses even when no specific prerequisite is listed.
College of Arts and Sciences

B.A. WITH A MAJOR IN SOCIOLOGY

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Requirements (see University ES listing).

II. The following Curriculum:

33 credits, including:
Soc 301 Basic Sociology Theory .................................................... (3)
Soc 323 Sociological Research Methods .................................... (3)
Soc 326 Sociological Statistics ....................................................... (3)
Soc 361 Social Psychology .............................................................. (4)

Electives in Sociology ..................................................................... (11)

A concentration in a single supplementary field other than sociology is also required of all sociology majors. This concentration may be met in two ways: (1) a language proficiency of level IV in a modern foreign language; or (2) 20 credit hours at least nine of which must be numbered 300 or above) in any single subject matter taught at this University.

MINOR IN SOCIOLOGY

Required 22 credits, including:
Soc 301 Basic Sociological Theory .................................................... (3)
Soc 323 Sociological Research Methods .................................... (3)

At least nine of the other credits must be taken in courses numbered 300 and above.

Courses

110. Introduction to Sociology. 3 credits. An introductory analysis of the nature of society, the interrelationships of its component groups and the process whereby society persists and changes. Interpretation of human behavior from the standpoint of the group to which students wishing to earn credit from Soc 110 by means of independent study should obtain information from the University counseling center on the CLEP examinations administered there. F, S

115. Social Problems. 3 credits. A sociological analysis of major social problems in America. F

250. Diversity in American Society. 3 credits. Prerequisite: Soc 110. An introductory survey of the racial, ethnic and cultural mosaic of American Society. Basic theories of intergroup relations, prejudice and discrimination are covered. F, S

252. Criminology. 3 credits. The extent and character of crime in the United States. A critical examination of the meaning and attempted explanation of crime and juvenile delinquency, with an analysis of the social processes leading to criminal behavior. F, S

253. Juvenile Delinquency. 3 credits. The nature, extent, causes and treatment of delinquency. Delinquency prevention programs are explored. F

301. Basic Sociological Theory. 3 credits. Prerequisite: Soc 110. A survey of the main trends in the history of sociological thought. Basic concepts and frames of reference central to sociological theory and analysis are emphasized. F

306. Social Change. 3 credits. Theoretical models of socio-cultural change and stability; examination of changes occurring in American institutions and international relations; technology and social change; procedures and problems of planned change. F

309. Selected Topics. 1-4 credits. Prerequisites to be determined when offered. Selected topics in sociology taught at the junior level on Demand.

323. Sociological Research Methods. 3 credits. Prerequisite: Soc 301 or CJ 330. A general consideration of methods involved in survey research in the social sciences. F, S

326. Sociological Statistics. 3 credits. It is assumed that students are able to perform basic mathematical and algebraic operations. This course introduces the student to calculation and application of basic statistical techniques employed by sociologists. F, S

331. Rural Sociology. 3 credits. Prerequisite: Soc 110. A survey of sociological principles as they relate to rural society with emphasis on rural change and rural development. On demand.

335. The Family. 3 credits. Structure and function of the family, comparative family systems, sociology of family life stages (such as courtship, marriage, parenthood, old age), contemporary trends and problems of the family. F, S

340. Sociology of Gender and Sex Roles. 3 credits. Prerequisite: Soc 110 or Soc 115 or Soc 250. The implications of gender for social behavior in cross-cultural and historical perspective as well as in contemporary Western society. F

352. Aging. 3 credits. Socialization theory and its implication for the aging process. S

354. Medical Sociology. 3 credits. Prerequisite: Soc 110 or 115. Sociological analysis of health care definitions and roles, and the organization, availability and control of health care. F

355. Drugs and Society. 3 credits. Social factors affecting use and control of self-administered psychoactive drugs, including alcohol, cigarettes, marijuana and more illicit substances. Topics include social definitions, causes, controls and consequences of drug problems. S

361. Social Psychology. 4 credits. Prerequisite: Soc 110. The study of individual behavior in its social context: how the individual acts upon the social environment, is acted upon by the environment, and interacts with other individuals. F

397. Cooperative Education. 1-6 credits repeatable to 12. A practical work experience with an employer closely associated with student's academic area. F, S, SS

398. Environmental Sociology. 3 credits. Sociological analysis of political and para-political groups; voting behavior; political socialization process; power elites, societies and systems of government; power structures. On demand.

409. Selected Topics in Sociology. 1-4 credits. Topics in sociology taught at the senior level. On demand.

431. Organizations and Behavior. 3 credits. Prerequisite: 6 hours of Soc or consent of instructor. A look at the different ways in which organizations can be conceptualized and studied. The relationships between organizational structure and individual behavior are examined. The study of the effects of environments, including other organizations, on organizational goals. The kinds of organizations studied include industrial, medical, educational and other types. F

435. Racial and Ethnic Relations. 3 credits. Prerequisite: Soc 301 or CJ 330 and Soc 250. A survey of major USA racial and ethnic groups, the histories of their social encounters, and the theoretical perspectives associated with their experiences. On demand.

436. Social Inequality. 3 credits. Prerequisite: 6 hours of Soc or consent of instructor. A basic consideration of formal and social demography. The determinants and consequences of population change. On demand.

450. Deviant Behavior. 3 credits. Prerequisite: 6 hours of Soc or consent of instructor. This course examines the nature, types and societal reactions to deviant behavior; special emphasis on the process of social typing, legitimation of deviance, deviant subcultures and identities. S

489. Senior Honors Thesis. 1-15 credits; total not to exceed fifteen. Prerequisite: Consent of the Department and approval of the Honors Committee. Supervised independent study culminating in a thesis. F, S

492. Practicum in Sociology. 3 credits. Prerequisites: Soc 301, 323, 326 and at least Junior status. Students enrolled in this practicum will be assigned to work on research under the direction of one or more faculty. The practicum is designed to provide directed research experience for those enrolled. Repeatable for a maximum of 6 credits. S, U grading only. F, S

494. Readings in Sociology. 1-5 credits. Prerequisite: Consent of instructor. Designed for students who want instruction in subjects not covered adequately in usual course offerings. Specific arrangements must be made with the instructor prior to registration. F, S

Space Studies (SpSt)

http://www.space.edu/

Casler, de Leon, Fevig, Gaffey, Hardersen, Rygalov, Seelan and Whalen (Chair)

A minor in Space Studies is available to introduce students to the research, development, and operation of a wide array of space ventures. The multi-disciplinary nature of space activity immediately becomes evident, allowing the student to correlate the space experience with areas in a major field of study. Political, legal, and scientific aspects are dealt with extensively, and key technologies are introduced.

John D. Odegard School of Aerospace Sciences

MINOR IN SPACE STUDIES

Required 20 credits, including:

SpSt 200 Introduction to Space Studies ............................................ (3)

And the remaining credits from:

SpSt 220 Space Science & Exploration ............................................ (3)
SpSt 270 History of the Space Age .................................................. (3)
SpSt 300 The Case for Space ......................................................... (3)
SpSt 310 Introduction to Dinosaurs ............................................... (3)
SpSt 405 Space Mission Design .................................................... (3)
SpSt 410 Life Support Systems ..................................................... (3)
SpSt 425 Observational Astronomy ................................................. (3)
SpSt 430 Earth System Science ...................................................... (3)
SpSt 435 Global Change ............................................................... (3)

University of North Dakota
Courses

200. Introduction to Space Studies. 3 credits. An introduction to the range of topics in space studies including: an overview of planetary science, stellar evolution and the history of the universe; a brief view of the history of national and international activities, an examination of the fundamentals of space flight and human activity in space, a review of some current problems and issues in the space arena, and a projection of the future course of space activities in the coming decades. This is a required course for an undergraduate minor in space studies. F, S

220. Space Science and Exploration. 3 credits. Prerequisite: SpSt 200 or consent of instructor. Revolutionary advances that have occurred in astronomy, the earth sciences and planetary science as a result of our entry into space. This course surveys the manned and robotic space missions which have gathered data for this new view of the universe. The course introduces current concepts in cosmological theory as well as an overview of planetary evolution, solar system dynamical processes and physical characteristics of the planets.

270. History of the Space Age. 3 credits. Prerequisites: SpSt 200 or Hist 102 or 104 or consent of instructor. This course introduces students to the history of human endeavors in space. These include the development of rocketry, the influence of science fiction and science fiction, the military development of ballistic missiles, and human and robotic space flight. F

300. The Case for Space. 3 credits. Prerequisite: SpSt 200 or consent of instructor. This is a multidisciplinary course that will examine the rationales for a wide variety of space exploration and development activities. Topics will include human space flight, space science missions, military and commercial space activities, space resource utilization, and the benefits and problems that society derives from these activities. The socioeconomic, socio-political and multi-cultural impact of space activities—nationally and globally—will be discussed and debated with the goal of providing students with a broad perspective of the varying effects of space activities on modern society. F/2

310. Introduction to Dinosaurs. 3 credits. This course provides a broad introduction to dinosaurs and an examination of the extra-terrestrial influence that appears to have led to their extinction, and which thus redirected the evolution of life on Earth. Each of the major dinosaur groups (theropods such as T. rex, sauropods such as Brontosaurus (Apatosaurus), duckbills, armored dinosaurs such as Stegosaurus, horned dinosaurs such as Triceratops, etc.) is examined as well as their cousins in the air (pterosaurs) and sea (Ichthyosaurs & plesiosaurs). The course reviews our current models of their origin, evolution, lifestyles, diet, reproductive behavior, and physiology. We examine the data and reasoning that leads to and updates these models. The course also places the dinosaurs in the context of Earth as a geologically evolving planet. The various factors that led to their extinction will be outlined and evaluated. Laboratory tools include videos (both scientific and popular), dinosaur fossils, and scale models. On demand.

405. Space Mission Design. 3 credits. Prerequisite: SpSt 200 or consent of instructor. A team design project to develop the requirements for a space mission. The specific mission will vary from time to time. Design teams will work on selected portions of the mission. Accompanying lectures will provide background material. S

410. Life Support Systems. 3 credits. Prerequisite: SpSt 200 or consent of instructor. A review of the physiological effects of living in space including a discussion of current and near-term life support systems equipment for the provision of oxygen, water, food, and radiation protection. In addition, a review will be made of the issues associated with the development of fully closed ecological life-support systems that will be essential to the long-term development of space. On demand.

425. Observational Astronomy. 3 credits. Prerequisites: Phys 110. This course provides an introduction to observational astronomy and includes three segments: basic observing techniques and astronomical equipment (telescopes, CCDs); visual observing and the characteristics of the night sky; astronomical and photometric observing, data reduction, and interpretations; and image processing and color imaging techniques. Students will learn to operate a remotely controllable Internet telescope and CCD camera. A broadband Internet connection is recommended. Night observing is required. Course fee. On demand.

430. Earth System Science. 3 credits. Prerequisite: SpSt 200 or consent of instructor. This course begins with a review of the physical sciences of geology, meteorology and oceanography to examine the coupled interactions between the land, atmosphere and oceans. Parametric emphasis is placed on remote sensing techniques for monitoring biogeochemical processes. The role of human activities on Earth processes and the consequences of global environmental changes are discussed. The growing use of space-based data sets and the implications of Earth Observing System technologies, including research goals and hardware requirements, are examined. On demand.

435. Global Change. 3 credits. The current human population represents something unprecedented in the history of the world. Never before has one species had such a great impact on the environment in such a short time and continued to increase at such a rapid rate. Human activities are therefore significantly influencing the Earth’s environment in many ways in addition to greenhouse gas emissions and climate change. Anthropogenic changes to Earth’s land surfaces, oceans, coasts, and atmosphere and to biological diversity, the water cycle and biogeochemical cycles are clearly identifiable beyond natural variability. This course investigates the many facets of global change issues, and attempts to provide an up-to-date introduction to the study of the Earth’s environment. F/2.

450. International Space Programs. 3 credits. Prerequisite: SpSt 200 or consent of instructor. This course will introduce students to the major governmental space programs around the world. The history, activities and future directions of the Russian/Soviet, European/ESA, Chinese, Japanese, Indian and other space programs will be explored. International collaborations between the various programs will also be studied. On demand.

460. Life in the Universe. 3 credits. Prerequisite: SpSt 200 or consent of instructor. This course examines the evolution of the universe from its origin to the present: cosmological evolution, chemical evolution, planetary evolution, biological evolution, and cultural evolution. The possibility of life in the universe elsewhere than Earth is considered. Human changes to the Earth are placed within this context. On demand.

470. Special Topics in Space Studies. 1-3 credits. Prerequisite: SpSt 200 or consent of instructor. Lecture, discussion and readings on specific topics of current interest. May be repeated for credit if topic is different up to a total of 6 credits. On Demand.

480. Readings in Space Studies. 1-3 credits. Prerequisites: SpSt 200 or consent of instructor. Directed student readings designed to develop advanced knowledge in a specific area. A written report is required. May be repeated for a total of six credits. F, S, SS

491. Independent Study. 2 credits. Prerequisite: SpSt 200, senior standing, 15 hours of Space Studies, and consent of instructor. An independent study project culminating in a paper on an approved topic in Space Studies. Requires regular meetings with the instructor. F,S,SS

Teaching and Learning (T&L)

http://www.und.edu/dept/tll/

Baker, Barrentine, Beck, Bergland Holen, Chalmers, Chiasson, Combs, Gallo, Gourneau, Grabe, Guy, Hanley, Helgeson, Holdman, Hung, Ingwalson, Keengwe, Lee, Mahar, Offutt, Olsen (Chair), Olson, Onchwari, Pearson, Smart, Terras, Van Eck, Walker, Yearwood and Zidon

Licensing requirements for teachers are impacted by changes at the federal and state level. The following program descriptions are subject to change as new rules and regulations are implemented. It is imperative that all prospective and admitted students to teacher education maintain close and regular contact with their faculty advisors in order to ensure efficient progress toward their degrees.

The University of North Dakota has offered teacher education programs since its founding in 1883. The Department of Teaching and Learning is comprehensive, accredited, undergraduate and graduate department of education. It supports a broad view of education and seeks to serve preservice and inservice teachers and other education personnel with intensive, intellectually challenging, integrated study.

The Department strives to model the kind of educational environment it is promoting in early childhood settings, elementary schools, middle schools and secondary schools. Students are encouraged to assume initiative and independence in their learning while developing personal and professional commitments and competence. To help meet this expectation, programs in the Department provide for personalized learning. The Department is particularly committed to active community participation in the formation of goals and policy at all levels of education, including Native American communities in their efforts to improve education and to classroom teachers committed to continuing their personal and professional learning.

Teacher education programs at the University of North Dakota are approved by the State of North Dakota Education Standards and Practice Board (ESPB) and accredited by the National Council for the Accreditation of Teacher Education (NCATE) and are in compliance with Title II, Higher Education Act reporting procedures. The University is accredited by the North Central Association.
Degree Programs

The Department offers degree programs at the undergraduate level in the preparation of early childhood, elementary, middle, and secondary school teachers. Students studying elementary education are also able to pursue specialized study resulting in a double major in early childhood education or middle level education. Candidates interested in teaching at the secondary level pursue concentrated studies in the disciplines in which they desire to teach in addition to the professional education sequence leading to licensure. The Bachelor of Science in Education or the Bachelor of Science in Arts are all degree options, depending upon the field of study. At the present time, the following licensure areas are available:

I. Essential Studies Graduation Requirements (see University ES listing).

II. General Education Requirements.

III. The following Early Childhood Education curriculum:

T&L 252 .... Child Development ................................................. (3)
T&L 250 .... Introduction to Education ...................................... (3)
T&L 310 .... Introduction to Early Childhood Education .......... (3)
T&L 311 .... Observing and Assessing Child ............................. (3)
T&L 313 .... Language Development & Emerging Literacy ...... (3)
T&L 315 .... Education of the Exceptional Student ................. (3)
T&L 320 .... Infant and Toddler ................................................. (3)
T&L 328 .... Survey of Children’s Literature ............................. (3)
T&L 333 .... Methods & Materials: Pre-kindergarten .............. (3)
T&L 335 .... Understanding Readers & Writers ........................ (3)
T&L 336 .... Social & Emotional Development & Guidance of Children ............. (3)
T&L 338 .... Home-School Community Relations ...................... (3)
T&L 339 .... Technology for Teachers ........................................ (3)
T&L 411 .... Primary Reading & Language Arts ....................... (2)
T&L 433 .... Multicultural Education ........................................ (3)
T&L 443 .... Math for Primary Grades ..................................... (2)
T&L 453 .... Methods & Materials: Kindergarten .................... (2)
T&L 454 .... Organization & Leadership in Early Childhood Education ............ (3)
T&L 456 .... Pre-Kindergarten Seminar .................................... (1)
T&L 486 .... Field Experience in Early Childhood Education .... (1)
T&L 487 .... Student Teaching: Pre-kindergarten .................... (9)

TEAM

T&L 410 .... Teaching Reading & Writing in the Elementary School (3)
T&L 430 .... Social Studies in the Elementary School ................ (3)
T&L 440 .... Math in the Elementary School ............................ (3)
T&L 470 .... Science in the Elementary School ......................... (3)
T&L 486 .... Field Experience ................................................... (2)
T&L 487 .... Student Teaching ................................................... (16)
T&L 488 .... Senior Seminar ..................................................... (1)

MINOR IN EARLY CHILDHOOD EDUCATION

21 credits including:

T&L 310 .... Introduction to Early Childhood Education .......... (3)
T&L 311 .... Observation and Description of Children ............... (3)
T&L 313 .... Language Development and Emerging Literacy .... (3)
T&L 320 .... Infant and Toddler ................................................. (3)
T&L 333 .... Methods & Materials: Pre-K ................................ (3)
T&L 338 .... Home School Relations ........................................ (3)
T&L 453 .... Methods & Materials: Kindergarten .................... (2)
T&L 486 .... Field Experience: ECE .......................................... (1)

B.S. ED. WITH MAJOR IN ELEMENTARY EDUCATION

Required 125 credits (36 of which must be numbered 300 or above, and 60 which must be from a 4-year institution) including:

I. Essential Studies Graduation Requirements (see University ES listing).

II. General Education Requirements.

A. Students admitted Fall 2008 and after are required to take the following:

Communications — 9 credits
Eng 110, 120 or 125

Social Sciences — 9 credits
From 2 departments, including T&L 252 or Psy 250

Arts and Humanities — 9 credits
From 2 departments, including Fine Arts 150 (required)

Math, Science, Technology — 9 credits
Must be taken in at least 3 departments, must include 2 science courses with corresponding labs. Math 103 or higher math course is required; unless a qualifying score is achieved on the math placement test.

B. Students admitted Fall 2008 and after are required to take the following:

Communication — 9 credits
Eng 110, 120 or 125

Social Sciences — 9 credits
Psy 250 or T&L 252; Geog 151 or 161; and choice of History 101, 102 or 103.

Arts and Humanities — 9 credits
From 2 departments, including Fine Arts 150 (required).

Math, Science, Technology — 9 credits
Must be taken in at least 3 departments, must include 2 science courses with corresponding labs. Math 103 or higher math course is required; unless a qualifying score is achieved on the math placement test.

Additionally, students must take a science course in the following four science areas: physical, biological, earth, and space studies. This coursework may be selected from the Essential Studies course list or from T&L 400-level science courses. Note that T&L science courses count as elective courses in the major and cannot be applied towards Essential Studies graduation requirements.

III. Minor or Specialty Area:

Each student must have a minor or specialty area consisting of 20 credits. Two courses or a maximum of six credits may be transferred from your GER to your minor or specialty area. Select from: Anthropology, Art, Bilingual Education/ESL, Early Childhood Education, Economics, English, Fine Arts, Foreign Language, Geography, History, Indian Studies, Kindergarten Endorsement, Literacy Education, Mathematics, Middle School, Music, Physical Education, Political Science, Psychology, Science, Social Studies, Sociology, Special Education, Technology Education or Visual Arts.
IV. Introductory Courses:
- T&L 250 Introduction to Education................................. (3)
- Math 277 Mathematics for Elementary School Teachers (3)
- T&L 315 Education of Exceptional Student ...................... (3)
- T&L 328 Survey of children’s Literature ......................... (3)
- T&L 329 Young Adult Literature .................................... (3)
- T&L 335 Understanding Readers and Writers ................. (3)
- T&L 339 Technology for Teachers ................................. (2)

V. Professional Education

TEAM:
- T&L 410 Reading and Writing in the Elementary School (TEAM) (3)
- T&L 450 Social Studies in the Elementary School (TEAM) (3)
- T&L 440 Math in the Elementary School (TEAM) ............... (3)
- T&L 470 Science in the Elementary School (TEAM) .......... (3)
- T&L 486 Field Experience ............................................ (2)

Additional Required Courses:
- Art 460 Art for Elementary School Teachers .................. (3)
- Music 243 Music for Elementary School Teachers ............ (3)
- Music 443 Music Methods and Materials for Elementary School Teachers (3)
- PXW 305 Physical Education for Elementary School Teachers (1-3)
- T&L 311 Observing and Assessing Child ......................... (3)
- T&L 313 Language Development and Emerging Literacy .... (3)
- T&L 329 Young Adult Literature .................................... (3)
- T&L 335 Understanding Readers and Writers ................. (3)
- T&L 339 Technology for Teachers ................................. (2)

BILINGUAL EDUCATION OR ENGLISH AS A SECOND LANGUAGE ENDORSEMENT

Students who complete the courses listed below will be eligible for endorsement in Bilingual Education or English as a Second Language. Students must be certified to teach in Elementary, Middle Level or Secondary classrooms.

- T&L 315 Language Development and Emerging Literacy ........(3)
- T&L 433 Multicultural Education .................................. (3)
- T&L 486 Field Experience: Bilingual & ESL ...................... (2)
- T&L 487 Senior Seminar ............................................. (1)

Additional Required Courses:
- T&L 241 Reading and Language Arts ............................ (2)
- T&L 412 Intermediate Language Arts ............................ (2)
- T&L 413/414 Assessing and Correcting Reading Difficulties (2)/Corrective Reading Practicum (2)
- T&L 415 Language Literacy Development of English Language Learners .................................................. (3)
- T&L 465 Middle Level Curriculum and Methods .............. (5)
- T&L 486 Field Experience ............................................ (2)

B.S.E.D. WITH DOUBLE MAJOR IN ELEMENTARY EDUCATION AND A MAJOR IN EARLY CHILDHOOD

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Graduation Requirements (see University ES listing).
II. EHD General Graduation Requirements (see EHD listing).
III. Elementary Education Curriculum as listed above.
IV. The following Early Childhood Education Curriculum:
- T&L 250 Introduction to Education ................................ (3)
- T&L 286 Field Experience in Early Childhood Education .... (1)
- T&L 310 Introduction to Early Childhood Education .......... (3)
- T&L 311 Observing and Assessing Child ......................... (3)
- T&L 313 Language Development and Emerging Literacy .... (3)
- T&L 320 Infant and Toddler ........................................... (3)

B.S. ED. WITH A DOUBLE MAJOR IN ELEMENTARY AND A MAJOR IN MIDDLE LEVEL EDUCATION

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. Essential Studies Graduation Requirements (see University ES listing).
II. EHD General Graduation Requirements (see EHD listing).
III. Elementary Education Curriculum (see Elementary Education listing).
IV. The following Middle Level Education (Grades 5-8) Curriculum:
- T&L 339 Technology for Teachers ...................................... (2)
- T&L 341 Foundations of Middle Level Education ................ (2)
- T&L 350 Development and Education of Young Adolescents .... (3)
- T&L 409 Reading in the Content Areas .............................. (3)
- T&L 465 Middle Level Curriculum and Methods .............. (5)
- T&L 486 Field Experience ............................................ (2)

V. Subject Matter Areas of Concentration

Students completing a double major in Elementary and Middle Level Education must take coursework in two content areas in addition to the Elementary and Middle Level major programs of study. These programs must be planned carefully between the student and the advisor in both programs of study to ensure that the requirements for teaching in the subject areas have been met. Examples of content areas include but are not limited to: English, mathematics, science, social studies, health, and technology education.

These requirements may be impacted by changes at the federal and state level.

KINDERTAGEN ENDORSEMENT

Undergraduate students who wish a Kindergarten Endorsement but do not wish to complete the double major in elementary and early childhood education must take the following courses as part of 15 hours of required kindergarten coursework. In addition, they are required to student teach in a kindergarten classroom.

- T&L 310 Introduction to Early Childhood Education .......... (3)
- T&L 311 Observing and Assessing Child .......................... (3)
- T&L 313 Language Development and Emerging Literacy .... (3)
- T&L 338 Home-School Community Relations .................... (3)
- T&L 341 Methods and Materials: Kindergarten ................. (2)
- T&L 345 Language Literacy Development of English .......... (2)
- T&L 350 Development and Education of Young Adolescents .... (3)
- T&L 365 Field Experience in Early Childhood Education .... (1)
- T&L 487 Student Teaching ............................................ (8)

These requirements may be impacted by change at the federal and state level.

Middle Level Education
Admission to teacher education is required for enrollment in all of the following courses:

T&L 341 ......... Foundations of Middle Level Education .................. (2)
T&L 350 ......... Development and Education of Young Adolescents .... (3)
T&L 409 ......... Reading in the Content Areas ............................... (3)
T&L 432 ......... Classroom Management ...................................... (3)
T&L 433 ......... Multicultural Education ........................................ (3)
T&L 465 ......... Middle Level Curriculum and Methods ................... (5)
T&L 486 ......... Field Experience ................................................... (2)

A minimum of two methods courses in each area of concentration (see below) from the secondary education program and co-requisite field experience ........ (8)
T&L 487 ......... Student Teaching ................................................ (16)
T&L 488 ......... Senior Seminar .................................................... (3)


Requires 24 credits in each area of concentration: see the middle level adviser for required coursework.

B.S. ED. WITH A MAJOR IN MIDDLE LEVEL EDUCATION

In order to be considered a highly qualified teacher at the Middle Level, candidates must take coursework in two content areas in addition to the Middle Level major program of study. This program is planned carefully between the student and the middle school advisor to ensure that the requirements for teaching in the subject areas have been met. Examples of content areas include but are not limited to: English, mathematics, science, social studies, health, and technology education.

* These requirements may be impacted by changes at the federal and state level.

MINOR IN MIDDLE LEVEL EDUCATION

The Middle Level minor is open to students majoring in a field which leads to teacher certification at the elementary or secondary level.

The following Middle Level Education (Grades 5-8) Curriculum is required:

T&L 315 ......... Education of the Exceptional Student ....................... (3)
T&L 339 ......... Technology for Teachers ....................................... (2)
T&L 341 ......... Foundations of Middle Level Education ................. (2)
T&L 350 ......... Development and Education of Young Adolescents ... (3)
T&L 409 ......... Reading in the Content Areas ............................... (3)
T&L 433 ......... Multicultural Education ........................................ (3)
T&L 465 ......... Middle Level Curriculum and Methods ................... (5)
T&L 486 ......... Field Experience ................................................... (2)
Total hours .......... 23

Students completing the Middle Level minor with a major in Elementary Education have exceeded the endorsement requirement for a highly qualified teacher (grade 7 or 8). Although, Elementary Education majors with a Middle Level minor will need to complete a major equivalence in a core academic subject. Students are encouraged to meet with the middle school adviser to ensure that the requirements for teaching in the middle school have been met.

Students completing the Middle School minor with a major in a Secondary Education academic area will be considered highly qualified in that core content area.

* These requirements may be impacted by changes at the federal and state level.

Secondary Education

Through a partnership with departments in the College of Arts and Sciences, candidates may seek secondary licensure in several areas. Requirements may vary depending upon the field of study, so candidates are advised to keep in close and regular contact with academic advisers from both Teaching and Learning and their academic discipline. Secondary education degrees are offered in science and social studies. Teacher licensure is also available in a number of disciplines upon completion of a bachelor’s degree in a related field in addition to the professional educational course sequence through the Department of Teaching and Learning. The following professional education sequence is required for most areas of licensure:

Secondary Education Licensure Preparation Sequence

Course Sequence (33 credits minimum):

Pre-admission:
T&L 250 ......... Introduction to Education .................................... (3)
T&L 339 ......... Technology for Teachers (pre- or post admittance) .... (2)

Admission to Teacher Education is required for enrollment in all of the following courses:

T&L 345 ......... Curriculum Development and Instruction .............. (3)
T&L 350 ......... Development and Education of the Adolescent ....... (3)
T&L 386 ......... Field Experience, elective .................................... (1)
T&L 400 ......... Methods and Materials ....................................... (3)
T&L 432 ......... Classroom Management ...................................... (3)
T&L 433 ......... Multicultural Education ........................................ (3)
T&L 486 ......... Field Experience ................................................ (1-4)
T&L 495 ......... Independent Study/Secondary Education ............... (1-2)

** T&L 487 ......... Student Teaching (16)

*** T&L 488 ......... Senior Seminar .............................................. (1)

*Optional

** To be accepted for student teaching, applicants must have a 2.75 GPA in their major and a 2.75 GPA overall in all coursework completed up to the time of application. Majors that required varied professional experiences complete 10 credits of student teaching. Students may enroll in several student teaching experiences to total 16 credits.

*** Students enrolled in a discipline specific Senior Seminar need not enroll in T&L 488.

B.S. ED. WITH MAJOR IN SCIENCE

Required 146 credits (36 of which must be numbered 300 or above and 60 of which must be from a 4-year institution) including:

I. Essential Studies Graduation Requirements (see University ES listing).
II. EHD General Graduation Requirements (see EHD listing).
III. The following Science Curriculum:

A. Minimum of 24 semester hours in ONE of the four science areas (biology, chemistry, physics or earth science) through completion of a minor ... (24)
B. Minimum of 12 semester hours in your choice of each of two other areas as follows, plus a minimum of four semester hours in the fourth area ..... (28)

1. Physics

211/211L ......... College Physics I and Lab .................................... (4)
212/212L ......... College Physics II and Lab ................................ (4)
253/253L ......... University Physics III and Lab ......................... (4)
(required dept. approval to waive Calculus III)

Or

213/213L ......... College Physics III and Lab ................................ (4)
251/251L ......... University Physics I and Lab ............................ (4)
252/252L ......... University Physics II and Lab ............................ (4)
253/253L ......... University Physics III and Lab ............................ (4)
(required departmental approval)

2. Chemistry

121/121L ......... General Chemistry I and Lab ......................... (4)
122/122L ......... General Chemistry II and Lab ......................... (4)
333/333L ......... Analytical Chemistry and Lab ......................... (4)

3. Earth Science

Phys 110/110L ... Introductory Astronomy and Lab .................. (4)
Geol 101/101L ... Introduction to Geology and Lab ................. (4)

Or

Geol 102/102L ... The Earth Through Time and Lab .................. (4)

And

Geog 121/121L ... Global Physical Environment and Lab .......... (4)

Or

Geog 134/134L ... Introduction to Global Climate and Lab .......... (4)

4. Biology

Biol 150/150L ... General Biology I and Lab ............................... (4)
Biol 151/151L ... General Biology II and Lab .............................. (4)
Biol 312 ......... Evolution ......................................................... (4)
And
Biol 315 ......... Genetics ......................................................... (4)

Or
Biol 332/332L ... General Ecology & Lab ................................. (4)

Or
Biol 336 ......... Systematic Botany .......................................... (4)

C. Minimum 8 credits of Math as follows:

Math 165 ......... Calculus I ....................................................... (4)
Math 166 ......... Calculus II ...................................................... (4)

D. Minimum of 3 semester hours of statistics selected from among the following:

Math 321 ......... Applied Statistical Methods ............................ (3)

Or

Psyc 241 ......... Introduction to Statistics ................................... (4)
Econ 210 ......... Introduction to Business and Economic Statistics .......... (3)

IV. In addition to the Secondary Education Licensure Preparation, B.S.Ed. Science Students must take T&L 401: School Science Safety (1 cr).
B.S. ED. WITH COMPOSITE MAJOR IN SOCIAL STUDIES

Required 125 credits (36 of which must be numbered 300 or above and 60 of which must be from a 4-year institution) including:

I. Essential Studies Graduation Requirements (see University ES listing).

II. The College of Education and Human Development (see EHD listing).

III. The Following Curriculum:

Hist 101 ........ Western Civilization I .................................................. (3)
Hist 102 ........ Western Civilization II .................................................. (3)
Hist 103 ........ United States to 1877 .................................................... (3)
Hist 104 ........ United States Since 1877 .............................................. (3)
Hist 220 ........ History of North Dakota .............................................. (3)
Hist elective 300 level or above ......................................................... (3)

Pols 115 ........ American Government ................................................ (3)
Pols 116 ........ State and Local Government ........................................ (3)
Pols 220 ........ International Politics ................................................... (3)

Choice of one:

Pols 305 .... American Constitution—Governmental Powers ................ (3)
Pols 306 .... American Constitution—Civil Liberties ......................... (3)
Pols 308 .... Intergovernmental Relations ........................................... (3)
Pols 309 .... The Legislative and Executive Processes ......................... (3)
Pols 318 .... American Political Thought ........................................... (3)

Geog 161 ........ World Regional Geography ........................................ (3)
Geog 262 ........ Geography of North America ..................................... (3)

Choice of one:

Geom 171 .... Map Use and Interpretations ......................................... (3)
Geom 377 .... Quantitative Applications in Geog/Lab ............................... (3)
Geom 471 .... Cartography and Computer-Assisted Mapping/Lab .......... (3)
Geom 474 .... Introduction to Geographic Information Systems .............. (3)

Econ 201 .... Principles of Microeconomics ....................................... (3)
Econ 202 .... Principles of Macroeconomics ....................................... (3)
Econ 303 .... Money and Banking ..................................................... (3)

Choice of one:

Econ 210 .... Intro to Business and Economic Statistics ...................... (3)

Pols 311 .... American Constitution—Civil Liberties ......................... (3)
Pols 318 .... American Political Thought ........................................... (3)
Pols 319 .... The Legislative and Executive Processes ......................... (3)

Geog 419 .... Methods and Materials in Geographic Education ............ (3)

Choice of one:

Soc 361 .... Social Psychology ......................................................... (4)

Soc 365 .... Sociology of Gender and Sex Roles ................................. (3)
Soc 366 .... Social Psychology ......................................................... (4)

Choice of one:

Anth 100 .... Introduction to Anthropology ......................................... (3)
Anth 171 .... Introduction to Cultural Anthropology ............................. (3)
Anth 172 .... Introduction to Archaeology and World Prehistory ............ (3)
Anth 200 .... World Prehistory .......................................................... (3)

and an Anth elective 300 level and above ........................................... (3)

*Note: To teach any one of the electives in North Dakota requires 6 credits in the subject.

MINOR IN LITERACY EDUCATION (20 credits):

The Literacy Education minor is open to students majoring in a field which leads to teacher certification at the early childhood, elementary, middle or secondary level. Students must be admitted to the Teacher Education program. Students from related disciplines such as Communication Science and Disorders may also be admitted. The program consists of 20 credits, which consist of required elective courses. The coursework meets the requirements for the North Dakota Reading Credential.

Note: T&L 335 does not count towards the minor for ECE and Elementary Education majors. T&L 335 should be taken early in the course sequence as it is a prerequisite for more advanced reading courses.

Required Courses:

T&L 335 .......... Understanding Readers and Writers
(for non ECE and El Ed majors) .................................................. (3)
T&L 409 .......... Reading in the Content Areas ..................................... (3)
T&L 413 .......... Assessing & Correcting Reading Difficulties ............... (2)
T&L 414 .......... Corrective Reading Practicum ................................... (2)
T&L 415 .......... Language and Literacy Development of English
Language Learners .................................................................. (3)
T&L 319 .......... Introduction to ED, LD and C/DD ............................... (3)

4-7 credits from the following Electives:

T&L 313 .......... Language Development and Emerging Literacy ........... (3)
*T&L 328 or 329 Survey of Children’s Lit/Young Adult Lit .................. (3)
*T&L 411 or 412 Primary or Intermediate Language Arts .................... (2)
T&L 416 .......... Adolescent Literacy Development ............................. (3)
T&L 486 .......... Field Experience (in Literacy or ESL) ........................... (2)

*Course must be in addition to the required course for major

MINOR IN SPECIAL EDUCATION (20 credits)

The following two courses are required for a minor and should come before any subsequent course.

T&L 315 .......... Education of the Exceptional Student .......................... (3)
T&L 319 .......... Inclusive Strategies .................................................... (3)

For the minor, a minimum of 14 credits may be taken from several groups of courses which are described on the Special Education website at www.und.edu/dept/tl/speccedu/. In order to obtain teaching credentials in special education, students will need to complete additional coursework. Detailed descriptions of all programs and courses leading to the credentials, including prerequisites and course sequences are available on the Special Education website.

Courses

250. Introduction to Education. 3 credits. Prerequisite: At least 30 completed credits. This course is designed for students exploring the profession of teaching in early childhood, elementary, middle, or secondary schools. It is an introduction to the study of education that explores the foundations of education, how learners differ, and the social and political contexts of schools. Students complete a classroom field experience, explore the role of literature, and participate in role-playing, simulations, and peer-teaching.

252. Child Development. 3 credits. Study of the growth and developmental process through adolescence. A basis for understanding basic needs of the normal child and means of meeting them in the child’s home and community environment.

286. Field Experience. 1 credit. Prerequisite: consent of instructor. Supervised tutorial or apprentice teaching experience in an early childhood, K-12 classroom, university or community setting approved by the program area. S/U grading.

310. Introduction to Early Childhood Education. 3 credits. An overview of the early childhood education field, including an introduction to its historical roots; current theories, program models and issues; curriculum development; and typical and atypical development of young children. There will be a minimum of six hours of observation and/or activities in the field.

311. Observing and Assessing Children. 3 credits. Prerequisites: Admission to Teacher Education, and T&L 310. This course acquaints the student with a variety of ways of observing, recording, and analyzing the behavior and development of children. Assessment of children will be analyzed by looking at a variety of assessment activities that can be done with children. There will be a minimum of eight hours of field experience.

313. Language Development and Emerging Literacy. 3 credits. Prerequisite: Admission to Teacher Education. This course examines both typical and atypical development of language and thought in children ages birth-8. Children’s emergent literacy is studied within the context of language development. There will be a minimum of eight hours of field experience.

315. Education of Exceptional Students. 3 credits. An orientation course, especially for classroom teachers, stressing the identification, characterization and educational problems of exceptional children. A field experience is part of this course.

319. Inclusive Strategies. 3 credits. An introductory course dealing with the etiology of conditions and the characteristics affecting individuals with emotional disturbance, learning disabilities, and cognitive/developmental disabilities within the general education classroom. Instructional approaches and service delivery models within the general education classroom will also be explored.

320. Infant and Toddler. 3 credits. Prerequisites: T&L 252 or Psy 250 or permission of instructor. This course is a study of the child’s growth and development from birth to 24 months. It will give the student a basis for understanding normal developmental needs of children and means of meeting them in the children’s home and community environments.

322. Administration and Leadership in Early Childhood Education. 3 credits. Prerequisites: Admission to Teacher Education. An investigation of patterns of administration, curriculum organization, spatial resources, and staffing in early childhood settings, serving children 0-8 years old. Topics include federal and state laws and emerging trends in preschool and primary education in the state, region, and nation. Sixteen (16) hours of field experience.

328. Survey of Children’s Literature. 3 credits. Prerequisite: Admission to the Teacher Education program. Students survey the broad range of literature written for children. Emphasis is placed on gaining familiarity with the multicultural aspects of children’s literature, understanding the distinguishing characteristics of genre, developing visual literacy with respect to illustration, and acquiring the ability to evaluate literature, as well as its use, with an understanding of children’s developmental needs.

329. Young Adult Literature. 3 credits. Discussion and critical evaluation of contemporary literature, both adolescent and adult, which is of interest to young adults, with an emphasis on fiction, drama, poetry, essays, and biographies. On demand.
333. Methods and Materials: Pre-Kindergarten. 3 credits. Prerequisite: T&L 310 and admission to Teacher Education. Corequisite: T&L 486, one credit. Exploration of curriculum, methods and materials for use in pre-kindergarten educational settings. Includes selection of materials, creative environments, and planning for the individual needs of children within a group setting. F, S.

335. Assessing and Correcting Reading Difficulties. 2 credits. Prerequisite: Admission to Teacher Education, T&L 335. Pre- or corequisite: T&L 328 or T&L 329. This course explores a wide variety of approaches to teaching reading and language arts to intermediate level children. Emphasis is placed on strategic reading and writing of non-fiction, multiple ways of using language for creative and personal expression, integrating the language arts across curriculum, speaking and listening development, and critical literacy. F, S.

336. Social and Emotional Development and Guidance of Children. 3 credits. This course examines both typical and atypical social and emotional development in children ages 0-8 as a basis for understanding and working with children in educational settings. This course will also focus on child guidance and behavior issues affecting classroom climate. S, SS

338. Home, School and Community Relations. 3 credits. The course is an exploration of home school relations. The content will include history, parental involvement in schools, parent-teacher conferences, home visits, parent programs, and resources for parents. F, SS

339. Technology for Teachers. 2 credits. Prerequisite: Admission to Teaching and Learning Department. Students will demonstrate a sound understanding of technology concepts and operations that not only support classroom curriculum but provide an avenue for continuing professional development. Students will learn to apply technology to facilitate a variety of effective assessment and evaluation strategies. The class will help students understand the social, ethical, legal and human issues that surround the use of technology in PK-12 schools. F, SS

341. Foundations of Middle Level Education. 2 credits. Prerequisite: Admission to Teacher Education. This course promotes understanding the needs of early adolescent learners as integrants of the interdisciplinary, collaborative teaching approaches associated with the middle school philosophy. The course addresses the components of organization. F

345. Curriculum Development and Instruction. 3 credits. Prerequisites: T&L 250 and admission to teacher education. A general curriculum development and instruction course designed for the undergraduate pre-service secondary teacher across all disciplines. It introduces and provides practice in planning, multiple instructional strategies, and methods of formal and informal assessment. It considers the impact of historical foundations, teaching philosophy, discipline standards, knowledge of diverse learners and special needs, and technology on curriculum development. F, S

350. Development and Education of the Adolescent. 3 credits. Prerequisites: T&L 250 and admission to teacher education. A comprehensive examination of the characteristics and behaviors of the adolescent student with implications for curriculum and instruction in the junior/middle and high schools. Topics covered will be transition from childhood to adolescence, including cognitive development, self-concept, psychological changes, social needs and values, and values and attitudes of adolescents. This course will provide an understanding of the wide range of differences in developmental patterns of children and the influences of economic, sociological and psychological factors in development. F, S

356. Field Experience. 1 credit. Prerequisites: T&L 250 and admission to the professional program. Supervised tutorial or apprentice teaching experience in an early childhood, K-12 classroom, university or community setting approved by the program area. Optional. S/U grading. F, S

360. Special Topics. 1-3 credits. May be repeated. *Other approved courses may meet this requirement. A course that may meet this requirement is: T&L 290: Social Policy and Practice.

400. Methods and Materials. 3 credits. Prerequisites: T&L 250, 345 and admission to teacher education. Corequisite: T&L 486. Various teaching methods and strategies and the materials used in teaching in a subject area. Some offered F only; some S. See adviser. (Some Methods and Materials courses carry an academic department prefix and number. The number of methods courses required by a department may vary. Consult with an adviser.)

401. School Science Safety. 1 credit. Corequisite: T&L 400. Prepares students to plan for and communicate about a wide variety of classroom and laboratory safety issues. Includes selection of materials, creative environments, and planning for the individual needs of children in a group setting. F

409. Reading in the Content Areas. 3 credits. This course addresses issues of using text, expository and narrative, within the content areas, i.e., science, social studies. Writing within the content area and across the curriculum are investigated. F


415. Language and Literacy Development. 3 credits. Prerequisites: Admission to Teacher Education, T&L 335. Pre- or corequisite: T&L 328 or T&L 329. This course explores a wide variety of approaches to teaching reading and language arts to intermediate level children. Emphasis is placed on strategic reading and writing of non-fiction, multiple ways of using language for creative and personal expression, integrating the language arts across curriculum, speaking and listening development, and critical literacy. F, S

416. Adolescent Literacy Development. 3 credits. A study of adolescent literacy development with emphasis on instructional strategies and practices for reading and responding to texts, helping students due to reading difficulties. These assessments are used to plan for instruction. SS

417. Multi-Cultural Education. 2 credits. Prerequisite: Admission to Teacher Education, T&L 335. Corequisite to T&L 413. Applying the knowledge and skills learned in T&L 413, students in this practicum assess, plan for and teach children who are having difficulty with reading and/or writing.

418. Multicultural Education. 3 credits. Prerequisites: Admission to Teacher Education, T&L 335. Includes selection of materials, creative environments, and planning for the individual needs of children as mathematicians. Emphasis is placed on the use of manipulatives, problem solving activities and children’s literature in the planning and organizing of developmentally appropriate classroom activities and lessons. F, S

421. Intermediate Language Arts. 2 credits. Prerequisites: Admission to Teacher Education, T&L 335. Pre- or corequisite: T&L 328 or T&L 329. This course explores a wide variety of approaches to teaching reading and language arts to intermediate level children. Emphasis is placed on strategic reading and writing of non-fiction, multiple ways of using language for creative and personal expression, integrating the language arts across curriculum, speaking and listening development, and critical literacy. F, S

433. Multicultural Education. 3 credits. Prerequisites: Admission to Teacher Education. F, S, SS

434. Assistive Technology. 1 credit. An overview of the various forms of technology (e.g., communication boards, switches, software) that may be used to assist students with disabilities. F

435. Social Studies in the Elementary School (TEAM). 3 credits. Prerequisites for elementary education majors: Admission to Teacher Education; grade of C or better in the following courses: T&L 250, 315, 328 or 329, 335, Math 103 or equivalent, and Math 277; GPA of 2.75 or better. Prerequisites also include Art 460, Music 243, 443 or 449, and PEX 300. Prerequisites for early childhood education majors: Admission to Teacher Education; grade of C or better in the following courses: T&L 310/486, 315, 328, 335 and 443, and GPA of 2.75 in the Early Childhood major. Corequisites: T&L 410, 440, 470, 486. To understand and analyze the different modes of teaching social studies, to gain the competencies necessary for organizing a unit in the social studies, to gain an understanding of the values and multiple perspectives inherent within the various teaching strategies, to develop a preferred perspective on the ideal nature of Social Studies education. F

436. Classroom Management. 3 credits. Prerequisite: Admission to Teacher Education. The purpose of this class is to study factors that influence classroom behavior and to acquire a variety of techniques that can be used to control and maintain classroom management. This course views classroom management from a humanistic position but does not assume a single method as the “best” approach. Students are expected to develop their own eclectic style during the course of this class. F, SS

437. Assessment Program Planning/Special Needs Students. 3 credits. Prerequisite: T&L 315. A study of the principles and practices of: (1) obtaining diagnostic information on school-related problems of a student; (2) assimilating this information and prescribing appropriate alterations based on continuous measurement data. F

439. Methods and Materials for Elementary Music. 3 credits. Overview of methods and materials in elementary music for music majors and minors. Includes experiences for the practical application of course content. F

440. Math in the Elementary School (TEAM). 3 credits. Prerequisites for elementary education majors: Admission to Teacher Education; grade of C or better in the following courses: T&L 250, 315, 328 or 329, 335, Math 103 or equivalent, and Math 277; GPA of 2.75 or better. Prerequisites also include Art 460, Music 243, 443 or 449, and PEX 300. Corequisites: T&L 410, 430, 470, and 486. Prerequisites for early childhood majors: Admission to Teacher Education, T&L 433. Corequisites: T&L 410, 430, 470 and 486. TEAM Math is the required mathematics methods course for all undergraduates. It is particularly interested in Native Americans of North Dakota. F, SS

443. Math for Primary Grades. 2 credits. Prerequisite: Admission to Teacher Education. Math for Primary Grades focuses on curriculum and methods for teaching mathematics in kindergarten through the third grade. Students actively engage in projects and activities that help them develop a conceptual understanding of mathematics in a cooperative and constructivist environment where children view themselves as mathematicians. Emphasis is placed on the use of manipulatives, problem solving activities and children’s literature in the planning and organizing of developmentally appropriate classroom activities and lessons. F, S

447. Assessment Program Planning/Special Needs Students. 3 credits. Prerequisite: Admission to Teacher Education. T&L 335. Corequisite to T&L 413. Applying the knowledge and skills learned in T&L 413, students in this practicum assess, plan for and teach children who are having difficulty with reading and/or writing.
444. Math for Intermediate Grades. 2 credits. Math for Intermediate Grades is an elective course that focuses on curriculum and methods for teaching mathematics in grades four through six. The course focuses on teaching mathematics and understanding in a cooperative environment and involves participants in projects and activities that develop conceptual understanding. F

453. Methods and Materials: Kindergarten. 2 credits. Prerequisite: T&L 310 and admission to Teacher Education. Exploration of curriculum, methods, and materials for use in kindergarten settings. F,SS

456. Early Childhood Education Seminar. 1 credit. Prerequisite: T&L 451 and admission to Teacher Education. Corequisite: T&L 487. Taken in conjunction with pre-kindergarten student teaching. This seminar continues the exploration of curriculum, methods, and materials issues as they are presented in the particulars of the student teaching experience. FS

457. Elementary Level Curriculum and Methods. 5 credits. Prerequisite: T&L 341. Corequisite: T&L 486. This methods course takes a hands-on approach to increasing understanding and application of the various methods and strategies for teaching early adolescent students. This course addresses techniques, strategies, materials, and a content area knowledge base necessary for promoting student learning and success in a middle school setting. S

470. Science in the Elementary School (TEAM). 3 credits. Prerequisites for elementary and early childhood education majors: Admission to Teacher Education; grade of C or better in the following courses: T&L 250, 315, 328 or 329, 335, Math 103 or equivalent, and Math 277; GPA of 2.75 or better. Prerequisites also include Art 460, Music 243, 443 or 449, and PEX 300. A survey of teaching strategies, materials, and resources appropriate for promoting science inquiry in elementary classrooms. FS

471. Physical Science in the Elementary School. 2 credits. Hands-on approach to learning basic physical science topics such as electricity, sound, light, and force. Effective teaching strategies are also emphasized. FS

472. Teaching Life Sciences in the Elementary School. 2 credits. Hands-on approach to learning basic biology topics such as cells, plants, animals, and ecosystems. Effective teaching strategies are also emphasized. SS

473. Earth and Space Science. 2 credits. Hands-on approach to learning basic earth and space science topics such as erosion, plate tectonics, water quality, pollution, astronomy, planets, and the solar system. Effective teaching strategies are emphasized. SS

486. Field Experience. 1-4 credits. (Repeatable to 16.) Prerequisites for elementary education majors: Admission to Teacher Education; grade of C or better in the following courses: T&L 250, 315, 328 or 329, 335, Math 103 or equivalent, and Math 277; GPA of 2.75 or better. Prerequisites also include Art 460, Music 243, 443 or 449, and PEX 300. Supervised tutorial or apprentice teaching experience in an early childhood, K-12 classroom, university, or community setting approved by the program area. S/U grading. FS

487. Student Teaching. 4-16 credits. If repeated, Student Teaching would be taken in a different program area. Prerequisite: Permission of program. Provides student with the opportunity to assume the role of a classroom teacher in an educational setting under the supervision of a cooperating teacher and a University faculty member. S/U grading. FS

488. Senior Seminar. 1 credit. S/U grading only. A discussion of problems, professional obligations, and careers in teaching. To be taken concurrently with or the semester prior to student teaching.

493. Workshop. 2-5 credits. (May be repeated to a total of 8 credits.) Special problems in Special Education; consideration of special problems of concern to the Special Education teacher and other educators. FS

495. Independent Study. 1-4 credits, repeatable to 8. This course is designed for the interested student’s pursuit of an area of study not offered through regular courses. In addition, students can continue to pursue subject matter covered in courses in greater depth.

498. Special Projects. 1-8 credits. Course number reserved for committee approved proposals, independent study, special colloquia, or experimental courses.

Technology (TECH)

http://business.und.edu/dept/technology/

Huang, Johnson, Kenney and Yearwood (Chair)

The Department of Technology has programs accredited by the National Association of Industrial Technology (NAIT) and National Council for Accreditation of Teacher Education (NCATE). Program offerings include four-year undergraduate Bachelor of Science (B.S.) degree programs and a graduate program leading to the Master of Science degree (thesis and non-thesis options). The undergraduate degree programs offered through the College of Business and Public Administration are Bachelor of Science in Industrial Technology (BSIT), Industrial Management (NAIT accredited), Bachelor of Science in Occupational Safety and Environmental Health (BOSOH), and Bachelor of Science in Graphic Design Technology (BSGDT). Minors in manufacturing, electronics, and graphic communication are an integral part of department offerings.

College of Business and Public Administration

B.S. GRAPHIC DESIGN TECHNOLOGY (GDT) DEGREE PROGRAM

The Graphic Design Technology program is an innovative, multidisciplinary major that integrates courses drawn from various academic departments. The major includes a significant business component—the Entrepreneurial Studies Certificate program—which is unique in comparison to all other graphic design programs in this region and most graphic design programs nationally. The Graphic Design Technology program combines theory and practice, and application and production in a liberal arts context giving students a solid university education. It provides students majoring in Graphic Design Technology with a diverse range of learning experiences and opportunities in a flexible, technology-rich environment.

Throughout this program students learn to plan, analyze, and create solutions to visual communication problems. They consider cognitive, cultural, physical, economic, political, psychological and social factors in planning and executing graphic designs appropriate for a given context. Students use a variety of print, electronic, and photographic media and technologies during the design process. The professional Graphic Design Technology program prepares students for an array of exciting careers in business, government, industry and education.

Required 125 credit hours, and including:

I. Essential Studies Requirements, see University ES Listing.
II. The College of Business and Public Administration GPA Graduation Requirement (2.50), see College section.
III. Graphic Design Technology Major Program Requirement, at least a 2.50 GPA in courses that apply toward the degree and major.

A. Technology Requirements (41 Credit Hours Required)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>TECH 120</td>
<td>Advanced Application of CADD Techniques</td>
<td>3</td>
</tr>
<tr>
<td>TECH 212</td>
<td>Principles of Graphic Design and Print Production</td>
<td>3</td>
</tr>
<tr>
<td>TECH 300</td>
<td>Technology and Society</td>
<td></td>
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<tr>
<td>TECH 302</td>
<td>Web Page Design</td>
<td>3</td>
</tr>
<tr>
<td>TECH 322</td>
<td>Fundamentals of Photography</td>
<td>3</td>
</tr>
<tr>
<td>TECH 332</td>
<td>Technical Design</td>
<td>3</td>
</tr>
<tr>
<td>TECH 422</td>
<td>Digital Photography and Imaging</td>
<td>3</td>
</tr>
<tr>
<td>TECH 442</td>
<td>Advanced Graphic Design and Print Production</td>
<td>3</td>
</tr>
<tr>
<td>TECH 450</td>
<td>Senior Capstone</td>
<td>3</td>
</tr>
<tr>
<td>TECH 452</td>
<td>Multimedia Production</td>
<td>3</td>
</tr>
<tr>
<td>TECH 497</td>
<td>Directed Studies in Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

B. Entrepreneur Requirements (16 Credit Hours Required)

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENTR 385</td>
<td>Venture Initiation</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 302</td>
<td>Marketing &amp; Management Concepts for Entrepreneurs</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 366</td>
<td>Imagination, Creativity &amp; Entrepreneurial Thinking</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 385</td>
<td>Venture Initiation</td>
<td>3</td>
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</tbody>
</table>

C. Support Recommendations (29 Credit Hours Recommended)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>TECH 397</td>
<td>Cooperative Education</td>
<td>3</td>
</tr>
<tr>
<td>TECH 493</td>
<td>Workshop</td>
<td>9</td>
</tr>
</tbody>
</table>

**Contact the Technology Department for a list of recommended courses.

B.S. INDUSTRIAL TECHNOLOGY (IT) DEGREE PROGRAM

Industrial Technology is a field of study designed to prepare technical/management-oriented professionals for employment in business, industry, and government. The curriculum is organized into three integrated technology areas: Electronics and Control, Graphic Communication, and Manufacturing.

Required 125 credit hours, and including:

I. Essential Studies Requirements, see University ES listing.
II. The College of Business and Public Administration GPA Graduation Requirement (2.50), see College section.
III. Industrial Technology Major Program Requirements: At least a 2.50 GPA in courses that apply toward the degree and major, and the following:
A. Technical Foundation Requirements (17 Credit Hours Required)

TECH 110 .... Fundamentals of Technology .................................................(2)
TECH 122 .... Computer Aided Design/Drafting .................................................(3)
TECH 201 .... Electromechanical Fundamentals .................................................(3)
TECH 202 .... Advanced Application of CADD Techniques .........................(3)
TECH 203 .... Production Processes: Manufacturing .......................................(3)
TECH 212 .... Principles of Graphic Design and Print Production ..........(3)

B. Management Foundation Requirements (21 Credit Hours Required)

TECH 300 .... Technology and Society ......................................................(3)
TECH 330 .... Quality Assurance ................................................................(3)
TECH 340 .... Cost Estimating ....................................................................(3)
TECH 420 .... Facilities Design ....................................................................(3)
TECH 433 .... Manufacturing Strategies .......................................................(3)
OSEH 440 .... Industrial Safety ....................................................................(3)
TECH 450 .... Senior Capstone .................................................................(3)

IV. Selected Electives for Industrial Technology Majors (18 Credit Hours)

Emphasis may be chosen from the following Technology Systems areas; however, a minimum of one course having each of the third digit 1, 2, and 3 must be included.

Electronics and Control Technology
TECH 211 .... Electric Circuits and Devices .........................................................(3)
TECH 311 .... Microcomputer Hardware ............................................................(3)
TECH 341 .... Digital Integrated Circuits ..............................................................(3)
TECH 451 .... Control Systems .........................................................................(3)

Graphic Communication Technology
TECH 302 .... Web Page Design .....................................................................(3)
TECH 322 .... Fundamentals of Photography ....................................................(3)
TECH 332 .... Technical Design ........................................................................(3)
TECH 422 .... Digital Photography and Imaging ..............................................(3)
TECH 442 .... Advanced Graphic Design and Print Production ..............(3)
TECH 452 .... Multimedia Production .............................................................(3)

Manufacturing Technology
TECH 204 .... Industrial Materials and Testing .............................................(3)
TECH 213 .... Production Processes: Construction .......................................(3)
TECH 223 .... Applied Synthetics ......................................................................(3)
TECH 373 .... Manufacturing Automation Systems ........................................(3)
TECH 403 .... Product Research & Development .............................................(3)

General Major Electives
TECH 397 .... Cooperative Education ...............................................................(3)
TECH 493 .... Workshop .................................................................................(1-6)
TECH 497 .... Directed Studies in Technology ................................................(1-4)

V. Required Support Courses: Select from the following or higher level (36 hours minimum)

ISYS 117 .... Personal Productivity with Information Technology .........................(1)
Math 103 .... College Algebra .........................................................................(3)
Math 105 .... Trigonometry .............................................................................(3)
Math 146/165 .... Applied Calc/Calc I .................................................................(3-4)
Chem 121/121L .... General Chemistry I .........................................................(4)
Phys 161/161L .... Introduction to College Physics ...........................................(4)
Phys 162/162L .... Introduction to College Physics ...........................................(4)
Econ 210 .... Introduction to Business and Economic Statistics ......................(3)
Mgmt 300 .... Principles of Management .........................................................(3)
Mgmt 301 .... Production Management ..........................................................(3)
Mgmt 302 .... Human Resources Management .............................................(3)

And Either
Mkt 305 .... Marketing Foundations ...............................................................(3)
Phil 370 .... Ethics in Engineering and Science ...............................................(3)

Seniors are encouraged to apply for the Certified Industrial Technologist (CIT), offered by the National Association of Industrial Technology (NAIT). Those in Manufacturing and Electronics & Control Technology are required to take the Certified Manufacturing Technology (CMfgT) examination, conducted by the Society of Manufacturing Engineers (SME) or the Certified Quality Technician examination, conducted by the American Society of Quality Control (ASQ).

B.S. INDUSTRIAL TECHNOLOGY (TECH)
Technology Teacher Certification

Students preparing for a career in technology teacher education will complete the following coursework with teacher certification preparation through the College of Education and Human Development.

Required 125 credit hours, and including:

I. Essential Studies Requirements, see University ES listing.

II. The College of Business and Public Administration GPA Graduation Requirement (2.50), see College section.

III. Technology Teacher Certification Major Program Requirements: At least a 2.75 GPA in courses that apply toward the major, and the following:

A. Technical Foundation Requirements (17 Credit Hours Required)

TECH 110 .... Fundamentals of Technology .........................................................(2)
TECH 122 .... Computer Aided Design/Drafting .........................................................(3)
TECH 201 .... Electromechanical Fundamentals .........................................................(3)
TECH 202 .... Advanced Application of CADD Techniques .........................(3)
TECH 203 .... Production Processes: Manufacturing .............................................(3)
TECH 212 .... Principles of Graphic Design and Print Production ..........(3)

B. Teacher Certification Foundation Requirements (21 Credit Hours Required)

TECH 300 .... Technology and Society .............................................................(3)

Four courses (12 credits) to be selected from the Technology Education online program at Valley City State University. Courses selected in consultation with an advisor and dependent on Certification Track: Elementary, Middle School or Secondary.

OSEH 440 .... Industrial Safety ....................................................................(3)
TECH 450 .... Senior Capstone .................................................................(3)

The teacher certification program offers students an opportunity to major in Industrial Technology and to complete the Secondary Education program of the Department of Teaching and Learning (see the Teaching and Learning section). Successful completion of the requirements of both programs qualifies the student for teacher certification in Technology Education. Successful completion of the BSIT Selected Electives section IV requirements must include the following:

TECH 211 .... Electric Circuits and Devices .........................................................(3)
TECH 204 .... Industrial Materials and Testing .............................................(3)
TECH 213 .... Production Processes: Construction ...........................................(3)
TECH 223 .... Applied Synthetics ......................................................................(3)
TECH 400 .... Teaching Technology Education .........................................................(3)
TECH 403 .... Product Research and Development .............................................(3)
TECH 416 .... Innovations in Technology (VCUSU online course) .................(3)

IV. Selected Electives for Industrial Technology Majors (3 credit hours)

Courses may be chosen from the following Technology Systems areas; however, a minimum of one course having each of the third digit 1, 2, and 3 must be included.

Electronics and Control Technology
TECH 211 .... Electric Circuits and Devices .........................................................(3)
TECH 311 .... Microcomputer Hardware ............................................................(3)
TECH 341 .... Digital Integrated Circuits ..............................................................(3)

Graphic Communication Technology
TECH 302 .... Web Page Design .....................................................................(3)
TECH 322 .... Fundamentals of Photography ....................................................(3)
TECH 332 .... Technical Design ........................................................................(3)
TECH 422 .... Digital Photography and Imaging ..............................................(3)
TECH 442 .... Advanced Graphic Design and Print Production ..............(3)
TECH 452 .... Multimedia Production .............................................................(3)

Manufacturing Technology
TECH 204 .... Industrial Materials and Testing .............................................(3)
TECH 213 .... Production Processes: Construction ...........................................(3)
TECH 223 .... Applied Synthetics ......................................................................(3)
TECH 373 .... Manufacturing Automation Systems ........................................(3)

General Industrial Electives
TECH 397 .... Cooperative Education in Industrial Technology .........................(3)
TECH 493 .... Workshop .................................................................................(1-6)
TECH 497 .... Directed Studies in Technology ................................................(1-4)

V. Teacher Certification

Students preparing for a career in technology teacher education will complete the following coursework in addition to the BSIT coursework listed in I, II, III, and IV above.

Secondary Teacher Certification Requirements

29 credits minimum, see Teaching and Learning section. Formal admission to Teacher Education is required and is normally sought while enrolled in T&L 250 and requires a minimum of 2.75 GPA. To be accepted for student teaching, a student must have a 2.75 in the major field of study and a 2.75 GPA in all coursework attempted prior to applying for student teaching. Industrial Technology majors seeking teacher certification must have an advisor from the Department of Industrial Technology and the Department of Teaching and Learning.

Secondary Education Certification Preparation Sequence

Pre-admission:
T&L 250 .... Introduction to Education .............................................................(3)
T&L 339 .... Technology for Teachers (may also be taken post-admit) .................(2)

Admission to Teacher Education is required for enrollment in all of the following courses:
T&L 345 .... Curriculum Development and Instruction .........................................(3)
T&L 350 .... Development & Education of the Adolescent ................................(3)
T&L 386* .... Field Experience, elective .........................................................(1)
MINORS IN INDUSTRIAL TECHNOLOGY:

Electronics and Control Technology, Graphic Communication Technology, Manufacturing Technology

Twenty-three (23) credits to be selected as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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Courses

110. Fundamentals of Technology. 2 credits. The study of the philosophy and objectives of technology with emphasis on the theories, principles, and concepts of technological systems in business, industry, and educational institutions. F

122. Computer Aided Design/Drafting. 3 credits. This course introduces the student to computer aided design/drafting using AutoCAD software. The course will include the study of technical drafting techniques to include blueprint interpretation, various projections, pictorials, dimensioning, developments and tolerancing. The hands on exercises and drawing problems are reflective of industry and business. F

201. Electromechanical Fundamentals. 3 credits. Prerequisites: Math 103; Co-requisite: Phys 161 or equivalent. The study of the fundamental properties of mechanical, hydraulic, and electronic/electrical systems (primarily those that revolve around Direct Current (DC) including an introduction to Programmable Logic Controllers (PLCs). Experiential learning is facilitated through the use of project design and development. F

202. Advanced Application of CADD Techniques. 3 credits. Prerequisite: TECH 122 or consent of instructor. The advanced study of computer aided design/drafting to include 3D coordinates and layout, subsurface meshes, regions, solid modeling, and connection to computer numerical control (CNC). The creation of presentation graphics using bitmap files, shading, and rendering is also presented. S

203. Production Processes: Manufacturing. 3 credits. Fundamental concepts of processing industrial materials, especially those utilized in manufacturing products, with emphasis on tools and techniques. S

204. Industrial Materials and Testing. 4 credits. The theoretical and laboratory study of the physical and chemical attributes of organic and inorganic materials for conversion into industrial materials are explored. Source, structure, characteristics, properties, and practical applications of metallic, polymer, wood, ceramic, and composite materials are introduced. Laboratory activities are designed to explore the attributes of these materials as well as to practice the material testing processes. F

211. Electric Circuits and Devices. 3 credits. Prerequisites: TECH 201 and Math 103 and 105. The subject matter Aided in this course will include: concepts, principles, and operational characteristics of electronic/electrical components-discrete and integrated devices-and circuits. Design and developmental activities are facilitated through the use of Multisim and Ultiboard. S

223. Applied Synthetics. 3 credits. Prerequisite: Chem 115/115L or 121/121L. A study of synthetic/polymer materials emphasizing identification of characteristics and properties of materials. F

300. Technology and Society. 3 credits. A lecture-recitation course emphasizing the various impacts of technology on the individual, society, environment and basic institutions. Technological matrix of various cultures. F

322. Fundamentals of Photography. 3 credits. Introduction to the concepts, processes, and applications of film and digital photography. The course consists of lecture, discussion and laboratory activities. F, SS

330. Quality Assurance. 3 credits. Prerequisite: Econ 210 or consent of instructor. Theoretical and laboratory study of industrial quality control methods, instrumentation and systems measurement techniques using data handling computer-aided methods. F

332. Technical Design. 3 credits. Prerequisite: TECH 122 and 202 or consent of instructor. This advanced technical design course integrates design history, theory, concepts, planning, application, and production through a creative and inventive process. Students will examine the forms of computer-based design systems used in the various areas of a manufacturing system and how systems can be integrated through data communication networks. Topics include NC and CNC programming and systems, computer assisted parts programming, industrial robot configurations, industrial automation applications, and integration of control systems and manufacturing technology. F

373. Manufacturing Automation Systems. 3 credits. Prerequisites: TECH 201, 203 and 122 or equivalent. The study of the fundamentals of automation as it relates to automated production environments. Students will examine the forms of computer-based automation systems used in the various areas of a manufacturing system and how systems can be integrated through data communication networks. Topics include NC and CNC programming and systems, computer assisted parts programming, industrial robot configurations, industrial automation applications, and integration of control systems and manufacturing technology. F

397. Cooperative Education. 1-6 credits. Prerequisite: Junior standing; 2.5 overall GPA, and faculty approval. A practical work experience with an approved company in business or industry, arranged by the student, faculty and employer. Repeatable to 6 credits. S/U grading. F, S, SS

400. Teaching Technology Education. 3 credits. Prerequisite: Junior standing and consent of instructor. An analysis of various methods employed in instructional technologies for industry and education. Development of methods and strategies of instruction use and ordering of instructional materials, based on behavioral objectives and classroom application of instructional techniques; lab activities. F

403. Product Research and Development. 3 credits. Prerequisite: TECH 203 or consent of instructor. The study of product development and production planning for manufacture through the application of research methodologies, design processes, and prototype development. F

420. Facilities Design. 3 credits. Prerequisite: TECH 122. Principles and applications of designing industrial/business facilities with emphasis on site location, environmental consideration, qualitative and quantitative modeling. Computer application in facility planning and quantitative analysis; lab activities. S

422. Digital Photography and Imaging. 3 credits. Prerequisites: TECH 322 or consent of instructor. This advanced course in photography is an introduction to the concepts, principles, processes, technologies and applications of digital photography and imaging. It includes the utilization of cameras, digitizing technologies, and computer software designed specifically for creating, processing and editing images. Topics include this technology’s history, ethics, legal and regulatory issues, creative and scientific processes, and applications. S

433. Manufacturing Strategies. 3 credits. Prerequisites: TECH 203 and 122 or equivalent. Theoretical and laboratory study of strategies utilized by business and industry to develop and maintain a competitive edge. Topics include lean manufacturing, Kanban, five S’s, Kaizen, pull and pull modeling, fishbone-4Ms, line balancing, and PoKayoke. S

442. Advanced Graphic Design and Print Production. 3 credits. Prerequisites: TECH 212 or consent of instructor. This lecture/lab course provides an advanced understanding of graphic design with an emphasis on strategy, concept, design, execution and print production. S

450. Senior Capstone. 3 credits. Prerequisite: Senior standing and consent of instructor. The capstone course is designed to integrate and reflect on coursework covered throughout the student’s program in order to demonstrate knowledge, understanding and competency related to the program goals. The course also facilitates students’ transition from the academic to the professional world. F

451. Computer Application and Control Systems. 3 credits. Prerequisites: TECH 201, 211, 311 and 341. A study of computer integrated systems and their designs to facilitate the manufacture and production processes. Topics covered include: Programmable Logic Controllers (PLCs); microcontrollers; touch-screens; TCP/IP; and voice control systems. Students will also utilize commercial computer-aided design tools, i.e., Multisim and Ultiboard to design, simulate, and test manufactured systems. S

452. Multimedia Production. 3 credits. Prerequisites: TECH 302 or consent of instructor. This advanced graphics course is designed to explore multimedia production technologies, concepts, processes, methods and techniques. The course provides hands-on experience applying multimedia technology to integrate graphics, text, sound and video into meaningful productions. S

493. Workshop. 1-6 credits. A workshop course on a specific topic, primarily for, but not limited to, Continuing Education. F, S, SS

497. Directed Studies in Technology. 1-8 credits. Prerequisites: Junior standing and instructor consent. Studies in topics relevant to the students’ needs in selected topics including, but not limited to, Graphics, Electronics, Production, and Technology Education. F, S, SS
Theatre Arts
(Thea)

http://www.und.edu/dept/dtheater/

Burgess, Cherry, McLennan (Chair) and Reissig

The mission of the Department of Theatre Arts is to achieve the following: 1) empower students to discover and fulfill their own potential as artists for the enrichment of the global community; 2) engage in a dialogue of ideas about the complex human condition through research, scholarship, and creative work within the campus community and throughout the world; and 3) develop in students a sense of social responsibility and arts advocacy through service to the community, region, and state.

The Department of Theatre Arts strives to promote integration of the creative arts for the campus, community and region by fostering a climate of creativity and cultural enrichment, and instilling an appreciation and understanding of theatre and drama in our students, faculty and the community. While serving the university academically and culturally, the theatre offers diverse practical and aesthetic assets whether the student has professional or non-professional aspirations. Participation and training in theatre arts leads the student to an understanding of the creative process in the performance and the technical areas of the theatre arts.

The University of North Dakota is accredited by the National Association of Schools of Theatre (NAST). The curriculum of the Department of Theatre Arts provides students with opportunities to pursue a Bachelor of Fine Arts, a Bachelor of Arts, or a Minor. The Department offers a Master of Arts degree at the graduate level (see Graduate section for details). All undergraduate theatre majors share a common set of core courses. The Bachelor of Arts offers a well-rounded curriculum for theatre majors. The Bachelor of Fine Arts in Performance is a pre-professional acting degree that requires a higher level of proficiency in theatrical performance and is an appropriate preparation for students who desire acting careers.

The Department of Theatre Arts integrates the classroom curriculum with applied, experiential learning in production. Our production season offers a rich variety of styles and genres, including musicals. Student directors and designers may apply to stage a production in the Studio Theatre.

The Burtness Theatre facility and the adjacent Chandler Hall house offices, labs, and classrooms for Theatre Arts. The Burtness Theatre building boasts a fully-equipped, 365 seat, proscenium-stage, a set-construction shop, a costume shop, and a 100-seat Studio Theatre. Chandler Hall is home to an acting/movement and voice studio, a high-tech lecture classroom, a computer design studio, a conference room, rehearsal space, student stage manager and publicity offices, a student lounge, and faculty offices.

The Bachelor of Fine Arts in Performance is offered to students with marked abilities who desire an intensive undergraduate concentration in Theatre Arts, in preparation for either a career in professional theatre, or graduate study leading to the MFA, or both. Candidates accepted for the program will be expected to maintain a high standard of excellence and to demonstrate significant artistic growth.

Candidates seeking admission to the BFA program must submit an application spring semester of their sophomore year to the chairperson who will then schedule an audition and personal interview for the candidate with the Theatre Arts faculty. BFA applications are generally accepted in March with screening held in April. Upon acceptance, the student will be assigned to the BFA faculty adviser. Each student will be reviewed annually by Theatre Arts faculty who will make a recommendation concerning the student’s status in the BFA program based on the student’s performance in classes and in production activities. If probation is recommended, students may apply for readmission at the completion of a full semester of satisfactory work. Readmission will be contingent upon faculty evaluation.

As part of the department’s outcomes assessment plan, all Theatre Arts majors are required to complete an exit interview, an attitudes survey upon entrance to and completion of the degree, along with various other assessment tools beyond those specifically listed for BFA students. For complete information concerning outcomes assessment in Theatre Arts, consult the departmental chairperson.

College of Arts and Sciences

B.F.A. IN PERFORMANCE WITH A MAJOR IN THEATRE ARTS

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. General Education Requirements (see University GER listing): 39 credit hours.

II. The Following Curriculum:

A. Core I (courses normally taken during the first year of study): 19 credits

Thea 122 .............. Makeup for Theatre and Television ........................................ (1)

Thea 130 .............. The Art and Craft of Theatre ................................................... (3)

Thea 161 .............. Acting I .................................................................................. (3)

Thea 201 .............. Theatre Practicum ................................................................. (3)

Thea 250 .............. Readings in Dramatic Literature ............................................. (3)

Thea 260 .............. Costume Craft ...................................................................... (3)

Thea 270 .............. Stagecraft ............................................................................ (3)

B. Core II (courses normally taken during the second year of study): 18 credits

Thea 230 ......... Text Analysis ........................................................................... (3)

Thea 300 .............. Play Direction I ........................................................................ (3)

Thea 330 .............. Contemporary Theatre .......................................................... (3)

Engl 315/316 ....... Shakespeare ........................................................................ (3)

Thea 423 .............. History of the Theatre: Classical, Medieval, Renaissance ......... (3)

Thea 424 .............. History of the Theatre: 17th Century to the Present ................. (3)

C. Acting, Voice, and Movement Sequences: 31 credits

Thea 120 .............. Voice and Movement I ......................................................... (2)

Thea 162 .............. Introductory Acting II ............................................................ (3)

Thea 220 .............. Voice and Movement II .......................................................... (2)

Thea 271 .............. Intermediate Acting I ............................................................ (3)

Thea 272 .............. Intermediate Acting II ............................................................. (3)

Thea 320 .............. Voice and Movement III ......................................................... (3)

Thea 371 .............. Advanced Acting I ................................................................. (3)

Thea 372 .............. Advanced Acting II ................................................................. (3)

Thea 420 .............. Voice and Movement IV ......................................................... (2)

Thea 471 .............. Advanced Acting III ............................................................... (3)

Thea 481 .............. Theatre Practicum ................................................................. (1)

Thea 494 .............. Senior Project ....................................................................... (4)

D. Electives: 12 credits from the following:

Thea 222 .............. Advanced Makeup .................................................................. (1)

Thea 229 .............. Creative Dramatics (on demand) ............................................. (3)

Thea 325 .............. Scenecraft ............................................................................ (3)

Thea 326 .............. Lighting for Stage I ................................................................. (3)

Thea 339 .............. Production Design ................................................................. (3)

Thea 404 .............. Acting for the Music Theatre .................................................. (3)

Thea 425 .............. Directing II ........................................................................... (3)

Thea 426 .............. Scene Design ........................................................................ (3)

Thea 427 .............. Costume Design .................................................................. (3)

B.A. WITH A MAJOR IN THEATRE ARTS

Required 125 credits (36 of which must be numbered 300 or above, and 60 of which must be from a 4-year institution) including:

I. General Education Requirements (see University GER listing).

II. Level II proficiency in a foreign language.

III. 8 additional hours in the same or a second foreign language or 8 additional hours in a cognate area: courses to be approved by adviser (suggested cognate course topics include: Women’s Studies, Minority Studies, Anthropology, English, Psychology, Computer Science, Indian Studies, Peace Studies, Music, Communication, Visual Arts, etc.)

IV. The following curriculum: 32 credits, including:

Thea 130 .............. The Art and Craft of Theatre .................................................. (3)

Thea 161 .............. Acting I ............................................................................... (3)

Thea 201 .............. Theatre Practicum ................................................................. (2)
229. Creative Dramatics. 3 credits. The study of theatre games, improvisations and techniques as they relate to the education and development of creativity in children. On demand.

230. Text Analysis. 3 credits. Prerequisite: Thea 130. An analysis of the dramatic text from the standpoint of production and performance. F

241. Jazz Dance I. 2 credits. This course is designed to introduce the student to techniques and principles characteristic of jazz dance. Students will execute movements in a variety of jazz styles. Emphasis will be placed on movement fundamentals, flexibility, endurance, dynamic range, and strength. F

271. Intermediate Acting I: The Actor in You. 3 credits. Prerequisites: Thea 161 or 162 or consent of instructor. An introduction to the Meisner Technique with special emphasis on working together and discovering your truth in your art. Students are advised to enroll concurrently in Thea 120. F

272. Intermediate Acting II: The Meisner Challenge. 3 credits. Prerequisite: Thea 271 or consent of department. Special problems and challenges for the actor to overcome through advanced study in the Meisner Technique. Primary focus on emotional preparation. Students are advised to enroll concurrently in Thea 220. S

300. Play Direction I. 3 credits. Prerequisites: Thea 161 and two credits in dramatic literature, or equivalent acting experience, or consent of instructor. Principles and techniques of directing for the theatre. Student laboratory directing experiences. F

326. Lighting for Stage I. 3 credits. Prerequisite: Thea 270. The principles, mechanics and design of stage and lighting; its relationship to set, makeup and costume design; plus laboratory participation in University productions. S/2

339. Production Design. 3 credits. Prerequisites: Thea 130, 226, 270, and 300, or consent of instructor. The development of the entire theatrical event, from conception to closing, with particular attention to the collaboration of various artists, craftpersons, and managers. S

340. Ballet II. 2 credits. Prerequisites: Thea 240 or consent of instructor. Ballet II is a continuation of Ballet I. Students will continue to develop advanced ballet skills and technique in relationship to form, strength, flexibility, center, line, choreography and physical expression. S

341. Jazz Dance II. 2 credits. Prerequisites: Thea 241 or consent of instructor. This course is designed to be a continuation of Thea 241. Students continue to explore the principles and techniques characteristic of jazz dance through a variety of jazz dance styles. Emphasis will be placed on applying efficient form and dynamic energy to intermediate level movement combinations in center and across the floor. F

342. Modern Dance. 2 credits. Prerequisites: Thea 241 or 242 or consent of instructor. Students continue to explore the principles and techniques characteristic of modern dance through a variety of dance styles. Emphasis will be placed on applying efficient form and dynamic energy to intermediate level movement combinations in center and across the floor. S

343. Dance Composition. 2 credits. Prerequisite: Thea 342, Modern Dance. Introduction to the tools for creating concert dances, emphasizing the manipulation of space, time and energy; focus will be on short solo and duet compositions. F

350. Dramatic Production and Criticism. 3 credits. Prerequisites: Thea 130 and 250, or consent of instructor. An examination of the principles of production criticism and the application of those principles to a series of theatrical productions. F/2

371. Advanced Acting I: The Psychology of Acting through Advance Scene Study. 3 credits. Prerequisites: Thea 272 or consent of department. An introduction to the psychology of performance and an exploration of skills from Thea 271 and 272 to contemporary realist scripts making advanced demands on the actor. Students are advised to enroll concurrently in Thea 320. F

Courses

110. Introduction to Theatre Arts. 3 credits. Basic orientation and historical perspective to theatre arts. Study of the roles of playwright, director, actor, designer, producer, and audience members in current theatre practice. Course will include attendance at area performances. Course includes 16 hours of experiential work in scene/costume shop or on a production. F, S

120. Voice and Movement I. 2 credits. Development of the student's physical and vocal awareness. Emphasis on freeing the actor and identifying personal habitual response patterns. F

122. Makeup for Theatre and Television. 1 credit. Principles of theatrical and television makeup with practical experience in the classroom. F, S

130. The Art and Craft of Theatre. 3 credits. Introduction to basic principles, theory, and techniques of theatre performance. Examines theatre with emphasis on participatory roles. For prospective majors and minors. F

161. Acting I. 3 credits. Basic principles of acting with emphasis on movement; basic character development through improvisation and script. F, S

162. Introductory Acting II: Playing the Part. 3 credits. Prerequisites: Thea 161 or consent of instructor. A continuation of Theatre 161, integrating the creative process in acting with the dramatic text. S

201. Theatre Practicum. 1 credit. Participation in theatre pre-performance and performance capacities, both technical and acting, under faculty direction. Repeatable to 8 hours. F, S

210. Selected Topics in Theatre. 1-3 credits. Repeatable up to 9 credits. Topics of special interest to faculty and students, such as Stage Management, and others. On demand.

220. Voice and Movement II. 2 credits. Prerequisites: Thea 120 or consent of instructor. A continuation of Thea 120 with a focus on freeing the channel for sound, range, resonance, tone, economy of movement, neutral mask and movement improvisation. S

222. Advanced Makeup. 1 credit. Prerequisite: Thea 122 or consent of instructor. A continuation of 122 with emphasis on various prosthetic techniques, mask building, and non-realistic styles.

MINOR IN THEATRE ARTS

Required 23 credits, including:

Thea 130................ The Art and Craft of Theatre ...................................... (3)
Thea 161................ Acting I .................................................................. (3)
Thea 201................ Theatre Practicum ..................................................... (3)
Thea 330................ Contemporary Theatre ............................................. (3)

3 hours from the following:

Thea 260.............. Costume Crafts ......................................................... (3)
Thea 270.............. Stagecraft ................................................................. (3)

3 hours from the following:

Thea 423.............. History of Theatre ...................................................... (3)
Thea 424.............. History of Theatre II: 17th Century to the Present ....... (3)

4 hours from the following:

Thea 122.............. Makeup for Theatre & Television ......................... (1)
Thea 222.............. Advanced Makeup ..................................................... (1)
Thea 229.............. Creative Dramatics (on demand) .............................. (1)
Thea 271.............. Intermediate Acting .................................................. (1)
Thea 325.............. Scenecraft ................................................................. (1)
Thea 326.............. Lighted Stage I ............................................................ (1)
Thea 425.............. Play Direction II .......................................................... (1)
Thea 427.............. Costume Design ........................................................ (1)
Thea 481.............. Theatre Practicum ..................................................... (1)
Thea 488.............. Playwriting ................................................................. (1)

3 credits. Basic principles of acting with emphasis on movement; physical emphasis on creativity and originality. F

3 credits. Prerequisite: Thea 120 or consent of instructor. A continuation of Thea 120 with a focus on freeing the channel for sound, range, resonance, tone, economy of movement, neutral mask and movement improvisation. S

Thea 222.............. Advanced Makeup ..................................................... (1)

Theatre 122.............. Makeup for Theatre and Television ................. (1)

Theatre 122.............. Advanced Makeup ................................................ (1)

Theatre 122.............. Creative Dramatics (on demand) ...................... (1)

Theatre 271.............. Intermediate Acting ............................................. (1)

Theatre 325.............. Scenecraft ............................................................. (1)

Theatre 326.............. Lighted Stage I ....................................................... (1)

Theatre 425.............. Play Direction II ..................................................... (1)

Theatre 427.............. Costume Design .................................................. (1)

Theatre 481.............. Theatre Practicum ............................................... (1)

Theatre 488.............. Playwriting ............................................................. (1)
372. Advanced Acting II: Acting Styles. 3 credits. Prerequisite: Thea 371 or consent of department. Intensive study, research in, and performance of a variety of advanced theatrical arts and styles. Students are advised to enroll concurrently in Thea 420. S.

397. Cooperative Education. 1-6 credits, repeatable to 12. Prerequisites: 2.5 GPA, junior standing. A practical work experience with an employer closely associated with the student’s academic area. Arranged by mutual agreement among student, department, and employer.

404. Acting for the Music Theatre. 3 credits. Prerequisite: Consent of instructor. Appreciation of and performance techniques for musical theatre including: voice and movement work, acting, and staging. S/2

415. Selected Problems in Theatre Arts. 1-3 credits. Repeatable up to 9 credits. Topics of special interest to faculty and students, such as Theatre Management, Women’s Issues in Drama, Polish Theatre and Drama, Improvisation, Scene Painting, and others. On demand.

420. Voice and Movement IV. 2 credits. Prerequisite: Thea 320. A continuation of Thea 320 with emphasis on advanced voice and movement skills. S.

422. American Theatre History. 3 credits. The development of Theatre Arts in America from Colonial times to the present. On demand.

423. History of the Theatre: Classical Medieval and Renaissance. 3 credits. The theatre in performance. The origins of theatrical forms and their relationships to acting style, physical theatre and audience with the cultural environment. F

424. History of the Theatre: Seventeenth Century to the Present. 3 credits. A continuation of topics covered in Thea 423 beginning with the Seventeenth Century and continuing to the present. Student need not take Thea 423 prior to enrolling in Thea 424. S.

425. Play Direction II. 3 credits. Prerequisite: Thea 300 or consent of instructor. A continuation of Thea 300 with emphasis on contemporary theories, analysis, research, conceptualization, and implementation. Laboratory experience. S.

426. Scene Design for the Stage. 3 credits. Repeatable up to 6 hours. The analysis, research, and conceptualization of the physical context of theatre productions. Emphasis on individual creative projects. F

427. Costume Design. 3 credits. Prerequisites: Thea 226, 270, or equivalent. Repeatable up to 6 credits. Elements, principles, and styles of design applied to the visual creation of a dramatic character. S

441. History of Dance. 3 credits. History of dance in Western cultures, specifically ballet and modern dance forms, from the Renaissance to present. Focusing on leading dance artists and their influence on dance and the related arts. S.

442. Choreography. 3 credits. Prerequisite: Thea 342, Dance Composition. Application of compositional principles to small groups of dancers with emphasis on other art forms and literary sources for motivation of thematic intent, movement style, and overall design. S.

471. Advanced Acting III: Shakespeare. 3 credits. Prerequisites: Thea 372 or consent of department. A detailed examination of Shakespeare in performance. F.

481. Theatre Practicum. 1-2 credits. Repeatable up to 8 hours. Projects in all areas of theatre and interpretation in a supervisory capacity. Specific assignments in production/planning with faculty approval. F, S.

488. Playwriting. 3 credits. Repeatable up to 6 hours. Prerequisites: Sufficient background in theatrical arts and creative writing and consent of instructor. The playwright’s problems as revealed through practice of writing plays; experimental productions of the student’s creative work whenever possible. F, S.

494. Senior Project. 4 credits. Individual work in an approved area. F, S.

Women Studies (WS)
http://www.und.edu/dept/women

Women Studies at the University of North Dakota is an interdisciplinary academic program which includes courses from the traditional disciplines, as well as an introductory course, a theory course, and a senior study offered through the College of Arts and Sciences. In Women Studies courses, women are the subject rather than the object of study. Using gender as a category of analysis, courses examine women’s experiences and the institutions and systems that affect women’s lives and, as well, examine how women in turn have shaped these institutions and systems to meet their and society’s needs. These understandings are as important for men as for women.

The Women Studies Program at UND was established in 1982, and a minor was approved by the Board of Higher Education in 1984. Students planning careers in law, business, medicine, education, service, and the sciences find a minor in Women Studies to be a useful complement. Other students choose Women Studies courses to provide coherence in their Essential Studies Requirements. The Interdisciplinary Studies Program includes an option for a major in Women Studies.

College of Arts and Sciences

MAJOR IN INTERDISCIPLINARY STUDIES: WOMEN STUDIES

I. Essential Studies Requirements (see University ES listing).

II. Interdisciplinary Studies Program Requirements:

A minimum of 36 credits, including:

IDS 280 ......... Leadership Across Disciplines (1-3) ............... (3)
IDS 491 ............ Capstone Interdisciplinary Seminar (not repeatable) (1-3)
IDS 498 ............ Senior Project (repeatable to 6) .................... (3)

In addition, students prepare a program of study listing the courses to be used to complete major requirements, which must be approved by an IDS adviser and the IDS Executive Committee before no more than a third of the courses have been completed.

III. Women Studies Requirements (21 credits min.):

WS 225 .......... Introduction to the Study of Women ................. (3)
WS 480 .......... Feminist Theory ........................................... (3)
Engl 357 ......... Women Writers and Readers (repeatable within topics) (3)
Hist 332 .......... Women in American History to 1865 ............. (3)
Hist 333 .......... Women in American History since 1865 ........ (3)
MINOR IN WOMEN STUDIES

Twenty credits of courses in Women Studies completed with a GPA of at least 2.0 are required for the minor.

I. Required courses (total credits 6):

WS 225 Introduction to the Study of Women (3)
WS 480 Feminist Theory (3)

II. At least three of the following (total credits 9):

Engl 357 Women Writers and Readers (may be repeated once when topics vary) (3)
Hist 332 Women in American History to 1865 (3)
Hist 333 Women in American History since 1865 (3)
Rels 116 Women and Religion (3)
Soc 340 Sociology of Gender and Sex Roles (3)

III. At least five hours from the following and/or from courses in various departments cross-listed each semester in the Time Schedule of Classes:

A&S 492 Senior Study: Women’s Studies (1-4)
Comm 310 Media and Diversity (3)
CJ 361 Victimology (3)
IS 346 Contemporary Indian Women (3)
Soc 335 The Family (3)

Students may declare a major or minor through the College of Arts and Sciences and should also contact the Director of Women Studies to design a program of study.

Courses

225. Introduction to the Study of Women. 3 credits. An introduction to the study of women as subjects of scholarly inquiry, with emphasis on assessments of women’s contributions to Western culture. The course will provide an interdisciplinary focus on the central issues and questions posed by the new scholarship on women, and introduce students to the perspectives and methodologies of a variety of disciplines. F, S

480. Feminist Theory. 3 credits. Prerequisite: WS 225. Feminist theory examines the foundations of American feminism from enlightenment liberal to postmodern and standpoint theories. The course first develops then critiques these fundamental approaches. Opportunities are provided to integrate mainstream and marginal experiences of feminist theory and its practice.

492. Senior Study: Women Studies. 1-4 credits. Prerequisite: WS 225. Supervised independent study involving a theory paper, practicum experience, or a combination of the two.
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(Also see the Index beginning on page 396 of this catalog to find the location of more specific subject matter than is listed in this contents.)
THE GRADUATE SCHOOL MISSION

The Graduate School has responsibility for all graduate work at the University except for that leading to the Doctor of Medicine (M.D.) and Juris Doctorate (J.D.). It is the purpose of the Graduate School to provide opportunity for advanced study beyond the limits of undergraduate courses, to make available the resources of the University in such combinations as will meet the occupational, intellectual, and cultural needs of qualified post-baccalaureate students, and to encourage original investigation and creative scholarship. The University of North Dakota offers the largest and most diversified graduate school in the region. A number of unique facilities and support resources augment the instructional and research program. In addition, the Graduate School offers extensive off-campus program offerings through the Division of Continuing Education.

THE GRADUATE SCHOOL: GENERAL INFORMATION

The Graduate School provides qualified post-baccalaureate students with the opportunity for advanced study toward a graduate degree. The Graduate School promotes excellence in scholarship and creativity, and encourages original research and competency in technical and professional fields. It is responsible for general supervision of all graduate activity in the departments, schools, and colleges of the University.

The majority of the graduate courses are offered on the Grand Forks campus; however, each semester some graduate courses are offered off campus through cooperative agreements between the Graduate School and the UND Division of Continuing Education. A number of distance degree programs are offered throughout the state of North Dakota. Students wishing to enroll in distance courses and programs must follow all graduate school policies and procedures.

The Graduate School is a member of the Midwest Association of Graduate Schools, the Western Association of Graduate Schools, the American Indian Professional Association, the National Association of Graduate Admissions Professionals, and the Center for Academic Integrity. The Graduate School is one of the one hundred charter members of the Council of Graduate Schools in the United States.

The Dean is the chief administrative officer of the Graduate School. Graduate School policy is set by the Graduate Faculty which is made up of the President, the Vice President for Academic Affairs, the Dean of the Graduate School, and members of the University faculty who have been approved for membership on the Graduate Faculty. Approximately 525 faculty are members of the Graduate Faculty. A full listing of the Graduate Faculty is available on the Graduate School website: http://graduateschool.und.edu.

The Graduate Committee is the executive body of the Graduate Faculty. It is composed of the Graduate Dean, the Associate Dean, thirteen faculty members, that are elected by the Graduate Faculty to represent each of the academic areas, and one student member. The Committee formulates Graduate School policy, monitors program development on behalf of the Graduate Faculty, and serves as an appeal board for student petitions. Only members of the Graduate Faculty normally may serve on Faculty Advisory Committees and serve as advisors for graduate students.

GRADUATE SCHOOL ACADEMIC AREAS

The Graduate School is organized into thirteen academic areas. These areas and the programs or departments that comprise them are listed below.

Aerospace Sciences: Atmospheric Sciences, Aviation, Earth Systems Science & Policy, Space Studies
Basic Medical Sciences: Anatomy & Cell Biology, Biochemistry & Molecular Biology, Microbiology & Immunology, Pharmacology, Physiology & Therapeutics
Education: Educational Foundations & Research, Educational Leadership, Instructional Design & Technology, Teaching & Learning
Engineering: Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering
Fine Arts: Art, Music, Theatre Arts
Health Professions: Clinical Laboratory Science, Occupational Therapy, Physical Therapy, Physician Assistant
Human Development: Communication Sciences & Disorders, Counseling, Physical Education, Exercise Science & Wellness, Social Work
Humanities: History, Indian Studies, Philosophy & Religion
Mathematics and Natural Sciences: Biology, Chemistry, Computer Science, Geology & Geological Engineering, Mathematics, Physics
Nursing: Family & Community Nursing, Nutrition & Dietetics, Practice & Role Development (Nursing)
Social Sciences: Anthropology, Criminal Justice, Geography, Political Science, Public Administration, Psychology, Sociology
Speech and Language: Communication, English, Languages, Linguistics

THE GRADUATE COMMITTEE

The Graduate Committee is the executive council of the Graduate Faculty. In this capacity it is advisory to the Dean of the Graduate School and serves as the Graduate School Curriculum Committee. The Graduate Committee is responsible for hearing appeals of decisions on student academic matters rendered by the Dean of the Graduate School. The voting membership of the Graduate Committee consists of thirteen full members of the Graduate Faculty. These thirteen members of the Graduate Committee are elected by those members of the Graduate Faculty from each of thirteen academic areas, with each person elected to serve a three-year term. Non-voting ex officio members of the Graduate Committee include the Dean of the Graduate School, any Associate Dean(s), and the appointed graduate student member. The graduate student member must be enrolled in the Graduate School and will serve a one-year term. The membership roster of the Graduate Committee is available from the Graduate School and is posted on the Graduate School web site.

RESEARCH AND SCHOLARSHIP AT UND

The faculty at the University of North Dakota are committed to the advancement of knowledge through research, and creative scholarship. High quality creative efforts are evidenced by a number of indicators including, but not limited to publications, presentations, books, performances, exhibitions, and peer reviewed grants and contracts.

The Graduate School supports research with Summer Research Professorships, which allow faculty to work with their students on research, and Summer Doctoral Fellowships, which allow Ph.D. candidates to spend full time on their research during the summer.
GRADUATE PROGRAMS AND DEGREES

The University offers programs of study leading to the doctorate in 25 fields. Fifty-seven fields offer work leading to the master's degree. Many combinations of major and minor or cognate work are available for the degrees mentioned above. Thesis and non-thesis programs are available. Graduate certificate programs are also available in several areas.

For information on graduate courses, prospective students should refer to the departmental statements in other parts of this Catalog. Updates may also be available on the Graduate School web site. Courses with 500 and 900 series numbers are graduate courses and are normally open only to graduate students. Only courses listed in the Graduate School Section of this Catalog carry graduate credit. Courses numbered over 300 in the Undergraduate section of this Catalog may, in certain instances, be included in a cognate area. Exemptions may apply to language courses where lower level courses are normally open only to graduate students. Only courses listed in the Graduate School Section of this Catalog carry graduate credit. Courses numbered over 300 in the Undergraduate section of this Catalog may, in certain instances, be included in a cognate area. Exemptions may apply to language courses where lower level courses may be allowed for a cognate.

ADDITIONAL INFORMATION

For detailed information students should consult the Graduate School Section of this Catalog or go to the Graduate School website at: http://graduateschool.und.edu. Address inquiries to the Dean of the Graduate School, 264 Centennial Drive, Mail Stop 8178, University of North Dakota, Grand Forks, ND 58202; Telephone (701) 777-2784; or 1-800-CALL-UND; or email at: gradschool@mail.und.edu.

GRADUATE PROGRAMS AND DEGREES

The following degree and certificate programs are offered through the UND Graduate School. Updates to this list may be found on the UND Graduate School website.

GRADUATE PROGRAMS

Accountancy
Anatomy and Cell Biology
Applied Economics
Art (See Visual Arts)
Atmospheric Sciences
Aviation
Biochemistry and Molecular Biology
Biology
Business Administration
Chemical Engineering
Chemistry
Civil Engineering
Clinical Laboratory Science
Communication
Communication and Public Discourse
Communication Sciences and Disorders
Computer Science
Counseling
Counseling Psychology
Criminal Justice
Early Childhood Education
Early Childhood/Special Education
Earth System Science and Policy
Education-General Studies
Educational Leadership
Electrical Engineering
Elementary Education
Engineering
English Language and Literature
Environmental Engineering
Forensic Psychology
Geography
Geological Engineering
Geology
History
Industrial Technology
Instructional Design and Technology
Kinesiology
Linguistics
Mathematics
Mechanical Engineering
Microbiology and Immunology
Music
Music Education
Nursing
Occupational Therapy
Pharmaceutical Therapy
Pharmacology, Physiology and
Therapeutics
Physical Therapy
Physician Assistant Studies
Physics
Psychology
Public Administration
Reading Education
Scientific Computing
Secondary Education
Space Studies
Special Education
Sociology
Social Work
Speech Pathology
Special Education

DEGREES GRANTED

The degrees conferred for graduate work are the Master of Arts (M.A.), Master of Accountancy (M.Acc.), Master of Physician Assistant Studies (M.P.A.S.), Master of Science (M.S.), Master of Education (M.Ed.), Master of Business Administration (M.B.A.), Master of Engineering (M.Engr.), Master of Environmental Management (M.E.M.), Master of Fine Arts (M.F.A.), Master of Music (M.M.), Master of Occupational Therapy (M.O.T.), Master of Public Administration (M.P.A.), Master of Science in Applied Economics (M.S.A.E.), Master of Social Work (M.S.W.), Doctor of Arts (D.A.), Doctor of Education (Ed.D.), Doctor of Philosophy (Ph.D.) and Doctor of Physical Therapy (D.P.T.). The Specialist Diploma is offered in Educational Leadership.
acted on in time for the beginning of the semester. The following three weeks before the beginning of the semester will be able to be admission, but does not guarantee that applications received less than financial aid. The Graduate School makes every effort to facilitate entry as early as possible to assure admission and full consideration for most graduate programs; however, applicants are encouraged to apply.

Please address your request to: approved combined or joint programs.

enroll in only one degree program at a time, with the exception of Dakota during their final year of undergraduate study, but must furnish proof of graduation before registration. Students are allowed to complete proof of graduation before registration. The Graduate School expects all students and faculty to be aware of its policies and procedures. Ignorance of a rule does not constitute a basis for waiving that rule.

IT IS THE RESPONSIBILITY OF THE STUDENT TO BECOME INFORMED AND TO OBSERVE ALL REGULATIONS AND PROCEDURES REQUIRED BY THE UNIVERSITY, THE GRADUATE SCHOOL CATALOG AND THE PROGRAM IN WHICH SHE OR HE IS ENROLLED. The student is responsible for reading the Graduate Catalog, all contracts for employment, the terms and conditions of any awards and correspondence from the various offices of the University. Each student who intends to present a thesis or dissertation in completion of a degree must follow the Graduate School guide to writing a thesis or dissertation. The student is responsible for knowing his or her academic standing and grade-point average. While the Graduate School attempts to notify students regarding any problems in the student’s progress toward a degree, the student alone is responsible for maintaining satisfactory academic standing and progress.

THE GRADUATE SCHOOL EXPECTS ALL STUDENTS AND FACULTY TO BE AWARE OF ITS POLICIES AND PROCEDURES. IGNORANCE OF A RULE DOES NOT CONSTITUTE A BASIS FOR WAIVING THAT RULE.

APPLICATION FOR ADMISSION TO THE GRADUATE SCHOOL

Those who have earned or will earn a four-year bachelor’s degree at a regionally accredited college or university in the United States, or the equivalent of this degree in another country, will be considered for admission to the Graduate School at UND.

Applicants may apply for admission to the University of North Dakota during their final year of undergraduate study, but must furnish proof of graduation before registration. Students are allowed to enroll in only one degree program at a time, with the exception of approved combined or joint programs.

The University of North Dakota would be pleased to receive your application for graduate study. Please address your request to:

Graduate School Admissions
University of North Dakota
264 Centennial Drive, Stop 8178
Grand Forks, ND 58202-8178
Phone (701) 777-2947, 1-800-CALL UND
FAX (701) 777-3619
E-mail: gradschool@und.edu
http://graduateschool.und.edu

APPLICATION DEADLINES

The University of North Dakota maintains flexible deadlines for most graduate programs; however, applicants are encouraged to apply as early as possible to assure admission and full consideration for financial aid. The Graduate School makes every effort to facilitate admission, but does not guarantee that applications received less than three weeks before the beginning of the semester will be able to be acted on in time for the beginning of the semester. The following programs observe specific application deadlines. Please check the Graduate School website for updates to this list, as they are subject to change.

NOTE: It is strongly recommended that you submit and complete your application at least three weeks prior to the departmental deadlines. Applications must be complete in order to receive priority consideration. Applications are complete when all materials required by the program, e.g. transcripts, recommendation letters, official test scores, written statements, etc., have been received by the Graduate School.

The following programs have specific application deadlines. All materials must be received and completed by these dates:

<table>
<thead>
<tr>
<th>Program</th>
<th>Degrees Available</th>
<th>Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Education/Cognitive/Developmental Disabilities</td>
<td>M.S., M.Ed.</td>
<td>October 15</td>
</tr>
<tr>
<td>Special Education/Emotional Disturbance</td>
<td>M.S., M.Ed.</td>
<td>February 15</td>
</tr>
<tr>
<td>Special Education/Learning Disabilities</td>
<td>M.S., M.Ed.</td>
<td>October 15</td>
</tr>
<tr>
<td>Special Education Strategist</td>
<td>M.S., M.Ed.</td>
<td>February 15</td>
</tr>
<tr>
<td>Special Education/Visual Impairment</td>
<td>M.S., M.Ed.</td>
<td>January 10</td>
</tr>
<tr>
<td>Speech-Language Pathology Teaching and Learning</td>
<td>M.S.</td>
<td>March 31</td>
</tr>
<tr>
<td>Theatre Arts</td>
<td>M.A.</td>
<td>November 1</td>
</tr>
<tr>
<td>Visual Arts</td>
<td>M.F.A.</td>
<td></td>
</tr>
</tbody>
</table>

STUDENT AND FACULTY RESPONSIBILITY

APPLIcation for admission to the Graduate School

The University of North Dakota maintains flexible deadlines for most graduate programs; however, applicants are encouraged to apply as early as possible to assure admission and full consideration for financial aid. The Graduate School makes every effort to facilitate admission, but does not guarantee that applications received less than three weeks before the beginning of the semester will be able to be acted on in time for the beginning of the semester. The following programs observe specific application deadlines. Please check the Graduate School website for updates to this list, as they are subject to change.

NOTE: It is strongly recommended that you submit and complete your application at least three weeks prior to the departmental deadlines. Applications must be complete in order to receive priority consideration. Applications are complete when all materials required by the program, e.g. transcripts, recommendation letters, official test scores, written statements, etc., have been received by the Graduate School.

The following programs have specific application deadlines. All materials must be received and completed by these dates:

<table>
<thead>
<tr>
<th>Program</th>
<th>Degrees Available</th>
<th>Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anesthesia Nursing</td>
<td>October 15</td>
<td>February 15</td>
</tr>
<tr>
<td>Biochemistry (Fall admit only)</td>
<td>February 15</td>
<td></td>
</tr>
<tr>
<td>Biology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall and Summer</td>
<td></td>
<td>February 15</td>
</tr>
<tr>
<td>Spring</td>
<td></td>
<td>October 15</td>
</tr>
<tr>
<td>Communication Sciences &amp; Disorders (Ph.D.)</td>
<td></td>
<td>February 15</td>
</tr>
<tr>
<td>Counseling (M.A.)</td>
<td></td>
<td>January 10</td>
</tr>
<tr>
<td>Counseling Psychology (Ph.D.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminal Justice (Ph.D.)</td>
<td></td>
<td>March 31</td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td>November 1</td>
</tr>
<tr>
<td>Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education: General Studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer</td>
<td></td>
<td>April 1</td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td>June 1</td>
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<tr>
<td>Spring</td>
<td></td>
<td>November 1</td>
</tr>
<tr>
<td>English (Fall admit only)</td>
<td></td>
<td>March 1</td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td>February 28</td>
</tr>
<tr>
<td>Spring</td>
<td></td>
<td>September 15</td>
</tr>
<tr>
<td>Family Nurse Practitioner</td>
<td></td>
<td>January 15</td>
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<tr>
<td>Kinesiology</td>
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<td>February 15</td>
</tr>
<tr>
<td>Linguistics</td>
<td></td>
<td>March 1</td>
</tr>
<tr>
<td>Mathematics</td>
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<td>March 23</td>
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<tr>
<td>Mechanical Engineering</td>
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<tr>
<td>Nursing - Anesthesia</td>
<td></td>
<td>October 1</td>
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<tr>
<td>Nursing - FNP (Fall admit only)</td>
<td></td>
<td>January 15</td>
</tr>
<tr>
<td>Nursing (Ph.D.)</td>
<td></td>
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<tr>
<td>Fall</td>
<td></td>
<td>April 15</td>
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<tr>
<td>Spring</td>
<td></td>
<td>November 15</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td></td>
<td>January 2</td>
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<tr>
<td>Physics</td>
<td></td>
<td>March 1</td>
</tr>
<tr>
<td>Physician Assistant Studies</td>
<td></td>
<td>March 1</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td></td>
<td>February 1</td>
</tr>
<tr>
<td>Psychology (Clinical, Experimental, General)</td>
<td></td>
<td>January 15</td>
</tr>
<tr>
<td>Psychology-Forensic (M.S.) (Fall admit only)</td>
<td></td>
<td>January 15</td>
</tr>
<tr>
<td>Psychology-Forensic (M.A.-online)</td>
<td></td>
<td></td>
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<tr>
<td>Fall</td>
<td></td>
<td>August 1</td>
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<tr>
<td>Spring</td>
<td></td>
<td>December 1</td>
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<tr>
<td>Summer</td>
<td></td>
<td>April 15</td>
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<tr>
<td>Social Work</td>
<td></td>
<td>January 15</td>
</tr>
<tr>
<td>Special Education</td>
<td></td>
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<tr>
<td>Fall</td>
<td></td>
<td>June 1</td>
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<tr>
<td>Spring</td>
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<td>November 1</td>
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<tr>
<td>Summer</td>
<td></td>
<td>April 1</td>
</tr>
<tr>
<td>Speech-Language Pathology (M.S.)</td>
<td></td>
<td>February 15</td>
</tr>
<tr>
<td>Teaching &amp; Learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td>March 31</td>
</tr>
<tr>
<td>Spring</td>
<td></td>
<td>October 31</td>
</tr>
</tbody>
</table>
Merit-based financial assistance (fellowships, scholarships, and tuition waivers) are usually awarded by April 15 for the fall semester and November 15 for the spring semester.

**MINIMUM GENERAL GRADUATE SCHOOL ADMISSION REQUIREMENTS**

1. A four-year bachelor’s degree or equivalent from a recognized college or university (for U.S. degrees, accreditation by one of the six regional accrediting associations: MSA, NASC, NCA, NEASC-CIHE, SACS-CC, or WACS-Sr.). For combined degree programs, refer to the admission requirements under each department.

2. A minimum of 20 semester credits of appropriate undergraduate work in the chosen field.

3. A cumulative Grade Point Average (GPA) of at least 2.75 for all undergraduate work (2.5 for M. Engr.) or a GPA of at least 3.00 for the junior and senior years of undergraduate work (based on A = 4.00).

   (Applicants having the equivalent of one or more years of baccalaureate work reported on a non-graded system, must submit an evaluation of the work and Graduate Record Examination scores on the General Test and the Subject Test, if offered in the discipline.)

4. ADMISSIONS TESTS. All graduate admissions tests (GMAT, GRE, TOEFL, etc.) must be sent directly by the Testing Service. The institution code for the University of North Dakota is 6878 for the GRE, TOEFL, and GMAT. The institution code for the MAT is 1380. Photocopies are not accepted. Not all graduate programs require testing for admission. Please consult the Graduate School web site (http://graduateschool.und.edu) for current information on admission tests.

   All non-native speakers of English are required to submit the Test of English as a Foreign Language (TOEFL) or equivalent. Applicants must achieve a minimum score of 550 (paper-based) or the Internet-based TOEFL the minimum scores for each category (Speaking 21/30, Listening 19/30, Reading 19/30 and Writing 17/30) to be considered for admission. UND recognizes the IELTS test with a minimum overall band score of 6.5 or successful completion of ELS Language Centers’ intensive level 112 as equivalent to TOEFL. The TOEFL or equivalent requirement will not be waived for any reason, and test scores older than two years are no longer valid. Applicants who have received a bachelor’s degree or higher from the United States, United Kingdom, Australia, or English-speaking Canada are not required to fulfill the English test requirement.

5. Transcripts, references, and/or any other materials sent prior to submission of your application, will be kept active for only 6 months. Please send all application materials directly to the Graduate School, not to the department to which you are applying. Supplemental information should be sent directly to the department. Once the Graduate School has received your application, you will be notified via e-mail. It is your responsibility to make sure the Graduate School has received all application materials; therefore, periodically checking on the status of your application is advisable. Once your application is complete, it will be forwarded to the department for evaluation. Each graduate program makes its own admission recommendation but the decision is not final until approved by the Dean of the Graduate School.

**Note:** An application is only valid for one year from the date of submission. Recommendation letters and written statements are not retained by the Graduate School once the application has been acted on. The application, evaluation & recommendation form, official transcripts, test scores and letter of offer are maintained as part of an accepted student’s academic files. Applications that have been deemed unacceptable are archived for one year and then destroyed. Students wishing to reapply to the Graduate School must re-submit new materials with the exception of official test scores. Archived files are inactive and normally will not be reopened by the Graduate School. Test scores will be retained for a period of one-year, but must be current at the time of reapplication.

6. Some programs have additional admission requirements or require supplemental information at the time of application. Please consult the individual program listings in this catalog or contact the Graduate School or program for more information.

Students who meet all of the stated admission requirements are eligible for consideration for APPROVED status admission, but are not guaranteed admission. The entering classes will be chosen from all qualified applicants on the basis of the quality of the applicants’ previous work, the adequacy of their preparation for graduate study at UND, and enrollment capacity. The Graduate School reserves the right to refuse admission to any applicant on the basis of scholastic or other reasons. Applicants who do not meet all of the above requirements for admission may be considered for QUALIFIED, PROVISIONAL, or DEFERRED admission status.

**NOTE TO INTERNATIONAL STUDENTS**

It is strongly recommended that the application be completed three months prior to the term in which the applicant wishes to matriculate.

In general, the following guidelines indicate the level of preparation expected of all applicants for admission to UND:

**India, Pakistan, Bangladesh, Nepal:** 1st Class Bachelor’s degree in engineering or medicine with a minimum of four years of study; master’s degree in all other fields.

**Other Asian countries:** Bachelor’s degree requiring a minimum of four years of study.

**British or British-patterned education:** Bachelor’s degree with honours with a minimum of four years of study.

**French or French-patterned education:** Diplôme with a minimum of four years of post-baccalaureate study.

**Other European, Latin American, Middle Eastern countries or Canada:** University degree requiring a minimum of four years of study.

Three-year Bologna process degrees from countries within the European Union will be considered on an individual basis. Three-year degrees from other countries may also be considered. Applicants may be requested to provide a World Education Services transcript evaluation in addition to official transcripts from their university.

Admission to a doctoral program may require a master’s degree. Please consult with the Graduate School for up to date information on doctoral program admission requirements.

All non-native speakers of English are required to submit the Test of English as a Foreign Language (TOEFL) or equivalent. UND recognizes the IELTS test with a minimum overall band score of 6.5 or successful completion of English Language Service (ELS) level 112 as equivalent to TOEFL.

Graduate teaching assistantships are generally unavailable to international students during their first year of study. However, an applicant with an outstanding record may be considered only if he or
she has first taken the Test of Spoken English or the SPEAK test and achieves a minimum score of 50 or scored 26/30 on the speaking portion of the iBT.

International students are required to submit a certification of finances to the Graduate School after an offer of admission has been made. Approximately $30,000 annually is required for educational and living expenses.

Applicants admitted to a graduate program will be issued an I-20 Form after all required documentation has been submitted.

APPLICATION PROCEDURE

Those who wish to be considered for graduate study are required to submit an application and supporting materials to the Graduate School. Applicants are required to use the online application which is available at: http://graduateschool.und.edu. All applicants are required to submit the following: 1) application form; 2) application fee; 3) three letters of recommendation; 4) one official copy of all academic transcripts; and 5) statement of Goals and Objectives. An application fee is required for each application submitted. The application fee is waived for McNair Scholars.

Certain graduate programs require additional materials as part of their application process, i.e., writing samples, test scores, portfolios, etc. You should contact the department or the Graduate School for more specifics.

The Graduate School inactivates files in instances when the application was denied. Individuals wishing to reapply must submit a new application including all transcripts and letters of recommendations. Test scores will be retained for a period of one year, but must be current at the time of reapplication.

Delayed Admission

An applicant who has been admitted to the Graduate School may request to delay his/her term to enter for one semester only. After this point, the applicant will be required to submit a new application packet and be re-evaluated for admission. It is the responsibility of the applicant to request an admission deferral. Failure to request a deferral can result in the applicant being denied admission at a later date.

CATEGORIES OF ADMISSION

Applicants for degree programs may be admitted to Approved, Qualified, or Provisional Status. In certain cases applicants to degree programs may be granted Deferred admission status. The Graduate School has established minimal criteria for acceptance. Individual departments may have additional requirements. The various categories of admission are detailed in the following paragraphs.

Approved Status

Students who have met the minimum admission requirements stipulated by the Graduate School and have met all departmental requirements for admission are granted admission to Approved Status. Admission to this status implies only that a student is permitted to commence graduate work which normally will lead to a degree or diploma. However, admission to Approved Status does not guarantee that a student will be allowed to become a candidate for a degree or diploma.

Qualified Status

Admission to Qualified Status may be granted to applicants who have met all requirements except for prerequisite coursework which must be completed prior to advancement to candidacy. Generally, students will not be admitted to a degree program with more than six (6) credits of outstanding prerequisites. In such cases, students can enroll in post-baccalaureate or graduate non-degree status. Upon completion of the conditions of acceptance, and provided the student has earned a GPA of at least 3.00 for all work attempted, he/she is eligible to be advanced to Approved Status. Students in qualified status may be dismissed if they fail to meet the conditions of their acceptance.

Provisional Status

Admission to Provisional Status may be granted to an applicant who has not met one or more of the general graduate school or program level admission requirements, e.g., low G.P.A., low test scores, lack of a required test, or inadequate writing skills. All non-native speakers of English are required to submit the Test of English as a Foreign Language (TOEFL) or equivalent and must meet the minimal language requirements prior to matriculation. The first obligation of students admitted to Provisional Status will be to meet all of the conditions specified at the time of admission. Students admitted to Provisional Status because of their previous GPA will be eligible for advancement to Approved Status after the completion of 9 semester hours of work if their GPA for all work attempted is at least 3.00. Students in a Provisional Status may be dismissed after one registration if their GPA is below 3.00, or if they have failed to meet other specified conditions. Students in Provisional Status are not eligible for graduate teaching, research, or service assistantships.

Deferred Admission Status

This status is reserved for applicants who intend to pursue a degree program and who are allowed to register in the Graduate School while a formal application for admission is completed and processed and eligibility is determined. Work taken in this status will not count toward a graduate degree at UND unless admission to a graduate program is secured. A Deferred Student who fails to gain admission to a graduate program by the next registration period will be considered to be in Non-Degree status. The status of those who are admitted will be converted to degree status retroactively. Students who have previously been Degree Seeking, Certificate or Non-Degree Students are not eligible for Deferred Admission status. Students in Deferred Status are not eligible for graduate teaching, research, or service assistantships.

Non-Degree Status

Applicants who wish to take graduate classes but who do not want to earn a degree are classified as Non-Degree students. All applicants for non-degree status must possess a four-year bachelor’s degree earned at an accredited U.S. institution (or equivalent degree from another country). Subject to the approval of the department and the Dean of the Graduate School, a maximum of nine (9) semester credits taken as a graduate Non-Degree student may subsequently be counted toward a graduate degree subject to all other regulations. Non-degree students are not eligible for graduate teaching, research, or service assistantships.

Post-Baccalaureate Status

The purpose of this status is to provide a procedure for individuals to take a limited amount of academic work for cultural, intellectual, and continuing education needs. A student registered in Post-Baccalaureate status may not change to another status until the completion of the term. All work taken will be graded on the Satisfactory-Unsatisfactory system and cannot be applied to any graduate degree program at the University of North Dakota. Any student who has been dismissed as a Degree Seeking, Certificate, Deferred Admission, or Non-Degree student is eligible to register in the Graduate School only as a Post-Baccalaureate student. Students in Post-Baccalaureate status are not eligible for graduate teaching, research, or service assistantships or Graduate School tuition waivers.

Transient Status

Transient students are those who are pursuing a graduate program at another university but who wish to enroll for a semester or summer session with the intent of returning to their home institu-
tions. If a Transient student elects to remain at the University of North Dakota to work toward a graduate degree, formal application for admission to a degree program will be required; subsequently, if admitted, the student may ask the Advisory Committee to accept courses taken while in Transient Status to a degree program. Transient Status students are not eligible for graduate assistantships or Graduate School tuition waivers.

REGISTRATION

UND Student Health Services Requirements: UND Student Health Services requires each student to complete a medical history and immunization record. Please complete the Health History Form and submit it to the University as soon as possible. You may pick up a Health History Form at Student Health Services or download the form in PDF format from the UND Student Health Services web site to be printed offline. If you choose to print offline, the completed form may be mailed to Student Health Services, 100 McCannel Hall, Stop 9038, Grand Forks, ND 58202-9038, or faxed to 777-4835. All students should read the Student Health Privacy Policy Acknowledgement which is available on the Student Health Services web site.

State policy requires documentation of immunity against measles, mumps, and rubella (MMR). Documentation of immunity means: a) evidence of two doses of measles, mumps, and rubella (MMR) vaccine no less than one month apart from a licensed physician or authorized representative of a state or local health department; b) proof of a positive serologic test for measles, mumps, and rubella, OR, c) proof of date of birth prior to 1957. Students will be allowed one semester to provide this information to Student Health Services and if it is not provided by then, further registration may not be allowed until proof of such immunization is provided. Exemptions for religious beliefs can be granted based on written requests. Exemptions for health reasons are also accepted when verified by a medical provider.

Other recommended immunizations include: Tetanus/Diphtheria Series and a booster within the past 10 years; Polio Series; Hepatitis B Series; Hepatitis A Series; and Varivax if you have not had a Chicken Pox vaccination. College students are also encouraged to consider being vaccinated for bacterial meningitis, a contagious disease that can cause serious health problems and which can be life threatening.

Graduate School Requirements: Any student who holds a baccalaureate degree and has established status as a Degree, Non-Degree, Deferred Admission, Post-Baccalaureate, or Transient student is eligible to enroll in a graduate course, i.e., a course numbered 500 or higher. Enrollment in certain courses may be limited to Degree Seeking students in the specific program in which the course is offered. Registration and fee payment procedures are outlined by the Office of the Registrar and published in the Schedule of Classes. Registration is complete only upon payment of tuition and fees. Registration may be cancelled by the Business Office if tuition and fees are not paid.

It is strongly recommended that students consult with their advisor before registering for classes. New students are assigned a temporary advisor at the time of admission. Only work taken as a registered Graduate Student may be credited toward a graduate degree. Students classified as Seniors may be granted graduate credit if they meet the criteria defined in the policy. Approval of the Graduate School is required and must occur prior to the time that the class is taken. Graduate credit will not be granted retroactively.

The number of credits for which a student may register is subject to certain limits. Registrations not in compliance with University, Graduate School, and departmental policies are subject to cancellation by the Graduate School Dean’s office.

Common Course Numbers

Course numbers for certain activities are uniform throughout the Graduate School and are not listed separately for each department:

- Scholarly Project, 2 credits ........................................ 995
- Continuing Enrollment, 1-12 credits ....................... 996
- Independent Study Report, 2 credits .................... 997
- Thesis, 4-9 credits .................................................... 998
- Dissertation, typically 6-18 credits ....................... 999
- Professional Internship ............................................ UNIV 994

CONTINUING ENROLLMENT - 996

Students who previously have registered for all of the necessary credits of coursework, research, Scholarly Project (995), Independent Study (997), Thesis (998), or Dissertation (999) on their approved Program of Study, but who have not completed their independent study, thesis, or dissertation, must register for 996 Continuing Enrollment for each additional semester or summer session they are utilizing university facilities or the time of the faculty, i.e., laboratories, libraries, examinations, advisement, etc.). The number of credits should be determined by the advisor to reflect the proportion of time devoted by the student to academic study that term, with a full-time student registering for 9 credits. Graduate Assistants must register for at least six (6) credits which may include a combination of formal coursework and continuing enrollment credits. Advisor verification of the appropriateness of the number of 996 credits may be required.

After two regular semesters of 6 to 9 credits in 996 for master’s students and after four regular semesters for doctoral students, a student wishing to enroll in additional 996 credits will be required to petition the Graduate School Dean.

Continuing Enrollment (996) credits will not count toward the requirements for the degree. All students must be enrolled for either 996 credits or other credits in the semester of graduation. Students may register for both regular credits and 996 credits in a given term if all other conditions have been met. Continuing Enrollment credits may be used to define a student’s enrollment status, i.e., part-time or full-time. The fee for Continuing Enrollment (996) cannot be waived.

MINORS AND COGNATES

Some degree programs require or permit academic work outside of the area of concentration (major) in a supporting area which may be called a minor area, which must consist of at least nine credit hours, or a cognate area, which must consist of at least six credits. Credits earned toward a certificate cannot apply to a minor or cognate.

A minor is a concentrated study in a specific supporting field at the graduate level. A minor must be titled and identified on the student’s program of study and be approved by a Graduate Faculty member of the minor department/program. The minor will be listed on the student’s transcript, only if the minor has been approved by the State Board of Higher Education. Only courses approved for graduate credit may be included in a minor. If the student is doing a non-thesis option, the Graduate Director of the minor department must sign and approve the program of study. For students writing a thesis or dissertation, one committee member must be on the student’s committee from the minor department.

A cognate is a selection of courses providing broad support to the major. All courses numbered 300 or above listed in this catalog, including those offered by departments or fields that do not offer graduate courses or graduate degrees, may be included in the cognate. Exceptions may apply to language courses where lower level courses may be allowed to fulfill cognate requirements (advance approval of the program and graduate dean is required.) Courses should be taken in two or three departments or fields. A cognate area will not be titled.
and will not be listed on a student’s transcript. Courses from the student’s major at the 300-400 level cannot be used as a cognate area.

The student’s major requirements consist of 500 level courses or other courses (typically 400 level) that have been approved for graduate credit. The courses that have been approved for graduate credit are listed in the Graduate section of the academic catalog after the department listings of the 500 level courses. Occasionally courses are approved for graduate credit between catalog revisions. Please contact the Graduate School if you have questions about courses that are not listed in the catalog.

NOTE: When a graduate student elects to take a 300 or 400 level course that has been approved for graduate credit or a 300 or 400 level course as part of their cognate, it is understood that the student will be required to do additional work of greater complexity, over and above that typically required of undergraduates. Usually, such work is of an independent nature. For example, if an additional research project or paper is assigned to graduate students, students may be required to explain an area of interest in greater depth than what is required of an undergraduate.

**GRADUATE COOPERATIVE EDUCATION**

Some departments offer Graduate Cooperative Education. The course must meet the following minimum requirements set by the Graduate Committee:

- The student must be in Approved status and in good academic standing (minimum 3.00 GPA).
- The student must have completed a minimum of 9 credits of the Program of Study.
- The student must have the approval of the department, i.e., department chair or graduate director, and of his/her advisor before the co-op begins.
- Proper work experience on campus may be acceptable, but not employment in the department granting the co-op credit.
- Credit will not be allowed for current career track positions.
- Typically, no more than 20% of the Program of Study will be allowed for co-op credit.
- The student will be required to present a seminar and submit a written report.
- The co-op experience must be compensated.

The Department’s requirements for registration in Graduate Cooperative Education may be more stringent than the minimums set by the Graduate School.

**CERTIFICATE PROGRAMS**

Some graduate programs offer certificate programs in addition to the degree programs. Certificate programs generally require a minimum of nine credit hours of coursework in approved graduate courses, some of which may be transferable to the parent graduate program. A minimum grade point average of 3.00 is required to earn the certificate. Only grades of “B” in courses taken as part of a certificate program may transfer to a degree program.

The purpose of a certificate program is to augment skills in an area. A student currently enrolled in a master’s program cannot obtain a certificate in the same field, with the exception of Health Administration for Public Administration students.

**GRADUATE CREDIT**

Graduate credit may be earned only by students enrolled in the Graduate School and in courses listed in the Graduate section of the Academic Catalog. Graduate level courses outside of a student’s major program are eligible for use in the major or minor of any Program of Study for a Graduate Degree, subject to the approval of the student’s advisor or Faculty Advisory Committee and the Dean of the Graduate School. All UND courses numbered 300 and above may be applied to the cognate part of a Program of Study. At least one-half of the credits for all degrees must be in courses numbered 500 or higher. Graduate courses used for credit for one degree at UND cannot be used for credit toward a second UND graduate degree. Graduate credit will not be given for courses that are not approved for graduate credit at the time that they are taken.

**ELIGIBILITY TO WORK FOR AN ADVANCED DEGREE**

Only those who have been officially admitted to the Graduate School as Degree Students on the basis of a letter from the Dean of the Graduate School may work for an advanced degree. Any conditions stipulated in the admission letter must be satisfied according to the terms of the letter. Degree or certificate students who do not satisfy the conditions of the admission letter will be dismissed. Students may petition the Graduate School for an extension if they are unable to satisfy the conditions of admission. Such petitions must be filed prior to the any deadlines that are in the admissions letter.

**ELIGIBILITY FOR FACULTY TO PURSUE GRADUATE DEGREE**

A faculty member at any rank may take coursework toward a degree at the University if he or she has the approval of the dean of his or her college or school. Members of the Graduate Faculty must also obtain approval of the Graduate Dean. Upon enrollment in a graduate program, any graduate faculty membership, and any faculty rank or role in any department in which the coursework is being taken, will be suspended. The suspended faculty rank and role, including graduate faculty membership, will be automatically reinstated upon completion of the degree program or departure from the degree program. Any member of the faculty may, with the approval of the dean and of the instructors concerned, take courses for credit as non-degree seeking students without changing his or her faculty status. Arrangements to audit classes or to take courses for credit are made through the Graduate School and/or Registrar’s Office. (Reference: UND Faculty Handbook)

**PETITIONS AND APPEALS**

Students who wish to be excused from Graduate School requirements must petition the Dean of the Graduate School on a form available from the Graduate School. The forms require the written endorsement of the advisor, instructor (if appropriate), and department chairperson or graduate program director. The student should state clearly and concisely: 1) the nature of the petition; 2) the basis for the petition, including any supporting documentation; and 3) the outcome they are seeking. Petitions should be used for exceptional circumstances. Failure to follow policies and procedures usually does not qualify as an exceptional circumstance. Graduate students or members of the Graduate Faculty may appeal decisions of the dean to the Graduate Committee.

**ACADEMIC GRIEVANCE**

An “academic grievance” is a statement expressing a complaint, resentment, or accusation lodged by a student about an academic circumstance (such as grading, testing, and quality of instruction) which is thought by the student to be unfair.

Academic issues subject to grievance procedures differ from those subject to the academic petition process. If a student thinks that a petition has not been handled fairly, the student may initiate a grievance based upon unfair treatment, but not upon the substantive issue of the petition.
The grievance process available to graduate students depends on the issue as follows:

1. Grades. An academic grievance involving the work in a course by a graduate student shall be resolved by the process prescribed by the college or school in which the course is offered. The process must commence with a discussion between the student and the instructor.

2. Issues involving Graduate School policies and procedures. Resolution of all other grievances by graduate students shall commence by discussion between the student and the party against whom the grievance is lodged. In the absence of resolution by such discussion, the grievance may be advanced by either party beginning at the next level and continuing as necessary through the persons/units/committees in the following sequence: a) advisor or advisory committee; b) the person assigned administrative responsibility for the program in which the student is a major, i.e., Graduate Program Director or in the absence of such a person, the Department Chairperson; c) the Dean of the Graduate School. Decisions of the Dean of the Graduate School may be appealed. The UND Graduate Committee serves as the appellate body for grievances related to academic decisions made by the Dean of the Graduate School. The following Guidelines are provided for individuals wishing to file a grievance involving Graduate School Policies and Procedures. Please note that the most current version of this policy is on the Graduate School web site and that the most recent version of these Guidelines supercedes earlier versions.

Guidelines for Graduate Student Grievance Hearings, University of North Dakota

(Revised by the Graduate Committee November 20, 2006)

Note: These guidelines are periodically reviewed and revised by the Graduate Committee. Please consult the Graduate School web site or contact the Graduate School for the most current guidelines.

The Graduate Committee hears grievances brought by graduate students seeking redress on academic decisions made by the Graduate Dean. This document sets out the procedures for the consideration and hearing of student grievances.

I. PRINCIPLES UNDERLYING STUDENT GRIEVANCE HEARINGS

A. The procedures should be fair and transparent;

B. Student grievances should be dealt with within a reasonable time, decisions should not be rushed, and all information relevant to reaching a fair decision should be taken into consideration;

C. A grievant may be accompanied by an advisor, who may be a lawyer, when appearing at any grievance hearing;

D. The principle parties should have equal access to relevant information and documentation;

E. An individual’s privacy and confidentiality should be respected, subject to the need for an open and fair investigation.

F. Procedures should ensure that, where a grievance is upheld, appropriate action is taken;

G. Members of a student grievance hearing panel should disclose any professional or personal relationship they may have with any of the parties;

H. Members of a student grievance hearing panel should recuse themselves if they have a conflict of interest and/or may have difficulty objectively reviewing the facts and information presented.

II. GRADUATE SCHOOL STUDENT GRIEVANCE DOMAIN AND PROCEDURES

A. The Graduate Committee will review written student grievances concerning academic decisions made by the Graduate Dean.

B. The Graduate Committee does not review the substance of grievances of course grades, allegations of academic dishonesty or scientific misconduct, matters relating to employment or assistantships, or allegations of discrimination. If it has been determined by the relevant administrators or committees that situations such as these have occurred, the Graduate Committee may review whether actions of the Graduate Dean were made on sufficient grounds.

1. Grade grievances are subject to review by the College in which the course is offered.

2. Allegations of academic dishonesty, scientific misconduct, and discrimination are subject to review by the College in which the academic dishonesty, scientific misconduct, or discrimination is said to have taken place.

C. Definitions:

1. “Graduate Dean” refers to the Dean of the Graduate School or his or her designee.

2. “Day” means normal university school day when regular classes or examinations are held, not including Saturday and Sunday.

3. A Graduate Student Grievance Hearing Panel may be convened during the summer if all the parties are available, and sufficient members of a Graduate Student Grievance Hearing Panel can be available.

4. “Grievance Hearing” is the formal meeting in which the student and other principle parties present information regarding the grievance, and the course of events that led to the filing of the grievance.

5. “Grievance Hearing Panel,” hereby known as the Panel, is the group of Graduate Committee faculty and student designee who are chosen to be present at a grievance hearing.

6. “Grievant” is the student filing the grievance.

D. A Panel consists of the Chair or Vice Chair of the Graduate Committee acting as non-voting Chair of the Panel, four voting members of the Graduate Committee and one voting graduate student (normally the Graduate Committee student member). Each Student Grievance Hearing will be heard by a separate Panel appointed by the Graduate Committee Chair. When establishing Panels, the Graduate Committee Chair will consider the expertise and experience of the members, their familiarity with student grievance hearings, the breadth of background they bring to the Panel, and the potential for perceived conflicts of interest. In the process of setting Panels, Panel members should indicate if they have any potential conflicts of interest. In the event that the Chair of the Graduate Committee is associated with the grievant’s department, or in some other way has a conflict of interest, delegation of Panel members will fall to the Vice Chair of the Graduate Committee. The grievant and the Graduate Dean may each disqualify, for any reason, up to two of the Graduate Committee members from serving on the Panel.

III. FILING A GRIEVANCE

A. A student who disputes an academic decision should first discuss his or her concerns with the Dean of the Graduate School.
B. The student must file seven copies of a Request for Grievance Hearing (see section III. D, below) stating the grounds and argumentation in support of a grievance to the Chair of the Graduate Committee, not to exceed 10 double-spaced pages excluding attachments. The Chair of the Graduate Committee will review the request to make certain it grieves an action of the Graduate Dean. Grievances that are not within the jurisdiction of the Graduate Committee will be dismissed and returned to the student.

C. A grievance hearing is not a rehearing of the case. The following shall be allowed as grounds for grievance:

1. Action of the Graduate Dean not being commensurate with the problem being addressed.
2. Decisions contrary to the weight of evidence.

D. Seven written copies of the Request for Grievance Hearing must be submitted to the Chair of the Graduate Committee no later than 20 days after receiving notification of the action that the student is seeking to be overturned or changed. The request should identify:

1. The disputed academic decision (within the jurisdiction of the Graduate Committee);
2. The person that made the decision;
3. The date the decision was made;
4. All efforts made to resolve the dispute informally and formally;
5. Information directly relevant to the Panel’s review of the grievance;
6. Relevant witnesses or individuals whom the grievant may call during the hearing;
7. Any other relevant pertinent evidence or documents;
8. The desired outcome the student is seeking as a result of a grievance hearing.

E. The Graduate Committee chair will notify the student in writing of his or her decision regarding the Request for Grievance Hearing within 5 days of receiving the request. If the Graduate Committee chair approves the Request for Grievance Hearing, the student will receive a list of prospective members of the Panel with the letter notifying them of the chair’s decision. The Recording Secretary will also send the Request for Grievance Hearing and supporting information to the Dean of the Graduate School within 5 days of the approval decision.

F. Within 10 days of receiving notice of the grievance from the Recording Secretary, the Graduate Dean will provide six copies of a written response (and supporting documents) to the Graduate Committee Chair and one copy to the grievant. The response may not exceed 10 double-spaced pages excluding attachments. The request should identify:

1. Issues raised by the grievant;
2. All efforts made to resolve the dispute informally and formally;
3. Information directly relevant to the Panel’s review of the grievance;
4. Relevant witnesses or individuals whom the Graduate Dean may call during the hearing;
5. Any other relevant pertinent evidence or documents; and
6. The desired outcome the Graduate Dean is seeking as a result of a grievance hearing.

IV. INITIAL REVIEW OF GRIEVANCES

Within 10 days of receiving the Graduate Dean’s response, the Chair of the Graduate Committee will appoint a Panel, as outlined above and communicate the names of the Panel members to the grievant and the Graduate Dean. The grievant and the Graduate Dean must inform the Chair of the Graduate Committee within 5 days if he/she wishes to disqualify any prospective Panel members. Once the Panel has been established, a date for the hearing will be set. The Chair of the Panel will send notice of the hearing to the student and the Graduate Dean. The notice will include the date, time, location and procedures of the hearing. The Chair of the Panel may invite others to provide information at the hearing. The grievance hearing will be normally scheduled within 10 days of the Graduate Dean’s written response to the filed grievance.

V. MEDIATION

At any time the parties may consider mediation of outstanding issues. None of the parties or the Graduate Committee will conduct the mediation. All applicable timelines remain in effect, unless extended by the Chair of the Graduate Committee.

VI. GRIEVANCE HEARING

A. If either party intends to submit supplemental materials (six copies) to the Panel for consideration, he/she must also provide hard copies to the other parties to the hearing. All copies must be provided at least 5 days prior to the scheduled hearing. These materials may not exceed 10 double-spaced pages excluding attachments. Failure to provide copies in time may result in the materials not being considered by the Panel.

B. Hearings will be conducted in a manner conducive to ascertaining the facts of the case. Parties to the grievance will be provided an opportunity to:

1. Be present and hear all arguments and oral statements made to the Panel during the hearing;
2. Make arguments, present oral statements and written documents, and call witnesses with regard to issues of fact relevant to the grounds for grievance; and
3. Ask questions of other witnesses, either directly or through the Chair (to be determined by the Chair).

C. Each party may be accompanied at the hearing by an advisor, who may be a lawyer. The advisors are not allowed to address the Panel, question witnesses, or take an active role in the proceedings. The advisor is simply there to provide advice to a party. The Graduate Dean will not bring a lawyer unless the grievant indicates he/she intends to bring a lawyer. If the grievant intends to bring a lawyer, he/she should notify the Graduate Dean and the Chair of the Graduate Committee 5 days prior to the start of the hearing.

D. At any time, the Chair of the Panel may consult an advisor or a lawyer, call witnesses, or ascertain information deemed relevant to the grievance. The Chair of the Panel is authorized to request the appearance of additional witnesses or the submission of additional information necessary to clarify an already introduced issue. The Panel may address questions to any person participating in the hearing.

E. The Panel may establish time limitations for the oral presentations of the parties. As a regular order of business, each party will have 30 minutes for presentation, inclusive of time allocated to allowing witnesses to speak. It is recommended that long statements by witnesses be presented in written form as attachments to the original grievance or response.
F. The formal rules of evidence do not apply to Grievance Hearings. All information not repetitious or irrelevant may be admitted, subject to guidelines of time and length.

G. No witness will be allowed to attend the hearing before he or she testifies or until he or she has been released.

H. Hearings will be closed to the public unless the student wishes them to be open. If the hearings are open, great care must be exercised by all who speak to protect the privacy of others who are not parties to the proceedings.

I. In hearings involving a single incident with more than one student, a single hearing may be scheduled for all of the students. If the Chair determines that it would be in the best interest of individuals involved, separate hearings may be provided. When collective hearings are held, individual findings, decisions, and recommendations will be rendered. Students who do not file a grievance will not automatically benefit from a grievance filed by another student.

J. The hearing will be recorded. Both parties may access the recording, after the final report is issued, by contacting the Recording Secretary of the Graduate Committee.

K. The Chair may require someone to leave the hearing whose conduct or presence may impede the hearing process.

L. All documents, recordings and findings will be subject to the university’s records retention policy.

VII. ORDER OF PROCEEDINGS IN A GRIEVANCE HEARING

A. The Chair will begin the hearing with a brief opening statement. The Chair will then ask each person in the room to introduce himself or herself for the record. The Chair will state the reason for the hearing, describe the role of the Panel and explain the procedures to be followed. The Chair will ask the student filing the grievance whether he or she wishes the hearing to be open or closed. If the student requests a closed hearing, only the Recording Secretary, the principle parties, the Panel and, if applicable, their advisors shall remain. Witnesses will only be allowed in the room when they are presenting, but may be asked to remain available to answer additional questions later in the proceedings.

B. Following the Chair’s summary, and unless otherwise determined by the Chair of the Panel, the order of presentation will be:

1. Grievant presents case, including witnesses and other evidence (30 minutes). Members of the Panel may ask brief questions to clarify a point, but in general the student should be allowed to present without interruption. Witnesses must exit after providing their information, and should not be allowed to speak with each other until released. They should be available for questions later;

2. Graduate Dean presents case, including witnesses and other evidence (30 minutes). Members of the Panel may ask brief questions to clarify a point, but in general the Graduate Dean should be allowed to present without interruption. Witnesses must exit after providing their information, and should not be allowed to speak with each other until released. They should be available for questions later;

3. Panel members question either party and witnesses. Determination of the order of questions, requesting the presence of witnesses, and managing the dialog during the hearing is done at the discretion of the Chair in consultation with other members of the Panel;

4. Summary by the Graduate Dean (5 minutes);

5. Summary by the Student (5 minutes);

6. Declaration by the Chair that the hearing is concluded.

VIII. FINDINGS, DECISIONS, AND RECOMMENDATIONS OF THE PANEL

A. Upon completion of the hearing, the Panel will meet in closed session for deliberations. If the student requests an open hearing, then deliberations will also be open. If the process requires more time than originally scheduled, the Panel may suspend its discussion and reconvene at an agreed upon later date and time. A simple majority vote of the Panel is required for all findings, decisions, and recommendations.

B. If, in the course of deliberations, the Panel determines it would like to obtain additional information from either party, or from any other individual that the Panel feels could provide useful information, the Chair of the Panel will reopen the hearing at a mutually convenient time for all parties.

C. The Panel Chair will prepare a written final decision, to include:

1. A statement addressing the subject of the grievance;

2. A decision that indicates whether the grievance is upheld, denied, or if a modified solution to the situation is recommended;

3. (Optional) recommendations, if appropriate, for further actions by University authorities.

D. All members of the Panel sign the Decisions, Findings, and Recommendations document.

E. The Panel will provide the grievant and the Graduate Dean with a copy of the decision of the Panel within 10 days from the date of the conclusion of the hearing.

IX. SUBSEQUENT HEARINGS

A. The Panel acts on behalf of the Graduate Committee. The student may grieve the decision of the Panel to the Student Academic Standards Committee.

WITHDRAWAL FROM THE UNIVERSITY

A student wishing to withdraw from the University before the end of a semester must begin the withdrawal process by submitting a completed Withdrawal Form to the Office of the Registrar. Failure to do so will result in a grade of F in all classes and no refund of fees. If a student would like to completely withdraw from a degree program, he or she should complete a Graduate School Withdrawal Form available from the Graduate School or the Graduate School web site.

LEAVE OF ABSENCE FROM GRADUATE STUDY

Students who wish to take a leave of absence from their program must notify their graduate program and the Graduate School by submission of a “request for leave of absence from graduate study” in advance of their leave. Degree and certificate seeking students who do not submit a leave of absence will be required to apply for readmission to the Graduate School and pay a readmission application fee. Applications for readmission will be reviewed by the program and Graduate Dean. Students may be denied readmission based on review of their prior progress and their application for readmission.

GRADUATE WORK BY UNDERGRADUATES

Graduate courses normally are open only to graduate students. An undergraduate senior at UND may enroll in graduate courses (500 level) for undergraduate credit. All students must have the permis-
sion of the instructor and Graduate Dean to take a graduate course. Exceptions to this policy exist for combined degree students and non-UND students in Bridge Programs (contact the Graduate School for information.)

An undergraduate Senior may be granted graduate credit for the courses listed in this section of the catalog if:

1. The credits being petitioned are not needed to complete requirements for the baccalaureate degree;
2. The course(s) are listed in the current Graduate School Catalog;
3. The petition is filed by the last day to add a course;
4. The student is a senior;
5. The student is within 12 credits of the baccalaureate degree;
6. The student’s load is not more than 16 credits in a regular semester or 8 credits in a summer session;
7. The student’s overall GPA is at least 3.00;
8. The undergraduate degree will be completed at the close of the current semester;
9. The course(s) are not taken for S/U grading.

NOTE: The 300 or 400 level courses listed in this section of the catalog were approved by the Graduate Committee for graduate credit on the basis that the student be required to do additional work, generally of an independent nature.

MAXIMUM AND MINIMUM ACADEMIC LOADS

A full course load for a graduate student is 9 credit hours in a semester or 6 credits in a summer session. A graduate student may carry no more than 12 credit hours per semester or 12 credits in a summer session. Graduate Assistants must carry at least 6 credits each semester or 3 credits in a summer session.

GRADING SYSTEM

A graduate student will be allowed credit for a course only when a grade for the course has been reported to the Office of the Registrar. Grades awarded in all courses are indicative of the quality of the work done. Their significance is as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Honor Point Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>(Superior) 4 Honor Points</td>
</tr>
<tr>
<td>B</td>
<td>(Excellent) 3 Honor Points</td>
</tr>
<tr>
<td>C</td>
<td>(Acceptable) 2 Honor Points</td>
</tr>
<tr>
<td>D</td>
<td>(Passing, but no graduate credit awarded) 1 Honor Point</td>
</tr>
<tr>
<td>F</td>
<td>Failure 0 Honor Points</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
</tr>
<tr>
<td>S</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>U</td>
<td>Unsatisfactory</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawn</td>
</tr>
<tr>
<td>SP</td>
<td>Satisfactory Progress (995,997,998 &amp; 999)</td>
</tr>
<tr>
<td>UP</td>
<td>Unsatisfactory Progress (995,997,998 &amp; 999)</td>
</tr>
</tbody>
</table>

GRADUATE GRADE POINT AVERAGE

A graduate student’s cumulative GPA is based on all coursework, graduate or undergraduate, taken while the student is registered in the UND Graduate School. Grades of less than “C” are not included in the number of credits accepted for a graduate degree, but they are counted in determining the cumulative GPA. Credits and grades for courses accepted in transfer, or courses graded on a Satisfactory-Unsatisfactory basis are not counted in determining the GPA. Courses with grades of Incomplete are neither counted as partial fulfillment of degree requirements nor calculated in the GPA.

SATISFACTORY/UNSATISFACTORY GRADING

Some seminars, research, thesis, dissertation, and field work may be graded on a Satisfactory/Unsatisfactory basis. Those courses usually are marked in the Schedule of Courses, and the entire registration for the course will be graded on the S/U basis. The student does not have the option of receiving a grade. Graduate students do not have the option of electing S/U grading in either graduate or undergraduate courses.

INCOMPLETE GRADES

It is expected that students will complete all requirements for a course during the time frame of the course. For reasons beyond a student’s control, and upon request by the student or on behalf of the student, an incomplete grade may be assigned by the instructor when there is reasonable certainty the student will successfully complete the course without retaking it. The mark “I,” Incomplete, will be assigned only to the student who has been in attendance and has done satisfactory work up to a time within four weeks of the close of the semester, including the examination period, and whose work is incomplete for reasons satisfactory to his or her instructor.

Incompletes are entered on the final grade sheet, and instructors must also sign and submit a “Report of Incomplete Grade” form to the Office of the Registrar. The instructor may choose any one of the following options for the deadline to complete the course:

1. The default date as stated in the “UND Schedule of Courses.”
2. Extend to 12 calendar months after the end of the course.
3. A date of the instructor’s choosing no later than 12 months after the end of the course.

Incomplete grades will convert to a grade of “F” if a grade is not submitted by the instructor to the Office of the Registrar on or before the deadline written on the “Report of Incomplete Grade” form.

The instructor of the course and the Dean of the Graduate School must approve and sign the “Report of Incomplete Grade” form for any extension of incomplete beyond the default date listed in the “UND Schedule of Courses.” It is the student’s responsibility to contact their instructor about an incomplete grade posted on the final grade report.

An “I” may be converted as indicated above but cannot be expunged from the record. Students may not register for courses in which they currently hold grades of incomplete, except for courses that allow repeated enrollment. A student will not be allowed to graduate with an unconverted incomplete grade on the academic record.

IN PROGRESS GRADES

The Graduate School or the Honors Program may assign a grade of “SP,” Satisfactory Progress or “UP,” Unsatisfactory Progress to Honors Thesis (489), Scholarly Project (995), Thesis (998), Dissertation (999), Independent Study (997), Research Design (Engineering 595), English 591, Professional Exhibition (VA 599) or Research (leading to the thesis or dissertation). The “SP” or “UP” grade for these activities, which usually span several sessions, need not be replaced until the conclusion of the activity, usually a student’s final semester. Grades of “SP” or “UP” are not calculated into term or cumulative GPA values and will be expunged from the
record upon submission of final grades for the course. Students failing to show satisfactory progress may face dismissal.

**GRADE CHANGES**

Submitted grades, except for grades of incomplete, are final and may only be changed to correct an error. Grades may not be changed by additional work or submitting additional materials. Students should report any error to their instructor within 90 days of receipt of the grade. The instructor must file a change of grade form with the Registrar signed by the instructor, the department chair, and the dean of the course. Reasons for the change must be fully explained and justified.

**REPEITION OF COURSES**

All courses taken by graduate students, for which a grade of D, F, or U was received, may be repeated once for credit, with only the second grade to count in the grade point average. This option does not apply to a student who has been dismissed. Courses with grades of C or better may not be repeated without the written approval of the Dean of the Graduate School. It is up to the student to notify the Graduate School when a course has been retaken so that the grade point average can be recalculated. Courses taken as an undergraduate may not be taken again as a graduate student and used on a program of study.

**ACADEMIC STANDARDS**

A cumulative grade point average (GPA) of at least 3.00 for all work taken as a graduate student (2.75 for M.Eng.), i.e., while registered in the UND Graduate School, must be maintained in order to remain in satisfactory academic standing in the Graduate School; however, mere maintenance of a 3.00 GPA (2.75 for M.Eng.) or better may not be considered adequate satisfactory performance. Satisfactory performance may include, but is not limited to, satisfactory research performance, a satisfactory GPA in the major, satisfactory performance in examinations, such as the comprehensive examination, or satisfactory performance in other specific program requirements.

The academic standing and progress of Degree Students will be reviewed by the departments and Faculty Advisory Committee periodically to ensure that appropriate progress is being made toward the degree. Students may be placed on probation with conditions or dismissed as a result of unsatisfactory academic performance or progress. Dismissal will be noted on the student’s transcript.

The conditions regarding Grade Point Average are as follows:
1. No decision on dismissal will be reached until a minimum of 9 graduate credits has been accumulated.
2. The academic standing of all graduate students whose cumulative GPA falls below 3.00 (2.75 for Master of Engineering program) will be reviewed at the end of each academic term by the Dean of the Graduate School. Students having accumulated 9 or more credit hours will be placed on academic probation for one semester; students having accumulated fewer than 9 credit hours will be placed on academic probation until either (a) the GPA is raised to at least 3.00 (2.75 for M.Eng.) or (b) 9 graduate credit hours are accumulated, whichever occurs first. If, at the end of the probationary period, the GPA is still less than 3.00 (2.75 for M.Eng.), the student will be dismissed.

**TRANSFER OF GRADUATE CREDITS**

A limited amount of graduate work completed at a regionally accredited North American institution prior to, or after matriculation in the Graduate School at UND, may be applied toward a graduate degree at the University of North Dakota. Graduate work is considered for transfer only on an individual basis and only after the student has completed satisfactory work in residence at UND. Those transfer credits approved by the student’s advisory committee and the Dean of the Graduate School are included in the program of study for the UND graduate degree and only those transfer credits will be recorded on the UND transcript.

The basic purpose of the transfer policies is to ensure that transferred work is of comparable content, level, timeliness, and quality to that which would be taken at UND and included on the program of study for the degree. The following policies are generally applicable to the acceptance of the graduate work for transfer to UND:

- The work must have been taken at an accredited North American institution.
- The student must have been enrolled as a Graduate Student.
- The work must have received graduate credit at the institution where it was earned.
- The student must have earned a grade of B or better.
- The work must be less than seven years old at the time the UND degree is awarded with the exception of work that was part of a completed prerequisite degree.
- The amount of transfer credit that will be accepted toward the master’s degree is one-fourth (usually eight semester credits) of the credit hours required for the degree.
- The work credited toward a completed master’s degree may be accepted for a specialist’s diploma or doctoral degree.
- Work beyond the master’s degree must be post-master’s level and from an institution that offers post-master’s degrees in the discipline.
- Work beyond the master’s degree from an institution offering only master’s level work in the discipline may be applied to the minor or cognate areas.
- For the Ph.D., only 30 credits may be transferred beyond the credits allowed for the master’s degree, i.e., a total of 60 credits, if the other institution offers Ph.D. level courses in the same discipline.
- For the Specialist Diploma, only 15 credit hours will be transferred beyond the credits allowed for the master’s degree, i.e., a total of 45 credit hours.
- Certificate level courses from another university cannot be transferred to a graduate degree program.

**RESIDENCE REQUIREMENTS**

Some graduate degree programs, especially those with a significant research/creative component, require that students spend a minimum period of time in residence during their course of study. The purpose of residence is to provide an opportunity for sustained and concentrated intellectual effort, to provide for immersion in a research environment, and to permit extensive interaction with fellow students and faculty of the major department.

In order to meet a residence requirement, a student must devote full time to academic study and must be registered for at least nine credits in a semester or six credits in a summer session, or be a graduate assistant.

The Residence Requirements are stipulated for each graduate degree program in this catalog. A year of residence requires two con-
secutive semesters of residence. Two years of residence requires four consecutive semesters of residence or three semesters and two summer sessions, all without interruption.

Any exceptions to the policies stated above must be approved in advance by the student’s advisory committee, the student’s department, and the Dean of the Graduate School.

**MAXIMUM PERIOD ALLOWED FOR GRADUATE PROGRAMS AND REVALIDATION OF COURSES**

Graduate courses more than seven years old are considered obsolete and may not be counted to fulfill course requirements for an advanced degree program. Programs of study more than seven years old are also obsolete.

Obsolete UND graduate courses may be revalidated and may be counted toward an advanced degree on the recommendation of the student’s Faculty Advisory Committee and with the consent of the Dean of the Graduate School. In no case will more than one-half of a program of study be accepted for revalidation. Revalidation of an obsolete graduate course can be approved only if it can be demonstrated that a student’s knowledge of the subject matter of the course is current. Oral and/or written examination on the subject matter of the course normally is required. Prior approval of the dean must be obtained for the proposed revalidation on the form titled “Revalidaton of UND Graduate Course.”

Graduate work from another institution which is obsolete may not be revalidated for a UND graduate degree. Work which was part of a completed prerequisite graduate degree program does not become obsolete.

**RESEARCH ON HUMAN SUBJECTS**

The University of North Dakota Policy and Principles on the Use of Human Subjects requires that any biomedical or behavioral research which involves the use of humans as subjects be reviewed and approved by the Institutional Review Board prior to initiation of the project or activity. This policy applies to both faculty and student research. Forms and directions for submission of a project to the Institutional Review Board can be obtained from the Office of Research Development and Compliance.

**RESEARCH INVOLVING ANIMALS**

The University of North Dakota requires that any research involving vertebrate animals be reviewed and approved by the Institutional Animal Care and Use Committee prior to initiation of the project or activity. This policy applies to both faculty and student research. Forms and directions for submission of a project to the Institutional Review Board can be obtained from the Office of Research Development and Compliance.

**RESEARCH INVOLVING RADIATION**

The University of North Dakota Radiation Safety and Hazardous Materials Committee functions to ensure compliance with all federal, state, and University regulations and policies for radioactive materials, radiation producing machines, lasers, and hazardous, materials and substances. Research involving such materials must be approved prior to the initiation of the research. Students working with these agents must receive training through the Safety Office or be able to document prior training. Additional information is available through the Office of Research Development and Compliance.

**RESEARCH INVOLVING BIOHAZARDOUS MATERIALS**

The University of North Dakota Institutional Biosafety Committee (IBC) requires that any research, teaching, or other activities which utilize DNA, recombinant DNA, or involve the use of biohazardous research material be subject to a University Review Process and that these activities must be approved by the IBC prior to their initiation. The IBC is the only authorized University committee which can give approval to projects and activities involving recombinant DNA and biohazardous research material. The IBC will follow the NIH guidelines for recombinant DNA and biohazardous material research in determining the suitability of projects and activities and will provide an explanation of any decision not to approve a project or activity. Any project or activity not approved can be revised and resubmitted to the IBC for consideration. Additional information is available through the Office of Research Development and Compliance.

**INTELLECTUAL PROPERTY**

The University of North Dakota has detailed policies regarding intellectual property, patents, and copyrights. Students wishing more information about intellectual property rights are referred to the Office of Technology Transfer & Commercialization.

**PROHIBITED ACTS**

Section 2-3 of the UND Code of Student Life defines prohibited acts as those that would include violation of civil or criminal laws, acts of dishonesty, acts against other persons, disruptive activity or disorderly conduct, possession of prohibited property, acts involving property, and misuse of the campus judicial system. Graduate students involved in any prohibited activities will be subject to University discipline sanctions.

**CHALLENGE EXAMINATIONS**

Students who believe they are eligible to establish credit for courses because of superior preparation may apply to take challenge examinations. Application should be made on a Graduate School petition form to the instructor of the course and must be approved by the student’s department and the Dean of the Graduate School before it may be submitted to the Office of the Registrar. If the application is approved, a committee of that department will administer the examination and will report a grade of either Satisfactory or Unsatisfactory. Challenge examinations will not be permitted for courses which were audited or for courses which were dropped, nor will they be permitted for a student who is not currently enrolled.

**CONTINUING EDUCATION**

**Master and Doctoral Degrees Offered at a Distance**

The University of North Dakota Graduate School, through the Division of Continuing Education, offers master’s degrees and doctoral degrees at a distance to North Dakota citizens as well as to students located throughout the United States and internationally. Many of the degree programs are delivered through videoconferencing utilizing the North Dakota Interactive Video Network (IVN). Other distance delivery methods are available, depending on the program. Students wishing to enroll in these programs must apply to and gain admission to the Graduate School and are subject to all Graduate School policies and procedures. Graduate Degree programs currently being offered include:

**Master’s Degree Programs:**
- Business Administration
- Public Administration
- Social Work
- Counseling Psychology and Community Services
- Forensic Psychology
- Educational Leadership
- Instructional Design & Technology
- Special Education
- Early Childhood Education
- Elementary Education
- Education: General Studies
Doctoral Degree Programs:
Educational Leadership
Teaching & Learning

The University is always looking to expand distance degree programming. For more information and a current list of degree programs and/or courses offered at a distance, please contact the UND Graduate School or Division of Continuing Education.

Workshops

Graduate level workshops are short-term organized learning experiences which provide for active, hands-on participation or for concentrated study on a specialized topic. Students register as Continuing Education students and do not have to be formally admitted to the Graduate School.

Graduate level workshops are offered by the graduate departments under the course number “900-Graduate Workshop.” For each workshop registration, a transcript entry will be made showing the title, credit, and grade for the workshop.

Since graduate level workshops are not designed for the purpose of being a part of a graduate degree program, their credit normally may not be applied toward graduate degree requirements. The Graduate Dean may approve the inclusion if the workshop involves critical review, analyses, discussion, theory, or content similar to graduate courses. If approval is being sought, do so prior to taking the course. A syllabus of the course would be required.

Correspondence and Online Studies

Correspondence study work is not accepted for graduate credit. With the consent of the student’s major department, the advisor, and the Graduate Dean, a student may take work by correspondence to remove deficiencies in the undergraduate background.

CANDIDACY FOR DEGREES

Admission to the Graduate School does not imply admission to candidacy for an advanced degree. The rights to candidacy can be earned only by demonstrating the preparation for and ability to pursue graduate work and by fulfilling requirements prerequisite to candidacy. Those requirements are described in detail for each degree. Advancement to candidacy does imply that the student has been judged by the advisory committee and the dean to have satisfactorily completed much of the formal coursework and examination requirements and to be fully qualified to pursue the remaining, usually more independent, portion of the degree work.

GRADUATION-APPLICATION FOR DEGREE OR DIPLOMA

Students who expect to receive a degree must file an Application for Graduate Degree in the Graduate School by the deadline noted in the academic calendar. All graduate students must have been advanced to candidacy the semester preceding the semester in which they expect to graduate.

After the student applies for the degree, the Graduate School checks the academic record to ensure that the student is eligible to graduate. A new application must be filed if the student fails to graduate. Students must be registered for the term in which they expect to receive their degree.

GRADUATE SCHOOL AWARDS

Applications for Graduate Assistantships are accepted throughout the year; however, students are reminded that most appointments for the Fall semester are offered by March 15. Students should contact the department for information.

Deadlines for Scholarships and Fellowships are announced each year. Information and applications are available in the Graduate School and in the department.

The following policies are applicable to the award and retention of graduate appointments and awards:

1. Students admitted to the Graduate School and notified that they have been granted an appointment or award before they actually have received a bachelor’s degree may neither register nor hold an appointment or award until they have received the bachelor’s degree and fulfilled all requirements for admission to the Graduate School as a degree seeking student.

2. Degree seeking students in “Approved” or “Qualified” Status may hold awards or appointments.

3. Assistantship appointments will not exceed one-half time in all combinations.

4. Students must maintain the credit load requirements defined in the appointment letter to retain appointments or awards. Graduate Assistants must be enrolled in a minimum of six (6) credits. This requirement is waived for students in their final semester with fewer than six credits remaining on their program of study. (A Graduate School petition is required.)

5. Students must maintain a 3.00 GPA (2.75 Master of Engineering) to retain awards or appointments.

6. A student may be removed from an appointment due to unsatisfactory performance.

7. Students in good academic standing, i.e., a GPA of 3.00 or higher are eligible for reappointment.

8. Students who withdraw from or are dismissed from the Graduate School become immediately ineligible for and may not continue to hold an appointment or award.

In accordance with the provisions of federal statutes, it is the policy of the University of North Dakota that no person in the United States shall be discriminated against because of race, creed, handicap, color, sex, age, or national origin in the selection for an award or appointment provided only that the applicant meets the eligibility conditions for an award. Policies and procedures affecting graduate assistantships are described more fully in the Graduate Assistant Handbook.

Graduate assistantship stipends are subject to income tax and tax will be withheld. Tax will not be withheld from scholarships, traineeships, and fellowships, but the stipend may be taxable. Rulings as to the actual taxability of any specific stipend are in the hands of the Internal Revenue Service.

Acceptance of an offer of a graduate scholarship, fellowship, traineeship, or graduate assistantship for the next academic year completes an agreement which both the student and the Graduate School expect to honor. In those instances in which the student indicates acceptance and subsequently desires to change plans, a written resignation of the appointment may be submitted at any time through April 15 in order to accept another scholarship, fellowship, traineeship, or graduate assistantship. However, an acceptance given or left in force after April 15 commits the student to the appointment.

Awards

Amy Hui-Mei Chen Hung Fellowship is awarded to a graduate of the National Taiwan Normal University (NTNU) who wishes to pursue doctoral studies at UND. The applicant must intend to return to NTNU upon graduation.

Chester Fritz Scholarships of $1,000 each are awarded to North Dakota students with an outstanding academic record who are continuing graduate work.

An Alumni Prize of $1,000 is awarded each year to a graduate student who has completed at least one year of graduate work. This prize, which may be granted in addition to other major awards, is in recognition of outstanding academic performance.
K. B. Tiffany Scholarship of $1,000 is awarded, by nomination, to a student pursuing a graduate degree in English. Consult with the English Department.

Bernhardt A.E. Leser Memorial Scholarship is for a graduate student interested in studying abroad. The money is available to any graduate student who enrolls at an institution in Germany, France, or Scandinavia and provides a record of matriculation there from.

Neil C. Macdonald Memorial Scholarships of $1,000 are awarded on the basis of promise of high academic achievement and in accord with the ideals and purpose of the University of North Dakota to two graduate students, one of whom should be in History.

The Christopher and Ernestine Kandel Hamre Trust Fellowships are available annually to two terminal year doctoral students in the Department of Anatomy. The fellowships provide a stipend plus the cost of tuition to the student, and will provide cost of education/research funds to the department in support of the student.

The George and Margaret Seaworth Scholarship is for a continuing graduate student interested in the medical or social issues of gerontology. The recipient should be of good character with above average grades.

Graduate School Tuition Waivers provide a waiver of tuition to students who are commencing or continuing work toward a graduate degree. Awards are made on the basis of academic achievement and promise. Benefitted employees of UND are not eligible for Graduate School tuition waivers.

Cultural Diversity Tuition Waivers may be available. Applications are available in the Graduate School or on the Graduate School’s web site.

Summer Doctoral Fellowships of $5,000 plus a waiver of tuition for the summer session are available to doctoral students who have an approved Dissertation Proposal on file in the Graduate School and plan to work on their dissertation/research full time during the summer. Applications are due early in the Spring semester and will be evaluated on the basis of an application and recommendations from the advisor and the chairperson.

Assistantships

Graduate Teaching Assistantships are university appointments that provide financial assistance to students qualified for teaching service in the department in which they take the major part of their graduate work. The purpose of these assistantships is to facilitate students working toward their degree while gaining teaching experience in the field of the degree. Appointments may be for one-fourth or one-half of full-time service. Most assistantships are half-time assistantships which require 15 to 20 hours of work per week and permit the student to carry a minimum of 6 credits of graduate work each semester (3 credits in a summer session). Graduate Teaching Assistants may be eligible for a Graduate School tuition waiver. Tuition waivers may be partial or full; the decision to offer a waiver and the amount of the tuition waiver is determined by the individual program. The program may also choose to remit tuition (contact the Graduate School for information.) Students are responsible for any tuition not covered by the waiver and all other fees. A health insurance plan is also available. The purpose of research assistantships is to provide degree-seeking students with research experience in their academic disciplines while assisting with an ongoing research project. Half-time and quarter-time assistants must carry a minimum of six credits per semester (3 for summer).

Graduate Service Assistantships are available for work in several units on campus, including but not limited to, the Division of Student Affairs, ITSS, and Athletic Department. Graduate students are employed half-time or quarter-time, for work in a particular service unit related to their area of academic interest. Stipends vary with the time devoted to service work but usually are comparable to the stipends of graduate teaching assistants. Tuition may be waived for these assistantships. Academic load requirements are the same as for teaching assistants.

DEGREE REQUIREMENTS

It is the student’s responsibility to be familiar with the requirements for a degree. The student may expect guidance from the advisor and the staff in the Graduate School. The requirements are listed in this section of the catalog and in the section entitled “Departmental Programs.”

MASTER OF ARTS, MASTER OF SCIENCE

These degrees are available with a thesis option in most fields. A non-thesis option is available in selected fields.

Thesis Option

Course Requirements: A minimum of 30 semester credits is required in a program of study for the M.A. or M.S. degree in a major field. This includes the credits granted for the thesis and the research leading to the thesis. At least one-half of the credits must be at or above the 500-level. Fifteen semester credits must be taken on campus through UND. A maximum of eight semester credits may be transferred from another institution. Workshop credits are normally not accepted on the program of study, but may be considered with the approval of the advisory committee and the dean of the Graduate School. A maximum of four semester credit hours may be considered.

The program may include just the major, the major and a minor, or the major and a cognate area. The major must include 20 credits from the major department, and a minor or cognate area must include at least nine credits. A cognate must include at least 6 credits. Students should refer to the section of this catalog entitled “Departmental Programs” for program specific admission, degree examination, and course requirements.

Residence Requirements: Typically, a student must spend a minimum of one semester or two summer sessions in residence on this campus. Students should expect to spend about the equivalent of two years as a full-time student to complete the M.A. or M.S. program with a thesis. Note: The Residence Requirement is in effect unless modifications have been granted to the department by the Graduate Committee. Contact the program or the Graduate School for current residency requirements.

Thesis: The student must submit a thesis to the Graduate School as partial fulfillment of the requirements for the degree. Credit will be given for the writing of the thesis and for the research completed and incorporated into the thesis. The amount of credit may vary from four to nine credits and will be determined by the major department.
The thesis, prepared under the guidance of the student’s faculty advisor, must show sound method and demonstrate scholarship. All theses must be prepared in accordance with the Style and Policy Manual for Theses and Dissertations. The “Manual” is available on the Graduate School website.

The topic for a thesis must be approved by the student’s Faculty Advisory Committee. Approval is effected by the student’s completing a form entitled “Topic Proposal of Thesis,” available with instructions from the Graduate School, then submitting the proposal to the Advisory Committee for its approval. The approved proposal is then filed in the Graduate School to become part of the record. The proposal must be approved the semester prior to the semester in which the student expects to graduate, and must be filed in the Graduate School before a student is advanced to candidacy for a master’s degree.

A preliminary draft of the thesis must be presented to the Advisory Committee sufficiently in advance of the preliminary approval deadline that the Advisory Committee may thoroughly evaluate and correct the thesis. After the necessary corrections and changes have been made, the student should secure the committee members’ signatures on a form entitled Preliminary Approval of Theses and Dissertations, available on the Graduate School’s web site, and file this form in the Graduate School. The Preliminary Approval, which indicates to the student that no major changes will be required in the final copy of the thesis, must be in the Graduate School no later than the deadline specified in the Academic Calendar, or the student will not be permitted to graduate that semester.

Copies of the thesis in its final form must be prepared and presented to the student’s Faculty Advisory Committee in time that they may thoroughly read the thesis prior to the final examination. When the final version of the thesis has been approved by the Committee, a copy must be deposited in the Graduate School and receive the signed approval of the Dean by the deadline announced in the Academic Calendar (usually two weeks prior to commencement).

The Graduate School will have the final copy of the thesis bound and cataloged in the University Library. The student must submit one copy to the major department and one to the advisor.

**Candidacy for the Degree.** Admission of a student to the Graduate School as a Degree Student in Approved Status implies only that the student has met the minimal entrance requirements and will be permitted to take graduate courses which normally will lead to a degree. The student has not been admitted as a candidate for a degree. Advancement to candidacy is a formal procedure and can be granted only after the student has met certain academic requirements. To become a candidate for the Master of Arts or Master of Science (thesis options), the following requirements must be met in approximately the following sequence:

1. Completion of the equivalent of one full-time semester (9 semester credits).
2. A GPA of at least 3.00 for all work attempted.
3. The appointment of a Faculty Advisory Committee. This Committee is appointed by the dean upon the recommendation of the chairperson, or designate, of the student’s major department and normally will consist of three members, but may consist of four. The form for Committee appointments is available at the Graduate School and on the Graduate School web site. If the student intends to include a minor on the program of study, one committee member must be chosen to represent the minor field. The chairperson of the Committee normally must be a Full Member of the Graduate Faculty but may be an Associate Member under certain conditions, must represent the student’s area of interest, and must serve as the thesis advisor. The Committee is responsible for program advisement, thesis advisement, and examination of the student.
4. Approval of a Program of Study. Until such time as a student selects a thesis advisor, the department chairperson, or designate, will act as a temporary advisor for the selection of courses, etc. After the formation of a Faculty Advisory Committee, the student and the Committee should formulate a Program of Study for the degree on a form available from the Graduate School and on the Graduate School web site. The program should be developed early in the second semester of enrollment. After the program has been signed by the student and the Committee, it is submitted to the Graduate School for the approval of the Dean.
5. Approval of a Proposal of Thesis on a form available from the Graduate School and on the Graduate School web site. This proposal, when approved by the Faculty Advisory Committee and deposited in the Graduate School, indicates acceptance of a topic for study and incorporation into a thesis. The proposal must be filed at the Graduate School the semester or session prior to the one in which the student expects to graduate.

Students and their advisors will receive a status sheet when advanced to candidacy. Students must complete all requirements for advancement to candidacy prior to the semester in which they plan to graduate.

**Final Examinations.** Students are required to present themselves for a final examination before their full Faculty Advisory Committee. The examination will be written and/or oral and will include defense of the thesis, but also may include examination over the course of study for the degree. The “Notice of Defense” must be submitted to the Graduate School at least one week prior to the final examination. The results must be reported to the Graduate School, on the Final Report on Candidate form, by the deadline specified in the Academic Calendar. The Committee members must have had an opportunity to examine the final copy of the thesis prior to the examination and will indicate their approval by signing the approval page of the thesis. Final examinations which are failed may be repeated only with the prior approval of the Advisory Committee and the Dean.

**Non-Thesis Option**

The degrees Master of Arts and Master of Science without a thesis are available only in selected fields. **Except as noted below, the requirements are the same as those listed under the thesis option.**

**Course Requirements.** A minimum of 32 semester credits is required for the degree. This includes 2 credits in the major for an independent study report for which the student registers for the course numbered 997 or 995. The program may include just the major, the major and a minor, or the major and a cognate area. The major must include at least 22 credits from the major department and a minor must include at least nine credits. A cognate must include at least six credits.

Students should refer to the section of this catalog entitled Departmental Programs for additional admission, degree, examination, and course requirements unique to each department.

**Residence Requirement.** There is no residence requirement for the non-thesis M.A. and M.S. degrees.

**Independent Study.** The independent study is designed to require the student independently to investigate a topic related to the major field of study. The study need not be an original contribution to knowledge but may be a presentation, analysis, and discussion of
information and ideas already in the literature of the field. The requirement is to ensure that a student can investigate a topic and organize a scholarly report on the investigation.

The topic for an independent study must be approved by the student’s advisor. Approval is effected by the student’s completing a form entitled Topic Proposal of Independent Study, available with instructions from the Graduate School and on the Graduate School website, then submitting the proposal to the advisor for approval. The proposal, which must be approved no later than the semester or session prior to the one in which the student expects to graduate, must be filed in the Graduate School to become part of the record before a student is advanced to candidacy for a master’s degree.

Students must prepare and secure the advisor’s approval of an independent study report. Three copies of the report (one each for the student, the advisor, and the department) must be accepted by the advisor who will certify completion by submission of the Final Report on Candidate to the Graduate School by the deadline specified in the Academic Calendar and submit a grade for 997-Independent Study or 995-Scholarly Project to the Office of the Registrar.

Candidacy for the Degree. The requirements for advancement to candidacy under the non-thesis option are the same as those listed under the thesis option with the following exceptions:

1. Advisor. Students must obtain the appointment of an advisor from the major department. The advisor, who must be a member of the Graduate Faculty, will be appointed by the dean, upon the written recommendation of the chairperson, or designate, of the student’s major department. The advisor is responsible to the department and to the Graduate School for the supervision of the student’s work.

2. Program of Study. Students must submit a Program of Study for Graduate School approval which will have been developed in consultation with the advisor and signed by the departmental chairperson (or designate). If a minor is declared, the program also must be signed by the chairperson of the minor department. The Program of Study should be developed early in the second semester and submitted to the Graduate School.

3. Topic Proposal of Independent Study. Students must obtain approval of a topic for the independent study. The advisor approves the Topic Proposal of Independent Study, and the student submits the form to the Graduate School to become part of the record. The topic proposal must be filed prior to the semester or session in which the student expects to graduate.

Final Examinations. Those advanced to candidacy for non-thesis master’s degrees must pass written final comprehensive examinations which must cover the major field but may, at the advisor’s discretion, draw upon or cover the supporting areas. Such examinations generally will be given and evaluated by the major department, but the results will be certified to the Graduate School by the advisor and the department chairperson on the form Final Report on Candidate by the deadline specified in the Academic Calendar. The appropriate comprehensive examination(s) will be arranged by the advisor and administered by the department no earlier than the semester preceding the semester in which the candidate intends to graduate. Comprehensive examinations which are failed may be repeated only once with the prior approval of the advisor, the department, and the Dean, but in no event earlier than at the next regularly scheduled offering.

Candidates may not take the final comprehensive examination(s) unless they have been advanced to candidacy for the degree, and are in satisfactory academic standing.

MASTER OF ACCOUNTANCY
(See Accountancy under Departmental Programs)

MASTER OF BUSINESS ADMINISTRATION
(See Business Administration under Departmental Programs)

MASTER OF EDUCATION
The Master of Education degree (M.Ed.) is designed for those who wish to prepare for careers as teachers, specialists, administrators, or supervisors in elementary or secondary schools. To be eligible for the degree, a student must meet the undergraduate requirements in Education, i.e., eighteen semester credits in Education, including student teaching, and must be offered admission to the degree program by the Dean of the Graduate School.

The Master of Education degree is available for those doing major work either within or outside of the College of Education and Human Development. The areas of concentration available are: Educational Administration, Elementary Education, Special Education, and Reading Education. The degree also is available in departments offering a secondary teaching major.

Course Requirements. A minimum of 32 semester credits is required for the M.Ed. degree, of which at least one-half must be at or above the 500 level. No less than 12 credits, including 2 for the Independent Study Report (997), must be in a single field or an area of concentration (major). At least 6 credits must be in an area or areas cognate to the area of concentration. At least 6 credits must be in the Foundations of Education. A total of 16 credits may be taken off-campus.

Residence Requirement. There is no residence requirement for the M.Ed. degree.

Transfer of Credit. A maximum of eight graduate credits may be transferred from another institution.

Workshop Credit. A maximum of four credits may be taken in approved workshops, but workshop credits normally are not included in the program of study.

Independent Study. The independent study is designed to enable the student independently to investigate a topic related to the major field of study. The study may be a presentation, analysis, or discussion of information and ideas already in the literature of the field. The requirement is designed to ensure that a student can investigate a topic and organize and present a scholarly report on the investigation.

The topic for an independent study must be approved by the student’s advisor. The independent study proposal, which must be approved no later than the semester or session prior to the one in which the student expects to graduate, must be filed in the Graduate School before a student is advanced to candidacy for a master’s degree.

The student must prepare and secure the advisor’s approval of an independent study report. Three copies of the report (one each for the student, the advisor, and the department) must be accepted by the advisor who will certify completion of the report to the Graduate School by the deadline specified in the Academic Calendar and submit a grade for 997-Independent study to the Office of the Registrar.

Candidacy for the Degree. To become a candidate for the Master of Education degree the following requirements must be met in approximately the following sequence:

1. Completion of the equivalent of one full-time semester (12 semester credits).

2. A GPA of at least 3.00 for all work attempted.
The deadline for a completed application to be received in the Graduate School is listed at the end of this section. A complete application includes:

- Graduate School Application and application fee
- Three letters of reference
- Statement of Purpose
- Transcripts
- Program of Study-Engineering Combined Degree

The two three-credit hour courses designated for both degrees must not have been completed at the time of application and they must have graduate course standing.

The student is admitted to the Graduate School on completion of 125 credit hours towards the bachelor’s degree with a GPA of 3.0 or higher.

Students in the program may opt to be awarded their bachelor’s and master’s degrees sequentially or at the same time.

Students interested in these programs need to refer to the individual departments for admission and program requirements.

Applications must be completed by:
- August 15 for Fall Semester Admittance
- December 15 for Spring Semester Admittance
- April 15 for Summer Semester Admittance

**MASTER OF ENGINEERING**

The Master of Engineering (M. Engr.) is a professional degree with a program designed to provide a strong emphasis toward the practice of engineering in industry, business, or government. The focus of the program is on the development of competency in the area of engineering design, with the goal of developing the student as a practitioner capable of solving complex problems within a given field. It is available in Chemical, Civil, Electrical, and Mechanical Engineering.

The graduate degree program includes a minimum of one-third year of design, and may include another one-third year of mathematics, basic science, and engineering design. A part of each program is the successful completion of a design project appropriate to the field.

**Students should refer to the section of this catalog titled “Departmental Programs” for the admission, degree, examination, and course requirements unique to each department.**

**Admission Requirements:**

1. A baccalaureate degree in an engineering or science field from an accredited university.
2. A minimum of 36 course hours of approved engineering coursework, including background work in the proposed area of concentration. Additional courses needed to satisfy the ABET requirement for basic level accreditation may be taken after admission.
3. The scholastic ability required for pursing advanced academic work. A GPA of 2.50 (A = 4.00) for all previous academic work undertaken, or a GPA of 3.00 for the last two years of undergraduate work undertaken.
4. Scores from the General Test portion of the Graduate Record Examination if graduated from a non-accredited undergraduate program.

**Course Requirements.** The program of study for the M. Engr. degree must contain at least 30 credits, including at least 15 credits at the 500 level. An engineering design project must be completed and registered for through Engineering 595 for 3-6 credits. A written report on this project is required. All major department courses must be at the 400 level or above, and no courses numbered below 300 may be included in the program.

**ENGINEERING COMBINED DEGREE PROGRAMS**

To encourage undergraduate engineering students to extend their studies to include a graduate degree, the School of Engineering and Mines has a combined program, which permits students to earn both bachelor’s and master’s degrees in an engineering discipline. This program allows students to designate two three-credit graduate courses to count for both degrees. The selected courses must have graduate course standing and be designated when a student requests admission to the program.

Students may be admitted to the engineering combined degree program after the completion of 95 credit hours towards the bachelor’s degree with a GPA of at least 3.0 and before completion of the bachelor’s degree.

The student and the advisor will be notified in writing of the advancement to candidacy. **Students must complete all requirements for advancement to candidacy prior to the semester in which they plan to graduate.**

**Final Examinations.** Candidates for the Master of Education degree must pass written final comprehensive examinations which must cover the major field but may, at the advisor’s discretion, draw upon or cover the supporting areas. Such examinations generally will be given and evaluated by the major department, but the results will be certified to the Graduate School by the advisor and the department chairperson on the form, Final Report on Candidate, by the deadline specified in the Academic Calendar. The appropriate comprehensive examination(s) will be arranged for by the advisor and given by the department no earlier than the semester preceding the semester in which the candidate intends to graduate. Comprehensive examinations which are failed may be repeated only with the prior approval of the advisor, the department, and the Dean, but in no event earlier than at the next regularly scheduled offering.

Candidates may not take the final comprehensive examination(s) unless they have been advanced to candidacy for the degree, and are in satisfactory academic standing.

**COMBINED DEGREES**

The University of North Dakota is currently offering combined degrees in Accountancy, Applied Economics, Business Administration, Chemistry, Counseling, Public Administration, Chemical, Mechanical, Civil and Electrical Engineering. The intention of these programs is to allow qualified students to complete requirements for both a baccalaureate degree and a master’s degree in one year beyond that which is required to receive the undergraduate degree.

3. Appointment of an advisor from the major department. The advisor, who must be a member of the Graduate Faculty, will be appointed by the dean upon recommendation of the chairperson of the student’s major department. The form for advisor appointment is available on the Graduate School website. The advisor is responsible to the department and the Graduate School for the supervision of the student’s work.

4. Approval of a Program of Study on a form available from the Graduate School or on the web site. The program, which should be developed in consultation with the advisor, early in the second semester, must bear the signature of the student, the advisor, and the department chairperson (or designee) and must be submitted to the Dean of the Graduate School for approval.

5. Approval of a topic for the independent study by having the advisor sign the Proposal of Independent Study form and submitting the Proposal to the Graduate School.

Students interested in these programs need to refer to the individual departments for admission and program requirements.

Applications must be completed by:
- August 15 for Fall Semester Admittance
- December 15 for Spring Semester Admittance
- April 15 for Summer Semester Admittance

**MASTER OF ENGINEERING**

The Master of Engineering (M. Engr.) is a professional degree with a program designed to provide a strong emphasis toward the practice of engineering in industry, business, or government. The focus of the program is on the development of competency in the area of engineering design, with the goal of developing the student as a practitioner capable of solving complex problems within a given field. It is available in Chemical, Civil, Electrical, and Mechanical Engineering.

The graduate degree program includes a minimum of one-third year of design, and may include another one-third year of mathematics, basic science, and engineering design. A part of each program is the successful completion of a design project appropriate to the field.

Students should refer to the section of this catalog titled “Departmental Programs” for the admission, degree, examination, and course requirements unique to each department.

**Admission Requirements:**

1. A baccalaureate degree in an engineering or science field from an accredited university.
2. A minimum of 36 course hours of approved engineering coursework, including background work in the proposed area of concentration. Additional courses needed to satisfy the ABET requirement for basic level accreditation may be taken after admission.
3. The scholastic ability required for pursing advanced academic work. A GPA of 2.50 (A = 4.00) for all previous academic work undertaken, or a GPA of 3.00 for the last two years of undergraduate work undertaken.
4. Scores from the General Test portion of the Graduate Record Examination if graduated from a non-accredited undergraduate program.

**Course Requirements.** The program of study for the M. Engr. degree must contain at least 30 credits, including at least 15 credits at the 500 level. An engineering design project must be completed and registered for through Engineering 595 for 3-6 credits. A written report on this project is required. All major department courses must be at the 400 level or above, and no courses numbered below 300 may be included in the program.
**Residence Requirement.** There is no residence requirement for the M. Engr. degree. A maximum of eight credit hours may be transferred from another institution.

**Candidacy for the degree.** Admission of a student to the Graduate School as a degree student in Approved Status implies only that the student has met minimum entrance requirements and will be permitted to take graduate courses which may be expected to lead to a degree. The student has not been admitted as a candidate for a degree. Advancement to candidacy is granted only after the student has met the following requirements in approximately the following sequence:

1. Completion of the equivalent of 12 semester credits.
2. Attainment of a GPA of at least 2.75 for all work attempted.
3. The appointment of an advisor from the major department. The advisor, who must be a member of the Graduate Faculty, will be appointed by the Dean upon the recommendation of the chairperson of the student’s major department and the Dean of the School of Engineering and Mines. The advisor is responsible to the department and the Graduate School for the supervision of the student’s work.
4. Approval of a Program of Study on a form available from the Graduate School or from the Graduate School web site. The program, which should be developed in consultation with the advisor, early in the second semester, must be signed by the student, the advisor, the department chairperson (or designate), and the Dean of the School of Engineering and Mines, and must be submitted to the Dean of the Graduate School for approval.
5. Approval of a topic for the design project by having the advisor, department chairperson, and Dean of Engineering sign the Proposal of Design Project and submitting the Proposal to the Graduate School.

The student and the advisor will be notified in writing of the advancement to candidacy. Students must complete all requirements for advancement to candidacy prior to the semester in which they plan to graduate.

**Final Examination.** Candidates for the Master of Engineering degree must pass written final comprehensive examination(s) which must cover the course material in the field of study. Such examinations generally will be given and evaluated by the major department, but the results must be certified to the Graduate School by the advisor and the department chairperson on the form Final Report on Candidate by the deadline specified in the Academic Calendar. The appropriate comprehensive examination(s) will be arranged by the advisor and given by the department no earlier than the semester preceding the semester in which the candidate intends to graduate. Comprehensive examinations which are failed may be repeated only with the prior approval of the advisor, the department, and the Dean of the Graduate School, but in no event earlier than at the next regularly scheduled offering.

**MASTER OF ENVIRONMENTAL MANAGEMENT**  
(See Earth System Science and Policy under Departmental Programs)

**MASTER OF FINE ARTS**  
(See Visual Arts under Departmental Programs)

**MASTER OF MUSIC**  
(See Music under Departmental Programs)

**MASTER OF PHYSICIAN ASSISTANT STUDIES**  
(See Physician Assistant Studies under Departmental Programs)

**MASTER OF PUBLIC ADMINISTRATION**  
(See Public Administration under Departmental Programs)

**MASTER OF SCIENCE IN APPLIED ECONOMICS**  
(See Applied Economics under Departmental Programs)

**MASTER OF SOCIAL WORK**  
(See Social Work under Departmental Programs)

**SPECIALIST DIPLOMA**

The Specialist Diploma is available only in the field of Educational Leadership. This program requires the equivalent of two full years of study beyond the bachelor’s degree or one full year of study beyond the master’s degree. The Specialist Diploma ordinarily is a terminal program of advanced preparation for professional practice.

**Admission Requirements:**
1. A master’s degree, normally in Educational Leadership.
2. Significant experience in teaching and administration.
3. A minimum of eighteen semester credits, including student teaching, of undergraduate preparation in Education.
4. A GPA of at least 3.50 for all graduate work completed.

**Course Requirements.** A minimum of 64 credits beyond the bachelor’s degree is required for the Specialist Diploma, including 4 credits for the Independent Study Report (997). One half of the credits for the diploma must be for courses numbered 500 or higher. The program in Educational Leadership will include an area of concentration of at least 40 credits, including at least 20 credits in Educational Leadership and one or two cognate areas totaling 12-24 credits.

Students are referred to the section of this catalog entitled Department Programs for additional departmental requirements.

**Residence Requirements.** Following the awarding of the master’s degree, all students must spend either one semester or one summer session in residence.

**Independent Study Report.** The independent study is designed to require the student to investigate a topic related to the major field of study. The study need not be an original contribution to knowledge but may be a presentation, analysis, and discussion of information and ideas already in the literature of the field. The requirement is to ensure that a student can investigate a topic and organize a scholarly report on the investigation.

The topic for an independent study must be approved by the student’s Advisory Committee. Approval is effected by the student’s completing a form titled Proposal for Independent Study, available with instructions from the Graduate School, then submitting the proposal to the Committee for approval. The proposal, which must be approved no later than the beginning of the semester or session in which the student expects to graduate, must be filed in the Graduate School before a student is advanced to candidacy.

A report of an independent study must be prepared and submitted to the Faculty Advisory Committee for approval. Three copies of the report (one each for the student, the advisor, and the department) must be accepted by the Faculty Advisory Committee who will certify completion of the report to the Graduate School by the deadline specified in the Academic Calendar. The advisor will submit a grade for 997-Independent Study to the Office of the Registrar.

**Candidacy for the Diploma.** Candidates for a Specialist Diploma will not be permitted to graduate in the same semester or summer session in which they become a candidate. Students in Approved Status may be advanced to candidacy for the Specialist Diploma when the following requirements have been fulfilled:
1. Completion of the equivalent of 12 semester credits with a satisfactory GPA.
2. Appointment of a three-member Faculty Advisory Committee. This Committee is appointed by the Dean upon the written recommendation of the chairperson of the student’s major department. The chairperson of the Committee must be a Full member of the Graduate Faculty. Until the appointment of the Committee, the department chairperson, or designate, will act as the student’s temporary advisor.
3. Approval of a Program of Study for the diploma. The program is developed by the student and the Committee on a form available from the Graduate School. The program, which must carry the signatures of the student and the committee, is submitted to the Dean of the Graduate School for approval.
4. Approval of a Proposal for Independent Study on a form available from the Graduate School. This proposal, when approved by the Committee and filed in the Graduate School, indicates acceptance of the topic for study and incorporation in a report.
5. Completion of the required practicum or internship.
6. Completion of departmental testing requirements.
Students and their advisors will be notified in writing of advancement to candidacy.

**Final Examinations.** All students must pass written comprehensive examinations covering the program of work approved for the diploma. The examinations normally are given and evaluated by the department in the period 30 days before the Final Report deadline. Comprehensive examinations which are failed may be repeated only with the prior approval of the Advisory Committee, the department, and the Dean, but in no event earlier than at the next regularly scheduled offering.

Candidates may not take the final comprehensive examination(s) unless they have applied to receive the diploma, have been advanced to candidacy for the diploma, and have been certified, in writing, as eligible by the Graduate School.

**DOCTOR OF ARTS**

The Doctor of Arts (D.A.) degree program is designed to prepare teachers for four-year and two-year colleges in subject matter fields. The recipient of this degree must have demonstrated a command of knowledge in the broad field of the degree and an ability to teach the subject at the post-secondary level. This degree does not require the preparation of a dissertation but does require the student to obtain some experience in independent research and write a formal report thereon.

The D.A. degree is available only in the department of History. Only those persons holding a master’s degree in history or a closely related field are eligible for admission to a program leading to the D.A. degree.

Students should refer to the section of this catalog titled “Departmental Programs” for additional admission, degree, examination, and course requirements unique to each department.

**Admission Requirements:**
1. An overall GPA of at least 3.50 for all graduate work.
2. A master’s degree.
3. Scores on the general and advanced tests of the Graduate Record Examination if appropriate.
4. Recommendation for doctoral work by the department.

In History, a master’s degree with thesis is preferred, and the master’s program must have a minimum of fifteen semester hours of history at the graduate level. Acceptance of a student for doctoral work, on the basis of the above criteria, does not imply or guarantee advancement of the student to candidacy for the degree.

**Program Requirements.** The D.A. degree requires the completion of a program of 90 semester credits beyond the baccalaureate degree, including acceptable master’s work. The program of study for the degree, prepared with the assistance of the Faculty Advisory Committee, and approved by the Dean, will include:
1. A minimum of 60 credits of work in the discipline (the major) of which no more than 20 credits will be designated as an area of concentration. Included in the area of concentration will be a minimum of 5 credits of independent research.
2. A minimum of 10 credits in areas cognate to the major.
3. A minimum of 15 credits in college teaching. The majority of this work will be in a supervised teaching internship in the discipline and in work in the major department preparatory to the internship (seminars in college teaching, etc.).

With the approval of the student’s Committee and the Dean, up to one-half of the work beyond the master’s degree may be transferred from another institution.

**Residence Requirement.** At least two regular consecutive semesters of residence are required on the University of North Dakota campus.

**Internship.** A teaching internship during which the student is required to teach college-level courses under supervision is a necessary part of each student’s program. This teaching may be done at the University of North Dakota or at a cooperating institution. If done at a cooperating institution, the student will be under the joint supervision of a resident professor and the chairperson of the student’s Advisory Committee.

**Research Project.** All D.A. students must complete a research project and register for at least five semester credits. The project will be conducted under the direction of a member of the Faculty Advisory Committee, usually the chairperson, who is responsible for assigning a final grade. The proposed project must be approved by the Faculty Advisory Committee and the director of doctoral study of the department (if appropriate), and the Dean of the Graduate School. A copy will be filed with the department and the Graduate School.

A copy of the final DA research paper must be submitted to the Graduate School by the deadline published in the Academic Calendar (usually two weeks prior to graduation). The paper will be published by University Microfilms International and bound and deposited in the Chester Fritz Library. The paper must conform to the format guidelines of the Graduate School as published in the Style and Policy Manual for Theses and Dissertations.

**Comprehensive Examination.** A written comprehensive examination is required before advancement to candidacy for the D.A. degree. This examination must cover the broad field of the major and be prepared and evaluated by the Graduate Faculty of the student’s major department.

Students must apply for permission to take the comprehensive examination on a form available at the Graduate School. After checking the record to ensure that the student is eligible for the examination (most of the work completed, in Approved Status, Program of Study approved), the Graduate School will certify eligibility and will forward an examination report form to the chairperson of the student’s Faculty Advisory Committee. The student may not take the examination until such certification has been provided. Comprehensive
examinations which are failed may be repeated only with the prior approval of the Advisory Committee, the department, and the Dean, but in no event earlier than at the next regularly scheduled offering.

Candidacy for the Degree. Candidates for the D.A. degree will not be allowed to graduate in the same semester or summer session in which they become candidates.

Students in Approved Status may be advanced to candidacy when the following requirements have been fulfilled:

1. A three- or five-member Faculty Advisory Committee has been appointed. Committee members are appointed by the dean upon the written recommendation of the chairperson of the student’s major department. On five-member committees, the fifth member is appointed by the dean. Until the appointment of the committee, the department chairperson, or designate, acts as the student’s temporary advisor. The chairperson of the committee, who serves as the student’s major advisor, must be a Full member of the Graduate Faculty. The director of the student’s research project normally will be the chairperson of the committee.

2. A Program of Study, outlining the requirements for the degree as developed by the student and the committee, has been approved by the student, the committee, and the dean of the Graduate School. The program, executed on a form available from the Graduate School, should be developed no later than the beginning of the second semester of work.

3. Departmental examination requirements have been completed.

4. A substantial portion of the coursework for the degree has been completed with a GPA of no less than 3.0 for all work attempted.

5. The comprehensive examination has been successfully completed.

6. A Research Project has been approved as evidenced by filing an approved Research Proposal on a form available from the department.

7. The Advancement to Candidacy has been recommended by the student’s Faculty Advisory Committee.

The student and the advisor will be notified in writing of advancement to candidacy.

Final Examination. The final examination for the D.A. degree is conducted by the candidate’s full Faculty Advisory Committee. The examination will be oral and will be based on the area of concentration and the research project. Final examinations which are failed may be repeated only with the prior approval of the Advisory Committee and the dean.

Examinations are to be scheduled in advance by the Committee through the Graduate School. The results must be certified by the Committee on the Final Report form by the deadline specified in the Academic Calendar.

D.A. candidates will be required to complete a National Research Council demographic survey form and an agreement with University Microfilms, International, prior to graduation.

DOCTOR OF EDUCATION

The Doctor of Education (Ed.D.) degree is the highest University award given in recognition of the completion of academic preparation for professional practice in school teaching fields and in fields preparing school service personnel.

Admission Requirements

1. An overall GPA of at least 3.50 for all graduate work completed.

2. A master’s degree or the equivalent.

3. The necessary undergraduate preparation in the field.

4. Completion of any departmental examination requirements, i.e., qualifying or diagnostic examinations.

5. Scores on special tests required by the department.

6. Recommendation for doctoral work by the department concerned. Acceptance of a student for doctoral work, on the basis of the above criteria, does not imply or guarantee advancement of the student to candidacy for the degree.

Students should refer to the section of this catalog titled “Departmental Programs” for additional admission, degree, examination, and course requirements unique to each department.

Program Requirements. The Ed.D. degree requires the completion of a program of 96 semester credits beyond the bachelor’s degree, including acceptable master’s and specialist’s work, and the submission of an acceptable dissertation. The emphasis in the program is on courses and seminars to provide extensive knowledge of the field and will provide for the following:

1. Acquisition of broad knowledge in the area of concentration or major (at least 48 credits), in a cognate area, i.e., directly supportive of the area of concentration, and in the Foundations of Education (at least 12 credits).

2. Development of competencies in the scholarly tools required for study and practice in the field (normally 6 semester credits of statistics).

3. The preparation of a dissertation based on the investigation of a topic related to theory and practice in the professional field. The dissertation must demonstrate critical analysis, knowledge of the professional literature, and a familiarity with methods of research, all presented in a scholarly style. A maximum of ten semester credits may be assigned to the dissertation.

4. A period of professional practice in the form of a practicum or internship. At the discretion of the student’s Faculty Advisory Committee, this provision may be waived if the candidate has accumulated sufficient professional experience in the field prior to the completion of the doctoral program.

With the approval of a student’s committee, up to one-half of the work beyond the master’s degree may be transferred from another institution.

Residence Requirement. At least two consecutive semesters of residence or other options specified for the doctoral programs are required on the University of North Dakota campus.

Dissertation. Each candidate for the Doctor of Education degree must submit a dissertation to the Graduate School in partial fulfillment of the requirements for the degree. The dissertation is prepared with the guidance and advice of the student’s faculty advisor. However, all dissertations must be prepared in accord with the Style and Policy Manual for Theses and Dissertations. Copies are available on the Graduate School’s website.

The topic for the dissertation must be approved in advance by the student’s Faculty Advisory Committee. Approval is effected by the student’s completing a form titled Proposal of Dissertation, available from the Graduate School on the Graduate School website, then submitting the proposal to the committee for approval. The approved proposal must be filed in the Graduate School. The proposal should be approved the semester before the degree is expected, but it must be completed before advancement to candidacy.
The draft of the dissertation should be presented to the Faculty Advisory Committee sufficiently in advance of the Preliminary Approval deadline that a thorough evaluation may be effected by the entire committee. The committee must be able to read the draft, suggest corrections and changes, and the student must be able to make the corrections, all in time for the committee to indicate its approval of the draft by signing a form titled Preliminary Approval of Dissertation. The student must deposit the approval form in the Graduate School by the deadline specified in the academic calendar (usually four weeks prior to commencement). The Preliminary Approval assures the student that no major changes will be required in the final copy of the dissertation. Copies of the dissertation in its final form must be presented to the Faculty Advisory Committee in time that they may thoroughly read the dissertation prior to the final examination. When the final version of the dissertation has been approved by the Committee, a copy must be deposited in the Graduate School in time to receive the approval of the Dean by the deadline specified in the Academic Calendar (usually two weeks prior to commencement). The advisor and the major department must each be presented one copy of the dissertation. One copy of a special abstract of the dissertation, in a 350-word format described in Style and Policy Manual for Theses and Dissertations, also must be presented with the dissertation. The abstract is published in Dissertation Abstracts by University Microfilms International, and the entire dissertation is microfilmed by the same organization. The Graduate School has the final copy of the dissertation bound and cataloged in the Library.

Comprehensive Examination. All students seeking a Doctor of Education degree must take a written comprehensive examination after a substantial portion of the coursework has been completed. At the option of the department, an oral examination may also be given. The content of the examination will be determined by the Graduate Faculty of the departments concerned, and the examination will be given at times announced by the departments. The examination must be extensive and searching and cover in depth the field or fields of knowledge in which the degree is taken. This examination must be completed before advancement to candidacy for the degree but cannot be undertaken until the scholarly tool requirements have been completed. Comprehensive examinations which are failed may be repeated only with prior approval of the advisory committee, the department, and the dean, but in no event earlier than at the next regularly scheduled offering.

Students must apply for permission to take the comprehensive examination on a form available from the Graduate School. After checking the record to ensure that the student is eligible for the examination (most of the work completed, Approved Status attained, Program of Study approved, scholarly tool requirements completed), the Graduate School will certify eligibility and will forward an examination report form to the chairperson of the student’s Faculty Advisory Committee. The student may not take the examination until such certification has been provided.

Candidacy for the Degree. A student must fulfill all of the requirements for and be advanced to candidacy prior to the beginning of the semester or summer session in which he/she expects to receive a degree.

Students in Approved Status may be advanced to candidacy for a doctor’s degree when the following requirements have been fulfilled:

1. A five-member Faculty Advisory Committee has been appointed. Four committee members are appointed by the dean upon the written recommendation of the chairperson of the student’s major department and must represent the major and cognate areas of study. The fifth member is appointed by the Dean and represents the Graduate Faculty. Until the appointment of the committee, the department chairperson, or designate, acts as the student’s temporary advisor. The chairperson of the Committee, who serves as the student’s major and dissertation advisor, must be a Full member of the Graduate Faculty.

2. A Program of Study, outlining the requirements for the degree as developed by the student and the committee, has been approved by the student, the committee, and the dean of the Graduate School. The program, executed on a form available from the Graduate School, should be developed no later than the beginning of the second semester of work.

3. Departmental examination requirements have been completed.

4. A substantial portion of the coursework for the degree has been completed with a GPA of no less than 3.00 for all work attempted.

5. The scholarly tool requirement has been met.

6. The comprehensive examination has been successfully completed.

7. A dissertation topic has been approved as evidenced by filing an approved Proposal of Dissertation on a form available from the Graduate School.

8. Advancement to candidacy has been recommended by the student’s Faculty Advisory Committee.

The student and the advisor will be notified in writing of advancement to candidacy.

Final Examination. The final examination must be scheduled two weeks in advance by the committee through the Graduate School and must be completed and the results reported by the deadline specified in the Academic Calendar.

The final examination is conducted by the candidate’s full Faculty Advisory Committee in the presence of the dean of the Graduate School and such other members of the Graduate Faculty as elect to attend. The final examination will include an oral examination but also may include written portions. The examination will cover the dissertation but need not be limited thereto. Committee members must have had adequate opportunity to examine the final copy prior to the examination, and will indicate their approval by signing the Approval Page of the dissertation and the Final Report on Candidate. Final examinations which are failed may be repeated only with the prior approval of the advisory committee and the dean.

A student may pass the Doctoral comprehensive and/or Final Examination with one dissenting vote. The dissenter must submit a written report on his/her decision to the Graduate School. Four signatures will be accepted on the final copy of the dissertation.

Ed.D. candidates will be required to complete a National Research Council demographic survey form and an agreement with University Microfilms International before graduation.

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy (Ph.D.) degree is awarded in recognition of the highest degree of creative scholarship and research in a field of study. The recipient of this degree must have demonstrated proficiency in a broad area of learning and the ability to critically evaluate work in the discipline. The degree is not awarded solely for completing a prescribed number of courses, but for having undertaken and completed independent work in the discipline leading to an original contribution to knowledge.

The Ph.D. degree requires the completion of a program of 90 semester credits beyond the baccalaureate degree and the submission of an acceptable dissertation. A substantial portion of the credits for the program must be devoted to independent research, the results of which are to be incorporated in the dissertation. It is expected that all or part of a Ph.D. dissertation will be publishable in the literature of
the discipline and normally will be published. The program will include enrollment in courses and/or seminars which are designed to (a) advance the student’s knowledge in the discipline, (b) provide competence in the scholarly tools (languages, mathematics, etc.) required for study and research in the discipline, and (c) provide competence in the research methods of the discipline, e.g., courses in bibliography or historiography, a research minor in education, courses dealing with current research topics, etc.

**Admission Requirements.** Generally, students may undertake work that will lead to a Doctor of Philosophy degree only after they have received a master’s degree, usually in the same academic discipline, from this or another accredited institution; however, in some disciplines it is possible to be admitted directly to the Ph.D. program. In certain disciplines students who have completed the equivalent of the coursework for the master’s degree may be readmitted to work toward the Ph.D. directly, thereby bypassing the master’s degree (see department section). Each student must have: (1) attained an overall GPA of at least 3.00 for all graduate work, (2) completed the necessary undergraduate preparation, (3) completed any departmental examination(s) or other requirements, (4) presented scores on tests required by the department, and (5) been recommended for doctoral work by the department. Acceptance of a student for doctoral work on the basis of the above criteria does not imply or guarantee advancement of the student to candidacy for the degree.

**Program Requirements.** The Ph.D. degree requires the completion of a program of 90 semester credits of graduate work beyond the bachelor’s degree, including acceptable master’s degree work, and the submission of an acceptable dissertation. With the approval of the student’s Faculty Advisory Committee, up to one-half of the work beyond the master’s degree may be transferred from another institution. The program will include work in one major department and should include work in one or more related departments, i.e., either a minor or cognate area, but at least one-half of the work must be in the major field. The credits for the dissertation (typically 6-18 credits), and the research on which it is based, should comprise a substantial portion of the 90 credits for the degree and should be included in the major part of the program.

**Students should refer to the section of this catalog titled “Departmental Programs” for additional admission, degree, examination, and course requirements unique to each department.**

**Residence Requirements.** Since the Ph.D. is a research degree, the majority of the academic work must be conducted in an academic research environment. Accordingly, the program normally will include provision for two consecutive years of full-time academic work. In most instances this requirement will be met by two consecutive years of residence on the University of North Dakota campus. With prior written approval by the Dean, one of the two years of residence may be completed by one year of full-time academic work and/or research at another institution or location. Note: The Residence Requirement is in effect unless modifications have been granted to the department by the Graduate Committee.

**Scholarly Tools.** Candidates for the Ph.D. degree may have to demonstrate competence in scholarly tools required for study and research in the discipline. Each department offering the Ph.D. degree has specified the nature of these tools (languages, mathematics, statistics, computer programming, etc.). See the “Departmental Programs” section for more information. This requirement must be completed before the student is permitted to take the comprehensive examination for the degree or become a candidate for the degree.

**Foreign Language Exam.** Students required to demonstrate a reading knowledge of a foreign language may do so by one of two procedures: Standardized tests (Graduate Student Foreign Languages Tests - GSFLT) prepared by the Educational Testing Service are available in French, German, Russian, and Spanish and are given by the Counseling Center upon student request. The Languages Department will administer a Reading Test in French, German, Russian, or Spanish. This test is offered three times a year: on Reading and Review day at the end of the fall and spring semesters, and on registration day for the fall semester. Students must sign up for the examination with the department secretary, no later than one week before the examination date. Students may take the examination a maximum of three times at the Languages Department. Students needing to demonstrate a reading knowledge in a language other than those mentioned above should, together with their Advisory Committee, petition the Dean for approval of the use of the language and the proposed examination mechanism.

**Dissertation.** A dissertation is required in partial fulfillment of the requirements for the Ph.D. degree. It must represent an original and independent investigation in the major field of study. Through the dissertation, and the research leading to it, each candidate clearly must have made a significant contribution to the advancement of knowledge in the field. Credit is given for the dissertation and for the research on which it is based, the amount being determined in advance by the student’s Faculty Advisory Committee in accord with the limits established by the major department.

A dissertation is prepared with the guidance and advice of the student’s faculty advisor and the Committee. However, all dissertations must be prepared in accord with the Style and Policy Manual for Theses and Dissertations. The “Manual” is available on the Graduate School website.

The topic for the dissertation must be approved in advance by the student’s Faculty Advisory Committee. Approval is effected by the student’s completing a form titled Proposal of Dissertation, available with instructions from the Graduate School and on the web site, then submitting the proposal to the committee for approval. The approved proposal is then filed in the Graduate School. The proposal should be approved the semester before the degree is expected, but it must be approved before advancement to candidacy.

The draft of the dissertation should be presented to the Faculty Advisory Committee sufficiently in advance of the Preliminary Approval deadline that a thorough evaluation may be effected by each committee member. The Committee must be able to read the draft, suggest corrections and changes, and the student must be able to make the corrections, in time for the Committee to approve the dissertation and sign a form titled Preliminary Approval of Dissertation. The student must deposit the Approval Form in the Graduate School by the deadline specified in the academic calendar (usually four weeks prior to commencement). Unless this deadline is met, the student will not be permitted to graduate at the upcoming graduation. The Preliminary Approval assures the student that no major changes will be required in the final copy of the dissertation.

Copies of the dissertation in its final form must be presented to the Faculty Advisory Committee in time that they may thoroughly read the dissertation prior to the final examination. When the final version of the dissertation has been approved by the committee, a copy must be deposited in the Graduate School in time to receive the approval of the Dean by the deadline specified in the Academic Calendar (usually two weeks prior to graduation). The advisor and the major department must each be presented one copy of the dissertation. One copy of a special abstract of the dissertation (in a 350-word format described in the Style and Policy Manual for Theses and Dissertations) also must be submitted. The abstract is published in Dissertation Abstracts by University Microfilms International, and the dissertation is microfilmed by the same organization. The Graduate School has the final copy of the dissertation bound and cataloged in the University Library.
Comprehensive Examination. All students seeking a Doctor of Philosophy degree must take a written comprehensive examination after a substantial portion of the coursework has been completed. At the option of the department, an oral examination may also be given. The content of the examination will be determined by the Graduate Faculty of the departments concerned, and the examination will be given at times announced by the departments. The examination must be extensive and searching and must cover in depth the field or fields of knowledge in which the degree is taken. This examination must be completed before advancement to candidacy but cannot be undertaken until the scholarly tool requirements have been completed. Comprehensive examinations which are failed may be repeated once with the prior approval of the Faculty Advisory Committee, the department, and the Dean, but in no event earlier than at the next regularly scheduled offering.

Students must apply for permission to take the comprehensive examination on a form available at the Graduate School. After checking the record to ensure that the student is eligible for the examination (most of the work completed, Approved Status attained, Program of Study approved, scholarly tool requirements completed), the Graduate School will certify eligibility and will forward an examination report form to the chairperson of the student’s Faculty Advisory Committee. The student may not take the examination until such certification has been provided.

In lieu of the comprehensive examination, students in Chemistry will take cumulative examinations which begin in the second semester of graduate school. Chemistry students will not be required to apply for permission to take the comprehensive.

Candidacy for the Degree. Advancement to candidacy is granted only after the completion of specified academic requirements and upon the recommendation of the Faculty Advisory Committee. Candidates for a doctor’s degree will not be allowed to graduate in the same semester or summer session in which they become a candidate for the degree.

Students in Approved Status may be advanced to candidacy when the following requirements have been fulfilled:

1. A five-member Faculty Advisory Committee has been appointed. *Four committee members are appointed by the dean upon the written recommendation of the chairperson of the student’s major department to represent the major and any minor areas of study. The fifth member is appointed by the dean and represents the Graduate Faculty. Until the appointment of the committee, the department chairperson, or designate, acts as the student’s temporary advisor. The chairperson of the Committee, who serves as the student’s major and dissertation advisor, must be a Full member of the Graduate Faculty. An associate member may chair a doctoral student’s faculty advisory committee and direct the dissertation research if approved by the Dean of the Graduate School and is under the direction of a mentor appointed by the Dean of the Graduate School. *Teaching and Learning has four-member Faculty Advisory Committees.

2. A Program of Study, outlining the requirements for the degree as developed by the student and the Committee, has been approved by the student, the Committee, and the dean of the Graduate School. The program, executed on a form available from the Graduate School, should be developed no later than the beginning of the second semester of work.

3. Departmental examination requirements have been completed.

4. A substantial portion of the coursework for the degree has been completed with a GPA of no less than 3.00 for all work attempted.

5. The scholarly tool requirement has been completed.

6. The comprehensive examination has been successfully completed.

7. A dissertation topic has been approved as evidenced by filing an approved Proposal of Dissertation on a form available from the Graduate School.

8. Advancement to candidacy has been recommended by the student’s Faculty Advisory Committee.

The student and the advisor will be notified in writing of advancement to candidacy.

Final Examination. The final examination must be scheduled two weeks in advance by the Committee through the Graduate School and must be completed and the results reported by the deadline specified in the Academic Calendar.

The final examination for the doctoral degree is conducted by the candidate’s full Faculty Advisory Committee in the presence of the dean of the Graduate School and such other members of the Graduate Faculty as elect to attend. The final examination must include an oral examination but also may include written portions. The examination must cover the dissertation but need not be limited thereto. Committee members must have had adequate opportunity to examine the final copy prior to the examination and will indicate their approval by signing the “Approval Page” of the dissertation and the “Final Report on Candidate.” Final examinations which are failed may be repeated once with the prior approval of the Advisory Committee and the Dean.

A student may pass the Doctoral Comprehensive and/or Final Examination with one dissenting vote. The dissenter must submit a written report on his/her decision to the Graduate School. Four signatures will be accepted on the final copy of the dissertation.

Ph.D. candidates will be required to complete a National Research Council demographic survey form and an agreement with Proquest UMI before graduation.

DOCTOR OF PHYSICAL THERAPY
(See Physical Therapy under Departmental Programs)

Joint M.D. - Ph.D. Program

Through the cooperation of the Graduate School and the School of Medicine, students may concurrently pursue the Doctor of Philosophy degree in a medical science field (Anatomy and Cell Biology, Biochemistry and Molecular Biology, Microbiology and Immunology, Pharmacology, Physiology, and Therapeutics) and the Doctor of Medicine degree. The minimum time required to complete the joint program is six years of full-time academic study.

Students interested in the joint M.D.-Ph.D. program should first obtain admission to the School of Medicine and Health Sciences to the M.D. degree program, following the normal application process and meeting the selection criteria. A student admitted to the M.D. program may apply to graduate school as soon as he/she has selected a graduate program, which may occur before matriculation in Medical School but not later than the end of the first year of Medical School.

Final admission requirements for the M.D./Ph.D. program include:

1. Satisfactory performance in the first two years of the medical education curriculum with passing scores on all required assessment tools.

2. Successful completion of the USMLE Step 1 examination.

3. Satisfactory scores achieved on General and Subject GRE examination or MCAT scores.

4. All other UND Graduate School admission requirements listed in the UND Academic Catalog.
If admission to a Ph.D. program is granted, the student should apply to the School of Medicine and Health Sciences Student Performance and Recognition Committee for a “modification of original program” which will allow the student to pursue the M.D. degree and Ph.D. degree concurrently. The student also must request the Office of Student Affairs to certify to the Graduate School his/her satisfactory completion of the first two years of the M.D. program.

Students are expected to complete the following general requirements for the Ph.D. degree in a medical science field:

1. Performance of original research of a quality suitable for publication in refereed, professional journals.
2. Pass final examination which includes preparation and oral defense of a satisfactory dissertation.
3. Completion of BIMD 512 and 513.
4. A minimum of 90 credit hours, including research and dissertation.
5. Successful completion of a scholarly tool (Note: May be specified by a department.)
6. Completion of the first two years of the medical education curriculum, transferred as 44 credits toward the Ph.D.
7. Passing comprehensive examinations covering the coursework in the major area.

Accountancy
http://business.und.edu/accountancy/

FACULTY: Beard, Byars, Campbell, Carlson, DeMagalhaes, Dosch, Ellingson, Hansen, Loyland and Wilde

DEGREES GRANTED: Master of Accountancy

PROGRAM DESCRIPTION

The Master of Accountancy (MAcc) degree is a professional graduate degree for individuals with an accounting background seeking advanced study in the discipline of accounting and broader aspects of business. Specifically, the primary goal of the MAcc is to assist in the preparation of professional accountants. Three supporting objectives of the Program are 1) To assist students in dealing with unstructured problems and complex decision making in accounting and business environments; 2) To assist students in improving their communications skills in a professional setting; and 3) For those who choose to pursue the CPA designation as part of their professional development, assist in their preparation for the CPA examination.

The Program is intended to fulfill expectations of the public accounting profession by providing a graduate option to fulfilling the 150-hour requirement currently in effect in most public accounting jurisdictions, including North Dakota and Minnesota. While primarily intended for individuals entering public accounting, the MAcc may also serve those who wish to pursue careers in industrial and governmental/nonprofit accounting. Additionally, this Program would prepare those wishing to pursue further study in a doctoral program.

Admission Requirements

Admission to Approved status requires:

1. Applicant must adhere to the UND Graduate School standards for admission.
2. Completion of the Graduate Management Admission Test (GMAT) with a score that equals or exceeds an overall score of 500. In certain circumstances, applicants may substitute the GRE or LSAT for the GMAT.
3. An overall grade point average of at least 3.00 in the undergraduate degree program (based on 4.00 scale), or a 3.25 GPA, or equivalent, for the last two years.
4. Command of the MAcc foundation (see description below).

Applicants who meet the first three requirements listed above, but who have not met the coursework requirements of the MAcc foundation, may be admitted to Qualified Status.

Applicants who fail to meet the minimum grade point or GMAT requirements, but who otherwise show high potential for success may be considered for admission to Provisional Status with the approval of the Program Director and the Department Chair.

Combined Admission

Individuals at UND currently completing their junior year (90 credits) towards an accounting undergraduate degree may apply to the MAcc under combined admission. Combined admission to the MAcc program may be granted to accounting students with a minimum of 90 credits completed and both an overall grade point average of 3.25 (based on a 4.00 scale) and 3.25 GPA average for all courses taken with an accounting prefix completed to the date of application and admission. The GMAT score requirements for combined students are the same as that required for other MAcc students.

Combined admission allows students to more effectively manage their course load. By taking a combination of undergraduate and graduate courses, the student can effectively take a larger course load than by taking only graduate courses. Under combined admission, the applicant will be exempted from Acct 450, Contemporary Issues in Accounting in his/her undergraduate program. The MAcc program under combined admission will require a minimum of two years of study.

Individuals being admitted to the MAcc under combined admission are considered graduate students, and are eligible for privileges accorded graduate students. Individuals entering the MAcc under combined admission also receive their undergraduate and graduate degrees in the semester when they complete the requirements of both degrees.

The MAcc Foundation

Applicants must demonstrate command of a core undergraduate curriculum in accounting and business. Command may be demonstrated by the successful completion of the foundation coursework with a 3.0 average GPA (based on a 4 point scale), for all foundation courses completed or attempted, and a grade of "C" or better in each individual foundation course completed. The following courses are required, or may be waived by the MAcc Program Director.

<table>
<thead>
<tr>
<th>Business:</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements or Principles of Accounting</td>
<td>6</td>
</tr>
<tr>
<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Finance</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Accounting:</td>
<td></td>
</tr>
<tr>
<td>Intermediate Accounting</td>
<td>6</td>
</tr>
<tr>
<td>Cost/Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Accounting Systems</td>
<td>3</td>
</tr>
<tr>
<td>Tax</td>
<td>3</td>
</tr>
<tr>
<td>Auditing</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

Total Foundation Credits Required 36

Degree Requirements

The MAcc degree is an accounting program including graduate courses in most of the functional areas of the accounting discipline. The MAcc Program Director is responsible for coordinating all aspects of the program. The MAcc degree program course requirements are:
1. A minimum of 32 semester credits of academic work must be completed. The GPA for all courses listed on the Program of Study must be an average of 3.00 or higher. The Program includes 20 semester credits of required coursework, including the Independent Study (Acct 997 of 2 credits), and sufficient electives to total 32 semester credits. The required courses are:

- Acct 501 Seminar in Financial Accounting 3
- Acct 504 Seminar in Auditing 3
- Acct 509 Accounting Info. for Decision & Control 3
- Acct 508 Fraud Examination 3
- Fin 501 Managerial Finance 3
- Issys 517 Advanced Accounting Systems 3
- Acct 997 Independent Study 2

2. Twelve credits of elective courses are required. At least six credits of these electives must be at the 500 level. Other courses may be substituted by approval of the MAcc Director. Those 300- and 400-level courses taken for graduate credit must be approved for graduate credit by the Graduate Committee, and have a graduate level component included to be considered part of the Program of Study.

3. All MAcc students will be required to complete (receive a passing score) a comprehensive final examination, covering the MAcc core curriculum, excluding Acct 997. The comprehensive final exam must be taken during the semester the student is graduating. The comprehensive final exam will be offered each semester, including summer session. The timing of the comprehensive final will be determined and announced to all MAcc candidates within the first four weeks of each semester. Students will be allowed two attempts to pass the comprehensive final examination. The second attempt will normally be at the next regularly scheduled comprehensive final, but may be at an alternate time established by the Program Director.

Students who have already completed courses similar to those in the MAcc curriculum may be required to choose substitutes from graduate credit offerings listed in the catalog. Substitutions require prior approval of the MAcc Director and the Graduate Dean.

Students can measure progress towards completion of the degree by attaining the following criteria:

1. Maintain and complete the degree with a 3.00 or greater cumulative GPA.
2. Satisfactory progress towards completion of 32 credit hours contained in the Program of Study.
4. Satisfactorily complete the Comprehensive Final Examination.

### Courses (Acct)

- **501. Seminar in Financial Accounting.** 3 credits. Prerequisite: Acct 302 or equivalent. Addresses current issues in financial accounting and develops appropriate professional judgment by understanding theory, concepts, and issues underlying the financial accounting and reporting process.
- **504. Seminar in Auditing.** 3 credits. Prerequisite: Acct 405 or equivalent. Expands understanding of the auditing function and provides a framework for analyzing contemporary auditing and assurance issues.
- **507. Advanced Managerial Accounting.** 3 credits. Functional uses of accounting in management of the enterprise.
- **508. Fraud Examination.** 3 credits. Prerequisite: Acct 405 or equivalent. Focuses on understanding types of fraud as well as collecting and evaluating evidence relating to preventing and detecting frauds. Evidence gathering methods will include the examination of documents, publicly available information, and standard practices for interviews and interrogations.
- **509. Accounting Information for Decision and Control.** 3 credits. Prerequisites: Acct 200 and Acct 201; Math 146; and Econ 210. Management accounting concepts and their application in internal planning, control, and decision-making.

### Aerospace

http://www.aero.und.nodak.edu/

**Courses**

- **530. Advanced Earth System Sciences.** 3 credits. Prerequisites: AtSc 505 or equivalent and AtSc 525 or equivalent for Atmospheric Sciences graduate students; SpSt 430 for Space Studies graduate students; or permission of instructor. Introduction and synthesis of understanding of the components of the Earth system, their interactions, and the consequences of changes in the Earth system for life; identify and quantify Sun-Earth connections associated with solar variability and impact on the Earth System; explore interactions among the major components of the Earth system; continents, oceans, atmosphere, ice, and life; distinguish natural from human-induced causes of change; understand and predict the consequences of change; and consider analysis techniques, with emphasis placed on numerical modeling of phenomena.

### Anatomy and Cell Biology

http://www.med.und.nodak.edu/depts/anatomy/

**FACULTY:** Atkinson, Carlson (Department Chair), Carr, Dunlevy, Grove, Jackson, Meyer, Ruit (Graduate Director) and Watt

**DEGREES GRANTED:** Master of Science and Doctor of Philosophy

**PROGRAM DESCRIPTION**

The Department of Anatomy and Cell Biology offers graduate programs leading to the degrees of Master of Science and Doctor of Philosophy. The programs are designed to prepare scholars for academic teaching and research, or for careers in a variety of organizations that conduct research and development in biologically or medically related areas. Research facilities and expertise available in the department including transmission and scanning electron microscopy, developmental biology, reproductive biology, neurosciences, tissue culture, immunohistochemistry, and molecular biology.

**MASTER OF SCIENCE**

**Mission Statement and Program Goals**

The Department of Anatomy and Cell Biology masters program exists to prepare students for life-long learning and careers in research and teaching in the anatomical and cellular biological sciences. The program provides a quality academic curriculum that emphasizes training, mentoring, and practical experience in state-of-the-art research and in teaching.

**Goal 1:** Students will possess and be capable of applying knowledge and understanding of the anatomical and cellular biological sciences as they encounter new or unfamiliar problems in broader contexts related to their field of study.

**Goal 2:** Students will demonstrate the ability to develop and apply ideas in a research context.
Goal 3: Students will possess communication skills necessary to relate the results of their scholarly work clearly and convincingly to others, and to teach effectively the anatomical and cell biological sciences.

Goal 4: Students will recognize and adhere to ethical principles, exhibit professional behavioral standards, and fulfill their professional responsibilities to their institution, the scientific community and society in general.

Admission Requirements

1. A four-year bachelor’s degree from a recognized college or university.
2. An overall undergraduate GPA of at least 3.00.
3. A year-long sequence of General Biology/Zoology.
4. A year-long sequence of General Chemistry.
5. A course in Organic Chemistry, a course in College Algebra or the equivalent, and a course in Morphology, e.g., Human Anatomy, Comparative Anatomy, Embryology, Histology; courses in Cell Biology, Biochemistry, and Genetics are also recommended.
6. Scores from the GRE General Test and/or the MCAT must be submitted. The GRE Subject Test is not required, but applicants are encouraged to submit those scores if they have taken the test.
7. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 17/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
8. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
9. Admission to the Anatomy and Cell Biology graduate program can be made either through the M.S. degree program or by application directly to the Ph.D. degree program.
10. Students who elect to begin the M.S. degree program and later decide they wish to pursue the Ph.D. degree may choose to attempt to bypass the M.S. degree by taking a Diagnostic/Qualifying examination. Such an examination is administered by a departmental committee and consists, in part, of the preparation of a written research proposal by the student, with an oral defense of that proposal. By passing it and by meeting other requirements, such as a GPA of 3.5 or higher in graduate level coursework, a student may be admitted to the Ph.D. program without completing the M.S. program. Otherwise, a student admitted to the M.S. program must complete the degree as listed.

Degree Requirements

Students seeking the Master of Science degree through the Department of Anatomy and Cell Biology at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Department of Anatomy and Cell Biology.

1. Minimum of 35 semester hours of graduate credit (can be completed in four full semesters and one summer session).
2. A thesis written on an original research problem.

Required courses:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIMD 500</td>
<td>Cellular and Molecular Foundations of Biomedical Science</td>
<td>6</td>
</tr>
<tr>
<td>BIMD 510</td>
<td>Basic Biomedical Statistics</td>
<td>2</td>
</tr>
<tr>
<td>BIMD 513</td>
<td>Seminars in Biomedical Science</td>
<td>1</td>
</tr>
<tr>
<td>BIMD 515</td>
<td>Steps to Success in Graduate School</td>
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</tr>
<tr>
<td>BIMD 516</td>
<td>Responsible Conduct of Research</td>
<td>1</td>
</tr>
<tr>
<td>ANAT 505</td>
<td>Seminar in Anatomy and Cell Biology</td>
<td>1</td>
</tr>
<tr>
<td>(1 credit for each year in the program, excluding year one)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANAT 515</td>
<td>Histology</td>
<td>3</td>
</tr>
<tr>
<td>ANAT 518</td>
<td>Developmental Biology &amp; Human Embryology</td>
<td>6</td>
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<tr>
<td>ANAT 593</td>
<td>Research</td>
<td>8-10</td>
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<tr>
<td>ANAT 998</td>
<td>Thesis</td>
<td>4-6</td>
</tr>
</tbody>
</table>

Total 35

DOCTOR OF PHILOSOPHY

Mission Statement and Program Goals

The Department of Anatomy and Cell Biology doctoral program exists to prepare students for self-directed, life-long learning and careers as independent scientists in the anatomical and cell biological sciences. The program provides a quality academic curriculum that emphasize training, mentoring, and practical experience in state-of-the-art research and in teaching.

Goal 1: Students will possess and be capable of applying systematic knowledge and understanding of the anatomical and cell biological sciences in their scholarly endeavors as independent, self-directed, life-long learners.

Goal 2: Students will demonstrate the ability to conceive, design, implement and adapt work in research with scholarly integrity and originality.

Goal 3: Students will possess communication skills necessary to relate the results of their scholarly work clearly and convincingly to others, and to teach effectively the anatomical and cell biological sciences.

Goal 4: Students will recognize and adhere to ethical principles, exhibit professional behavioral standards, and fulfill their professional responsibilities to their institution, the scientific community, and society in general.

Admission Requirements

1. Completion of a four-year degree from a recognized university.
2. An overall undergraduate GPA of at least 3.00 and 3.50 for all previous graduate work.
3. A year-long sequence of General Biology/Zoology and a year-long sequence of General Chemistry.
4. A course in Organic Chemistry, a course in College Algebra or the equivalent, and a course in Morphology, e.g., Human Anatomy, Comparative Anatomy, Embryology, Histology; courses in Cell Biology, Biochemistry, and Genetics are also recommended.
5. Scores from the GRE General Test and/or the MCAT must be submitted. The GRE Subject Test is not required, but applicants are encouraged to submit those scores if they have taken the test.
6. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
7. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

8. Admission to the Anatomy and Cell Biology graduate program can be made either through the M.S. degree program or by application directly to the Ph.D. degree program.

9. Students who elect to begin the M.S. degree program and later decide they wish to pursue the Ph.D. degree may choose to attempt to bypass the M.S. degree by taking a Diagnostic/Qualifying examination. Such an examination is administered by a departmental committee and consists, in part, of the preparation of a written research proposal by the student, with an oral defense of that proposal. By passing it and by meeting other requirements, such as a GPA of 3.5 or higher in graduate level coursework, a student may be admitted to the Ph.D. program without completing the M.S. program. Otherwise, a student admitted to the M.S. program must complete the degree as listed.

Degree Requirements

1. A minimum of 90 semester hours of graduate credit (can be completed in eight full semesters and four summer sessions).

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIMD 500</td>
<td>Cellular and Molecular Foundations of Biomedical Science</td>
<td>6</td>
</tr>
<tr>
<td>BIMD 510</td>
<td>Basic Biomedical Statistics</td>
<td>2</td>
</tr>
<tr>
<td>BIMD 513</td>
<td>Seminars in Biomedical Science</td>
<td>1</td>
</tr>
<tr>
<td>BIMD 515</td>
<td>Steps to Success in Graduate School</td>
<td>1</td>
</tr>
<tr>
<td>BIMD 516</td>
<td>Responsible Conduct of Research</td>
<td>1</td>
</tr>
<tr>
<td>ANAT 518</td>
<td>Developmental Biology and Human Embryology</td>
<td>6</td>
</tr>
<tr>
<td>ANAT 513 or ANAT 522</td>
<td>Gross Anatomy Neuroscience</td>
<td>6-7</td>
</tr>
<tr>
<td>ANAT 505</td>
<td>Seminar in Anatomy and Cell Biology</td>
<td>2-6</td>
</tr>
<tr>
<td>(one semester for each year in the program, excluding year one)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANAT 593</td>
<td>Research</td>
<td>41-45</td>
</tr>
<tr>
<td>ANAT 999</td>
<td>Dissertation</td>
<td>10-12</td>
</tr>
<tr>
<td>Electives</td>
<td>0-11</td>
<td></td>
</tr>
<tr>
<td>Scholarly Tools</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total 90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The department accepts USMLE, Step 1 as the Diagnostic/Qualifying Examination for medical students entering the M.D./Ph.D. program. Students must pass USMLE, Step 1 of the examination.

Courses

BIMD 500. Cellular and Molecular Foundations of Biomedical Science. 6 credits. A series of lectures and discussion groups with emphasis on interrelated themes in basic biochemistry, cell biology and molecular biology. Lectures will include current and emerging areas of research, while discussion will center on methods, techniques and expansion of lecture topics. Fall semester. Prerequisites: (a) a year of organic chemistry or (b) one semester of organic chemistry plus a course in either biochemistry or cell biology, or (c) permission of the course director.

BIMD 510. Basic Biomedical Statistics. 2 credits. A series of lectures, demonstrations and exercises to provide students with the basic rationales for the use of statistics in the assessment of biomedical data and a selected set of the most common and useful statistical tests. Spring Semester.

BIMD 513. Seminars in Biomedical Science. 1 credit. A series of presentations on original research conducted by UND faculty members as well as extramural leaders in academic and industrial research in the biomedical sciences. Students will participate through assigned reading and writing exercises related to the presentations.

BIMD 515. Steps to Success in Graduate School. † 1 credit. A series of lectures and discussion sessions covering topics related to the development of skills and experience important for successful completion of graduate training and transition to post graduate training and employment. Students will examine a variety of issues including choosing an advisor and research topic, charting their course through graduate school, the importance of productivity, how to give a scientific presentation and write a scientific publication, applying for postdoctoral grants, and laboratory exercises.

BIMD 516. Responsible Conduct of Research. † 1 credit. A series of lectures and discussion sessions covering topics related to responsible conduct in research. Students will examine a variety of issues including introduction to ethical decision making, the experience of conflict, laboratory practices, data management, reporting of research, conflict of interest, and compliance. Examples and case studies will be drawn primarily from the biomedical sciences.

ANAT 501. Biomedical Information Retrieval. 1 credit. S/U grading only. Offered every session either in a group setting or on an individual basis. This course integrates electron information retrieval techniques with biomedical research education to develop the student’s ability to augment traditional learning and research. Electronic techniques covered include data base searching and internet resources.

ANAT 585. Seminar in Anatomy and Cell Biology. 1 credit. This course provides students an opportunity to organize and orally present scientific information to an audience in a forum conducive to the development of their skills in effective communication. Seminars delivered by students, UND faculty, and other invited speakers present current advancements in biomedical research that promote student learning of principles of biomedical sciences.

ANAT 513. Gross Anatomy, 7 credits. This course consists of lectures and laboratory experience providing opportunity for understanding the structure and function of the adult human body. Laboratory work consists of the complete dissection of the human body, study of topographic relations of organs and structures, and the study of normal radiographic anatomy.

ANAT 515. Histology. † 3 credits. A series of laboratory sessions providing a comprehensive study of normal light and electron microscopic structure of cells, tissues, and organs of the body. An introduction to cell and tissue pathology also will be included. Laboratory sessions will include utilization of microscopic tissue slides, video and digital images, student presentations and discussion with faculty.

ANAT 518. Developmental Biology and Human Embryology. † 6 credits. Prerequisite: Bimd 500 or equivalent. A problem-based course in principles of development and human embryology. Topics to include cellular and molecular mechanisms of fertilization, early development, gastrulation and organogenesis. Course will involve student presentations, discussion and laboratory exercises.

ANAT 522. Neuroscience. 6 credits. This course is designed to introduce the student to the study of the structure and function of the nervous system with relevant experimental and clinical application. Lectures, discussion, student presentations and laboratory work address historical as well as current advances in cellular, molecular, developmental, sensorimotor, regulatory and cognitive neurobiology, preparing the student for further, more advanced study of the nervous system.

ANAT 590. Readings in Anatomy and Cell Biology. 1 to 3 credits. Students may elect to do a readings.

ANAT 591. Special Topics in Anatomy and Cell Biology. 1 to 3 credits. Prerequisite: Permission of the instructor. A series of lectures, discussions and/or laboratory experiences developed around a specific topic in the anatomical or cell biological sciences.

ANAT 593. Research in Anatomy and Cell Biology. Credits arranged. Research is offered in the specialty fields of the faculty of the department, and involves a variety of problems and research tools in morphology and cell biology.

ANAT 595. Advanced Gross Anatomy. Credits arranged, with a maximum of six credits. Prerequisite: Anatomy 513 or equivalent. The work of the course consists of the preparation of regional dissections, made under the director of an instructor.

† Available to students registering in graduate degree programs in the biomedical sciences or by permission of the instructor.

Applied Economics

http://business.und.edu/dept/economics/

FACULTY: Professors Bagheri, Biederman, Blackwell, da Silva, Flynn, Goerner (Graduate Director), Simlai, Tsang and O’Neill

DEGREES GRANTED: Master of Science

PROGRAM DESCRIPTION

The Master of Science in Applied Economics (MSAE) reflects the current state of knowledge and skills used by professional economists. It is characterized by strong foundational courses in economic theory, mathematical economics and applied statistical methods.

Mission Statements and Program Goals

The goal of the MS in Applied Economics program at the University of North Dakota is to provide students the quantitative and applied skills required to succeed as an economist involved in economic development, strategic planning, consulting, and applied research in a broad array of institutional settings. These goals are achieved through a program where coursework, experiential learning, and independent research develop a strong foundation to understand and apply economic theory, collect and analyze data, and communicate technical material effectively to others.

Goal 1: Students acquire quantitative and applied research skills.

Goal 2: Students are able to conduct independent research.
Admission Requirements

1. Completion of UND courses ECON 201, 202, 210, 308, and 309; Math 146, or equivalents, with grades of “B” or better in each course.
2. An overall undergraduate grade point average of 3.0 or greater.
3. Official scores from either the General Record Examination (GRE) General Test, Law School Admission Test (LSAT), or Graduate Management Admission Test (GMAT).
4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
5. Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

Degree Requirements

Students seeking the Master of Science degree through the Department of Applied Economics at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Department of Applied Economics.

The MSAE curriculum varies according to whether the student chooses a thesis option or a non-thesis option (see below). The thesis option is available for students who conduct original research. Thesis topics must be approved by the student’s faculty advisor and then completed to the satisfaction of the faculty advisory committee.

The non-thesis option requires the Economics Research Internship (Econ 597) and completion of an independent study. The independent study must demonstrate the student’s ability to do independent scholarly work but does not demand an original contribution to knowledge. Independent study topics must be approved by and completed to the satisfaction of the student’s faculty advisor.

Thesis Option (minimum of 31 credit hours):

Required core courses:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 410</td>
<td>Empirical Methods in Economics I</td>
<td>3</td>
</tr>
<tr>
<td>Econ 411</td>
<td>Empirical Methods in Economics II</td>
<td>3</td>
</tr>
<tr>
<td>Econ 416</td>
<td>Mathematics for Economists</td>
<td>3</td>
</tr>
<tr>
<td>Econ 504</td>
<td>Advanced Price Theory</td>
<td>3</td>
</tr>
<tr>
<td>Econ 505</td>
<td>Advanced Macroeconomic Theory</td>
<td>3</td>
</tr>
<tr>
<td>Econ 524</td>
<td>Applied Economic Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>Econ 534</td>
<td>Applied Economic Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>Econ 998</td>
<td>Thesis</td>
<td>4</td>
</tr>
<tr>
<td>Electives*</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>31</td>
</tr>
</tbody>
</table>

Electives (minimum of 6 credit hours):

Choices of cognate electives must be determined in consultation with and approved by the MSAE program director. Courses previously taken for undergraduate credit may not be used to satisfy MSAE requirements.

<table>
<thead>
<tr>
<th>Course Number</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 324*</td>
<td>Public Finance</td>
<td>3</td>
</tr>
<tr>
<td>Econ 338*</td>
<td>International Economics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 341*</td>
<td>Labor Economics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 355*</td>
<td>Government Regulation of Business</td>
<td>3</td>
</tr>
<tr>
<td>Econ 438*</td>
<td>International Money and Finance</td>
<td>3</td>
</tr>
<tr>
<td>Econ 514*</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 575*</td>
<td>Advanced Special Topics</td>
<td>2-4</td>
</tr>
<tr>
<td>Econ 580*</td>
<td>Economic Development</td>
<td>3</td>
</tr>
<tr>
<td>Econ 597*</td>
<td>Economics Research Internship</td>
<td>3</td>
</tr>
</tbody>
</table>

Non-thesis option (minimum of 32 credit hours):

Required core courses:

<table>
<thead>
<tr>
<th>Course Number</th>
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</thead>
<tbody>
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<tr>
<td>Econ 411</td>
<td>Empirical Methods in Economics II</td>
<td>3</td>
</tr>
<tr>
<td>Econ 416</td>
<td>Mathematics for Economists</td>
<td>3</td>
</tr>
<tr>
<td>Econ 504</td>
<td>Advanced Price Theory</td>
<td>3</td>
</tr>
<tr>
<td>Econ 505</td>
<td>Advanced Macroeconomic Theory</td>
<td>3</td>
</tr>
<tr>
<td>Econ 524</td>
<td>Applied Economic Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>Econ 534</td>
<td>Applied Economic Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>Econ 575</td>
<td>Advanced Special Topics</td>
<td>2-4</td>
</tr>
<tr>
<td>Electives**</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
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<td>32</td>
</tr>
</tbody>
</table>

Electives (minimum of 6 credit hours):

Choices of cognate electives must be determined in consultation with and approved by the MSAE program director. Courses previously taken for undergraduate credit may not be used to satisfy MSAE requirements.

<table>
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<tr>
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<td>3</td>
</tr>
<tr>
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<td>Labor Economics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 355**</td>
<td>Government Regulation of Business</td>
<td>3</td>
</tr>
<tr>
<td>Econ 438**</td>
<td>International Money and Finance</td>
<td>3</td>
</tr>
<tr>
<td>Econ 514**</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 575**</td>
<td>Advanced Special Topics</td>
<td>2-4</td>
</tr>
<tr>
<td>Econ 580**</td>
<td>Economic Development</td>
<td>3</td>
</tr>
</tbody>
</table>

Outline of Full-Time Course Schedule

The MSAE is designed to be completed in one and a half years of full time study. The non-thesis option requires a minimum of 32 credits hours. Below is the recommended course schedule of completion.

FIRST YEAR

Fall Semester

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 410</td>
<td>Empirical Methods in Economics I</td>
<td>3</td>
</tr>
<tr>
<td>Econ 416</td>
<td>Mathematics for Economists</td>
<td>3</td>
</tr>
<tr>
<td>Econ 504</td>
<td>Advanced Price Theory</td>
<td>3</td>
</tr>
<tr>
<td>Elective 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Spring Semester

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 411</td>
<td>Empirical Methods in Economics II</td>
<td>3</td>
</tr>
<tr>
<td>Econ 505</td>
<td>Advanced Macroeconomic Theory</td>
<td>3</td>
</tr>
<tr>
<td>Elective 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summer Semester

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 597</td>
<td>Economics Research Internship</td>
<td>3</td>
</tr>
</tbody>
</table>

SECOND YEAR

Fall Semester

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 524</td>
<td>Applied Economic Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>Econ 534</td>
<td>Applied Economic Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>Econ 997</td>
<td>Independent Study</td>
<td>2</td>
</tr>
</tbody>
</table>

*An alternative to Econ 597, Economics Research internship (3 credits) and Econ 997, Independent Study (2 credits), is to complete
Econ 998, Thesis (4 credits). The first option allows students to combine experiential learning from their internship with completing an applied research project/paper, whereas the second allows more focus on research.

**Courses (Econ)**

504. Advanced Price Theory. 3 credits. Prerequisite: Econ 308. Corequisite or prerequisite: Econ 416. Economic theory and methodology; theory of consumer behavior and demand; theory of production and distribution; equilibrium in commodity and factor markets; general equilibrium and welfare; behavior of economic agents in imperfect competition. Particular attention is given to efficiency and equity ramifications of perfectly competitive economic systems.

505. Advanced Macroeconomic Theory. 3 credits. Prerequisites: Econ 309 and 416. Advanced study of macroeconomic theoretical models with particular attention to the analysis of business cycles, income growth and evaluation of public policies concerned with inflation and unemployment.

514. Advanced Managerial Economics. 3 credits. Prerequisite: Econ 201, ISys 217 and Math 146, or permission of the instructor. Microeconomic analysis applied to business decision-making. Topics include: the nature and scope of the firm, strategic decisions concerning product line, pricing, entry or exit from specific markets and the internal organization of the firm. Case studies are utilized as a main method of analysis.

524. Applied Economic Analysis I. 3 credits. Prerequisites: Econ 410, 411, 416 and 505. Applies the tools of economic theory and econometrics to empirical applications in economics. Applications include studies of economic impact at the regional and global level. Students will be expected to utilize data and computer software to design and complete studies analyzing the effects of domestic and global policies.

534. Applied Economic Analysis II. 3 credits. Prerequisites: Econ 410, 411, 416 and 504. Economic theory and econometric methods are applied to typical business problems. Examples include cost estimation, product demand, learning models, scale and size economies, quality change, wage determination and discrimination, investment expenditure, public utility demand, advertising, factor requirements and optimization of factor mix.

575. Advanced Special Topics. 1 - 3 credits, repeatable to 6 credits if different titles are examined. Topics of course will change from semester to semester but will typically emphasize an important aspect of economic theory or a significant issue in economic policy.

580. Economic Development: Global, National, and Regional Issues. 3 credits. Prerequisites: Econ 504 and 505. The first part of this course focuses on growth theories, globalization and economic development and sustainable growth among less developed, developing, and more developed countries, as well as countries in transition to market economies. The second part of the course specifically examines economic development for advanced nations, incorporating rural, urban and regional economic analysis. Issues such as rural technology, employment, poverty, housing, transportation, location problems, industrialization, urbanization and sustainable growth in North Dakota and North Central Region are explored.

597. Economic Research Internship. 3 credits. MSAE students are required to participate in a research internship unless they have chosen the thesis option. Interns may be assigned to governmental agencies, businesses, and community organizations or partnered with faculty members engaged in research.

997. Independent Study. 2 credits. The independent study requires the student to investigate a topic in applied economics and to prepare a formal report satisfactory to the MSAE program director.

998. Thesis. 4 credits. The thesis is an original research project completed under the supervision of a thesis committee.

324. Public Finance. 3 credits.

338. International Economics. 3 credits.

341. Labor Economics and Labor Relations. 3 credits.

355. Government Regulation of Business. 3 credits.


416. Mathematics for Economists. 3 credits.

438. International Money and Finance. 3 credits.

**Art and Design**

http://www.und.edu/dept/art/

**FACULTY:** Fink, Ganje, Jones (Chair), Jonientz, Luber, Miller, Monsebroten (Graduate Program Director), Smith and Widmer

**DEGREES GRANTED:** Master of Fine Arts

**PROGRAM DESCRIPTION**

The Master of Fine Arts degree program in Visual Arts is a strongly studio-oriented professional preparation in the media areas of ceramics, drawing, metal smithing, painting, printmaking, sculpture, and mixed media art. Within and outside the visual arts areas there are many opportunities (and encouragement) for balanced study in art history/theory and supporting disciplines.

**Mission Statement and Program Goals**

The mission of the Department of Art and Design’s graduate M.F.A. program is to provide quality educational experiences to the students that promote critical thinking and creative visual skills based upon the history of art, contemporary trends and theories, and technical skills in the fine art disciplines. Graduates will be prepared to be active artist/researchers who are engaged in a dialogue, which critically examines the larger culture of which the visual arts play an integral role. Graduates will be prepared to enter the professional art world as self-directed practitioners/artists, educators, or occupations in art museums and galleries. These goals are accomplished through a curriculum that includes hands-on studio experience and academic seminars as a vehicle for the investigation into visual expression.

**Goal 1:** Students will refine technical skills, with materials, techniques, and equipment specific to the production of their visual art.

**Goal 2:** Students will refine oral and written skills as a means to communicate the conceptual basis of their visual research and to demonstrate their knowledge and understanding of the cultural, theoretical, and rhetorical issues in the history of art.

**Goal 3:** Students will develop skills to refine their critical thinking and the conceptual basis for their art work and contextualize their work within the history of art and/or contemporary trends and theories.

**Goal 4:** Students hone professional skills as artists needed to promote their creative research and to advance within their chosen careers.

**Admission Requirements**

Applicants who are seeking admission to Graduate School must meet all of the minimum general graduate school admission requirements identified in the Graduate School Catalog. In addition, the prospective students must fulfill the requirements for admission to the graduate program in Visual Arts.

1. Admission to Approved Status requires a BA or BFA degree with at least 63 semester hours in studio courses plus a minimum of 12 semester hours in art history from a regionally accredited college or equivalent.

2. A cumulative Grade Point Average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on a= 4.00).

3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

5. Twenty (20) clearly labeled color slides (2 x 2” cardboard or plastic mounted) and/or documentation in cd/dvd representative examples of the student’s recent work. The work samples should be submitted to the Department of Art and Design’s Graduate Committee and accompanied by a list
Degree Requirements

Students seeking the Master of Fine Arts degree at the University of North Dakota must satisfy all general degree requirements set forth by the Graduate School as well as particular requirements set forth by the Visual Arts Department of Art and Design’s Visual Arts program.

1. The program consists of 60 credits in the following areas:
   a. Major Media Area (Ceramics, Painting, Drawing, Metalsmithing, Printmaking, Mixed Media, or Sculpture) 30 credits
   b. Art History and Theory 9 credits
   c. Electives (including at least 12 credits in art) 18 credits
   d. Professional Exhibition 3 credits
   Total 60 credits

2. At least one-half of the credits must be at or above the 500-level.

3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.

4. Formal review of the MFA candidate’s work will be conducted by the appropriate faculty at the end of the student’s second and third semesters of the graduate program.

5. Prerequisites to graduation include:
   a. Preparation and presentation of a Graduation Exhibition, which will be a formal presentation of creative work.
   b. Supplementary exhibition materials including artist’s statement and exhibition announcements.
   c. A slide portfolio and/or documentation in cd/dvd of the Graduation Exhibition must be submitted to the Department of Art and Design for its permanent files.
   d. Successful completion of Art 510.

Residence Requirement

The MFA degree requires at least two semesters, or one semester and two summer sessions taken within a three-year period, in residence.

Professional Exhibition

All MFA candidates are required to register for Art 599—Professional Exhibition (three credits). The intention is to give candidates a summary experience as they near the end of their formal training, which will serve as a benchmark in their career development. The presentation and format of the catalog may vary with what the candidate and committee deem appropriate and complimentary to the work to be presented in the exhibition. The artist’s statement may include such things as a critical statement on the candidate’s work, its development, its cultural, philosophical and historical context, and/or reference to the artist’s procedures and techniques.

Candidacy for the Degree

Admission of a student to the Graduate School as a degree student in Approved Status implies only that the student has met the minimum entrance requirements and will be permitted to take graduate courses that normally may be expected to lead to a degree. The student has not been admitted as a candidate for a degree. Advancement to candidacy is granted only after the completion of specific requirements and upon the recommendation of the faculty advisory committee. Candidates for the MFA degree will not be permitted to graduate in the same semester or summer session in which they are advanced to candidacy.

Students in Approved Status may be advanced to candidacy for a MFA degree when they have satisfied the following requirements in approximately the following sequence:

1. Completion of the first departmental comprehensive evaluation during the course of study, all MFA students will be evaluated twice and recommendations will be made regarding continuation in the degree program. The first evaluation, held near the end of the second semester, is conducted by a committee of three members from the Graduate Faculty of the Department of Art and Design. After formal review of the student’s work, the committee prepares a written summary of the results of the evaluation and a recommendation regarding the continuation of the student. A copy of the evaluation is sent to the Graduate School.

2. Program of Study should normally be approved no later than the beginning of the third semester of enrollment.

3. Completion of a substantial portion of the course work for the degree with an overall GPA of no less than 3.00.

4. Completion of the second formal departmental comprehensive evaluation prior to the end of the semester preceding the semester in which the student expects to graduate (normally the third semester in residence). The evaluation will be conducted by the student’s faculty advisory committee and will consist of a review of the student’s progress toward completion of degree requirements, and a review of plans for the professional exhibition. The results of the evaluation will be filed with the Graduate School and will include a recommendation regarding advancement to candidacy for the MFA degree.

5. Recommendation to the Dean of the Graduate School for advancement to candidacy by the faculty advisory committee.

Final Evaluation

The faculty advisory committee will examine and evaluate the student’s performance in the Professional Exhibition, and report the results to the Graduate School on the form titled “Final Report on Candidate” by the deadline specified in the Academic Calendar. The advisor and department chairperson will certify receipt of a copy of the Exhibition Catalog and a slide portfolio and/or documentation in cd/dvd format of the Exhibition.

Courses (ART)

501. Sculpture. 1 to 6 credits. Prerequisite: Permission of instructor. Extensive work and study in three dimensional form, media, and methods. Repeatable to 30 credits.

510. Art History: Issues in Contemporary Art. 3 credits. Examines issues in contemporary art relevant to practicing artists. Addresses current intellectual debates around the work of contemporary artists and issues relevant to artists working in a regional setting. Examines the institutional context of contemporary art practice, such as exhibition venues and funding for professional artists.

511. History of Art: Graduate Seminar. 1 credit repeatable to 2 credits. Offered S. Explores the theoretical basis for integrated concepts and methods of critical analysis.
in the visual arts. The course is intended to help students become aware of the major critical perspectives of the discipline and practical issues related to careers in the fine arts. Methodological, critical, and professional projects will be completed by students in the course.

520. Painting. 1 to 6 credits. Prerequisite: Permission of instructor. Individual research and experimentation in painting. Repeatable to 30 credits.

530. Drawing. 1 to 6 credits. Prerequisite: Permission of instructor. Experimentation and elaboration to drawing skills and techniques, both innovative and traditional. Emphasis on individual exploration. Repeatable to 30 credits.

537. Graduate Co-op Education. 1-4 credits. Prerequisite: Graduate standing: approval of Departmental Advisor/Coordinator, with student on file with the Co-op Ed. Office prior to registration, and written permission from the student’s VA graduate committee. An elective opportunity in the VA graduate program toward the MFA to participate in an apprentice experience in one’s selected field of concentration.

540. Printmaking. 1 to 6 credits. Prerequisite: Permission of instructor. Individual research and experimentation in printmaking. Repeatable to 30 credits.

550. Ceramics. 1 to 6 credits. Prerequisite: Permission of instructor. Individual instruction and experimentation in Ceramics. Repeatable to 30 credits.

560. Metalsmithing: Jewelry and Small Sculpture. 1 to 6 credits. Prerequisite: Permission of instructor. Exploration of historical, traditional, and innovative jewelry and small sculpture techniques using non-ferrous metals, gems, and other materials. Repeatable to 30 credits.

570. Mixed Media. 1 to 6 credits repeatable to 30. Prerequisites: Permission of instructor. Individual instruction and experimentation in mixed media.

573. Time based Media Arts. 1 to 6 credits repeatable to 30. Prerequisite: Permission of instructor. Individual research and experimentation in time-based and media art practice through video, animation, media installation, performance, and/or interdisciplinary art.

581. Workshop. 1 to 6 credits. Prerequisite: Permission of instructor. Special emphasis and encouragement in the use of new materials. Primary course objectives are to be accomplished by bypassing traditional techniques and establishing new approaches to problem solving. Repeatable to twelve credits.

590. Individual Research. 1 to 9 credits. Research and creative experiences within a specific area of interest in the Visual Arts and emphasis on refinements of aesthetic to problem solving. Repeatable to twelve credits.

599. Professional Exhibition. 3 credits. Prerequisite: Permission of student’s Graduate Committee. Artist statement, preparation, design, installation, and catalog of solo show.

410. History of Art: Selected Topics. 3 credits.

413. History of Graphic Design. 3 credits.

416. History of Art: Renaissance and Baroque. 3 credits.

417. History of Art: Museum Studies Practicum. 3 credits.

419. History of Art: Late 18th through the 19th Century. 3 credits.

423. History of Art: 20th and 21st Century. 3 credits.

424. History of Art: Non-Western Traditions. 3 credits.

490. Individual Research/Special Projects. 1 to 6 credits.

Arts and Sciences

The College of Arts and Sciences offers one non-departmental course at the graduate level, Arts and Sciences 599 (Special Topics). This course provides for on-demand courses in areas of particular relevance when students or faculty members wish to initiate them; it can also provide special-interest courses for particular groups of students and it can also serve as a curricular laboratory for experimental courses which may later be established as regular offerings within departments or programs. Arts and Sciences 599 may also be used for Special Topics courses which are cross-disciplinary or multi-disciplinary in nature. Students and faculty members wishing to initiate course offerings under Arts and Sciences 599 should present their proposals in writing to the Dean of the College. See the Arts and Sciences website (http://www.und.edu/dept/artsci/) for the appropriate A&S course request forms.

Courses (A&S)

599. Special Topics. 1-4 credits. Specially arranged seminars or courses on a variety of subjects not covered by regular departmental offerings. May be initiated by students with approval of dean and departments involved, provided appropriate faculty members are willing. Repeatable as topics vary.

Atmospheric Sciences

http://www.atmos.und.edu/

FACULTY: Askelson, Dong, Gilmore, Grainger, Osborne (Graduate Director), Mewes, Mullendore, Poellot (Chair) and Zhang

DEGREES GRANTED: Master of Science and Doctor of Philosophy

PROGRAM DESCRIPTION

The Department of Atmospheric Sciences offers graduate programs leading to the degrees of Master of Science and Doctor of Philosophy. The Master of Science program is intended to serve those who are interested in continuing studies at the doctoral level as well as those seeking advanced knowledge for professional work in the atmospheric sciences in general. The Doctor of Philosophy program is intended to prepare students for leadership roles in academia, government, and private industry in the field of atmospheric science by enabling graduates to fill critical roles in leading research efforts, guiding science policy, educating future scientists, and creating opportunities in private industry.

Our vision is to offer premier atmospheric sciences graduate programs serving our students and the broader scientific community. In striving to achieve this distinction, the Department of Atmospheric Sciences maintains graduate programs that are socially relevant, serve as an advocate for graduate education campus-wide, provide resources that support graduate student research, and foster interdisciplinary programs. Within the context of the broader university community, the Department of Atmospheric Sciences serves to create an academic and intellectual climate that appreciates and respects diversity, values creativity, and supports the academic potential of each graduate student.

MASTER OF SCIENCE

Mission Statement and Program Goals

The mission of the Department of Atmospheric Sciences master’s program is to provide quality educational experiences to students to promote critical thinking and foster an intellectual environment conducive to exemplary research, scholarships, and creativity among graduate students and faculty.

Goal 1: Students will develop a comprehensive understanding of atmospheric sciences in a changing world.

Goal 2: Students will develop critical thinking skills through research activities or focused project activities.

Goal 3: Students will develop skills to analyze, interpret, and synthesize scientific data and communicate the results in an effective and professional manner.

Admission Requirements

1. A four-year bachelor’s degree from a recognized college or university.
2. Completion of a minimum of 20 semester credits of appropriate undergraduate work, e.g., physics, mathematics, chemistry, engineering, and/or atmospheric science.
3. A cumulative GPA of at least 2.75 for all undergraduate work or a GPA of at least 3.00 for the last two years.
4. Scores on the general portion of the Graduate Record Examination (GRE).
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Applicants will be evaluated on an individual basis and those with limited backgrounds in the aforementioned areas (physics, mathematics, chemistry, and atmospheric science) but with a distinguished record in other disciplines may be accepted on a qualified basis with the understanding that deficiencies would be remedied early in the program.

Degree Requirements

Students seeking the Master of Science degree through the Department of Atmospheric Sciences at the University of North Dakota must satisfy all general degree requirements set forth by the Graduate School as well as particular requirements set forth by the Department of Atmospheric Sciences.

The Master of Science program requires that students complete a minimum of 30 credit hours for the thesis option or a minimum of 32 credit hours for the non-thesis option. Approval of the thesis option will be granted based upon alignment of research interests with departmental faculty’s research interests and faculty availability. The non-thesis option requires the student to independently investigate a topic related to the major field and successfully complete a written comprehensive examination. This study need not be an original contribution to knowledge, but may be a presentation, analysis, and discussion of ideas already in the literature of the field. The non-thesis requirement is to ensure that the student can investigate a topic and organize a scholarly report.

Required Courses: All students are required to complete at least one course from each of the core areas listed below in addition to completing AtSc 500, Introduction to Atmospheric Research. Non-thesis option students must also complete two credits of 997, Independent Study Report, and thesis option students must also complete 4-9 credits of 998, Thesis.

Course Number/ Course Title Credits
AtSc 500 Introduction to Atmospheric Research 1
AtSc 505 Advanced Atmospheric Dynamics 3
AtSc 518 Advanced Synoptic Meteorology 3
AtSc 548 Advanced Mesoscale Dynamics 3

Physical (Choose at least one of the following):
AtSc 450 Introduction to Cloud Physics** 3
AtSc 520 Atmospheric Chemistry 3
AtSc 525 Atmospheric Radiation 3
AtSc 555 Advanced Surface Transportation Weather 3

Climate Systems (Choose at least one of the following):
AtSc 510 General Circulation 3
AtSc 515 Advanced Climatolgy 3
AtSc 545 Hydrometeorology 3
AtSc 550 Tropical Meteorology 3
Aero 530 Advanced Earth Systems Science 3

Tools (Choose at least one of the following):
AtSc 441 Radar Meteorology** 3
AtSc 528 Atmospheric Data Analysis 3
AtSc 530 Numerical Weather Prediction 3
AtSc 535 Measurement Systems 3
AtSc 540 Statistical Methods in Atmospheric Science 3

AtSc 997 Independent Study 2
AtSc 998 Thesis 4-9
Electives 9-17

Total 30-32

**Courses taken at the undergraduate level cannot be repeated for graduate credit.

DOCTOR OF PHILOSOPHY DEGREE

Mission Statement and Program Goals

The mission of the Department of Atmospheric Sciences doctoral program is to provide an educational environment that deepens student knowledge of the atmospheric sciences and related disciplines, enables growth of student skill sets (analytical, technical, and communication), and emphasizes leadership, research, and innovation among its students and faculty.

Goal 1: Students will develop deep knowledge in particular atmospheric sciences sub-disciplines through their research activities while also broadening their knowledge base through course work.

Goal 2: Students will enhance their analytical, technical, and communication skills through their research activities and course work and will develop the ability to carry out independent and original scientific research.

Goal 3: Students will develop skills that will enable them to fill critical roles in leading research efforts, guiding science policy, educating future scientists, and creating opportunities in industry.

Admission Requirements

1. A master’s degree from an accredited institution, normally in the field of proposed specialist or doctoral study.
2. A cumulative GPA of at least 3.00 for all undergraduate work.
3. A GPA of at least 3.00 in all graduate level work.
4. A combined score of 1050 in the quantitative and verbal sections of the Graduate Record Examination (GRE).
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Applicants will be evaluated on an individual basis and those with limited backgrounds in the aforementioned areas (physics, mathematics, chemistry, and atmospheric science) but with a distinguished record in other disciplines may be accepted on a qualified basis with the understanding that deficiencies would be remedied early in the program.

Degree Requirements

Students seeking the Doctor of Philosophy degree through the Department of Atmospheric Sciences at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Department of Atmospheric Sciences. These degree requirements include:

1. Completion of 60 semester credits beyond the master’s degree.
2. Two consecutive years of full time academic work completed in residence at the University of North Dakota campus. With approval of a student’s Faculty Advisory Committee, one of these years may be completed through full-time academic work and/or research at another institution or location.

3. At least 27 of the post-master’s credits must be formal course work. A minimum of 18 of these credits must be taken in the Atmospheric Sciences department.

4. Up to 9 of the post master’s credits may be taken through distance education.

5. Completion of AtSc 500 and 505 or equivalent classes.

6. A departmental seminar on dissertation research topic.

Students are required to complete coursework, a comprehensive examination, and independent research that culminate in a dissertation, seminar, and final examination.

Courses (AtSc)

500. Introduction to Atmospheric Research. 1 credit. This course is required for all Atmospheric Science graduate students. A course in the methodology and philosophy of doing research in the atmospheric sciences. Also includes discussion of related topics, including creativity, publication, science and society, and career-related activities. S/U grading only.

505. Advanced Atmospheric Dynamics. 3 credits. A graduate level course in linear perturbation theory, atmospheric oscillations, hydrodynamic instability and the life cycle of extratropical cyclones.

510. General Circulation. 3 credits. Prerequisite: AtSc 505. Covers the large-scale dynamical processes in the atmosphere, including the observed circulation, processes that maintain the circulation, mid-latitude wintertime circulation anomalies, large-scale structure of the tropical atmosphere, and the stratosphere and its link to the troposphere.

515. Advanced Climatology. 3 credits. Prerequisite: AtSc 540. A course on climatic processes and physical factors that maintain the atmospheric circulation. Also includes discussion of related topics, including climate change, climate dynamics, and climate feedbacks.

518. Advanced Synoptic Meteorology. 3 credits. Prerequisite: AtSc 505 or equivalent. Advanced analysis of atmospheric processes important to large-scale flows. Quasi-geostrophic and semi-geostrophic theory, behavior of extratropical systems, fronts and jets, geostrophic adjustment, blocking and IPV thinking.

520. Atmospheric Chemistry. 3 credits. Composition of clean and polluted air. Sources and sinks of atmospheric gases and aerosols. The role of atmospheric chemistry in global environmental issues such as acid rain, visibility reduction, climatic change, oxidant enhancement, etc.


528. Atmospheric Data Analysis. 3 credits. Prerequisite: Proficiency in a programming language. Introduction to techniques used in the analysis of meteorological data and methods for interpreting their effects: polynomial fitting, method of successive corrections, statistical methods, variational techniques, model initialization, data assimilation, and filter design.

530. Numerical Weather Prediction. 3 credits. Prerequisite: AtSc 505. Covers scale analysis in atmospheric prediction; numerical methods; various atmospheric prediction models; the use of filtering, smoothing, interpolation, weighting and adjustment in objective analysis techniques; numerical forecasting; current NWP structures and applications.

535. Measurement Systems. 3 credits. An advanced course in meteorological measurement systems, including coverage of performance characteristics of sensors, calibration standards, measuring devices, the effects of making measurements in the atmospheric environment, meteorological measurement systems, and digital data logging and processing.

540. Statistical Methods in Atmospheric Science. 3 credits. Prerequisite: Must have completed coursework in statistics or consent of instructor. A course on statistical methods used to describe, analyze, test, and predict atmospheric phenomena. The topics will review basic statistical concepts, statistical data interpretation, theoretical probability distributions, hypothesis testing, uncertainty analysis, regression, time series analysis, and statistical weather prediction and verification.

545. Hydrometeorology. 3 credits. A course designed to study the coupling of atmospheric and hydrologic processes. Will cover basic hydrologic concepts, review of atmospheric thermodynamics, atmospheric moisture, precipitation processes, hydrologic cycle, evaporation/evapotranspiration, infiltration, snow and snowmelt processes, runoff mechanisms, land surface processes, and hydrologic modeling.

548. Advanced Mesoscale Dynamics. 3 credits. Prerequisite: Upper division or graduate course in dynamics or consent of instructor. Corequisite: AtSc 505 recommended, but not required. An in-depth theoretical and analytical examination of mesoscale convective processes, initiation and characteristics; mesoscale features of tropical systems; orographically-forced and -influenced circulation; local and regional circulations; high-latitude mesoscale systems; an introduction to mesoscale model design, parameterization development, and evaluation.

550. Tropical Meteorology. 3 credits. Prerequisites: Standing graduate. A study of tropical phenomena over a range of scales, including small scale (cumulus clouds, thunderstorms), mesoscale (sea breezes, squall lines), large scale (waves and cyclones), and planetary scale circulations (trade winds, equatorial trough, equatorial waves, monsoons, intraseasonal oscillations, ENSO). Methods for obtaining and using information to study tropical phenomena are examined.

555. Advanced Surface Transportation Weather. 3 credits. Prerequisite: AtSc 510 or consent of instructor. Addresses weather research topics in contemporary surface transportation. Includes maintenance decision support systems construction, applications of artificial intelligence methods, and investigation of land surface effects and applications of advanced mesoscale weather prediction modeling in a surface transportation environment.

560. Boundary Layer Meteorology. 3 credits. Prerequisite: AtSc 505. The interaction of the atmosphere with the earth’s surface. The transfer of heat, moisture, and momentum between the atmosphere and the underlying surface. The description of turbulence and the effects of turbulence on the transfer properties of the atmosphere.

565. Air Quality. 3 credits. Prerequisites: Chem 121 or equivalent and Phys 251 or equivalent. An in-depth introduction to important areas within the air quality field. Topics covered include the physical and chemical nature of air pollutants; their sources, control, and removal through cloud processes, fallout and wet deposition; their effects on visibility, human health, ecosystems, and global climate. Methods related to the management of atmospheric pollutants, air quality modeling, and air quality forecasting are discussed.

570. Seminar. 1 credit, repeatable to 3. A discussion course on current research topics and publications related to the field of atmospheric sciences. Students, faculty and guest speakers will present their research and lead the discussion during seminar. S/U grading only.

575. Current/Special Topics in Meteorology. 3 credits, repeatable to 12. A course in specific advanced topics in atmospheric sciences. Largely delivered in a structured, lecture format.

594. Independent Studies. 2 credits, repeatable to 4. Survey investigations, literature searches and/or preliminary research topic of interest to the student.

596. Supervised Research. 1 to 4 credits, repeatable to 12. Prerequisite: Master’s degree student and consent of the instructor. Research in consultation with departmental faculty. S/U grading only.

598. Dissertation Research. 1 to 8 credits, repeatable to 15. Prerequisite: Consent of the instructor. Research, in support of the doctoral dissertation, performed in consultation with the student’s advisor. S/U grading only.

599. Independent Study Report (Non-thesis option). 2 credits. Prerequisite: Students are required to complete at least one course from each of the core areas: dynamics, physical, earth system, and tools, as well as AtSc 500. This course is required for all Atmospheric Science graduate students enrolled in the non-thesis option. Students will be required to independently investigate a topic related to the major field. This study need not be an original contribution to knowledge, but may be a presentation, analysis, and discussion of ideas already in the literature of the field. S/U grading.

998. Thesis. 1 to 6 credits, repeatable to 9.

441. Radar Meteorology. 4 credits.

450. Introduction to Cloud Physics Meteorology. 4 credits.

999. Dissertation. 1-12 repeatable to 18.

Aviation

http://www.masters.avit.und.edu

FACULTY: Anderson, Jensen, Kenville (Graduate Program Director), Lindseth, Marshall, Petros, Robertson, Smith, Watson and Vacek

DEGREES GRANTED: Master of Science

PROGRAM DESCRIPTION

The Aviation Department offers a graduate program leading to the Master of Science degree. The M.S. in Aviation degree provides the necessary educational background for aviation industry professionals to solve problems within the field of aviation including the airlines, corporate aviation, general aviation, and airport management. Graduates will gain an understanding of the various complexities facing the industry through a breadth of aviation industry related
courses. In addition, graduates will gain an understanding of statistics and research methods, and how they may be applied to research and solve problems within the aviation industry. The graduate program will provide graduates with the knowledge and skills that prepare them for the aviation industry, aviation related government positions and for further research and development in the field of aviation.

**Mission Statement and Program Goals**

The mission of the Aviation Department graduate program is to provide quality educational experiences to students that promote critical thinking and foster an intellectual environment conducive to exemplary research, scholarship and creativity among graduate students and faculty in an effort to provide problem-solving professionals to aviation industry employers.

**Goal 1:** Develop aviation professionals who use their technical and theoretical skills to solve problems within the aviation industry.

**Goal 2:** Develop a student’s higher-order thinking abilities and instill a quest for lifelong learning.

**Goal 3:** Develop a scholarly set of skills that will allow the student to function in a professional manner.

**Goal 4:** Students will be able to write at an advanced level.

**Goal 5:** Students will be able to effectively present their ideas using a variety of media.

**Goal 6:** Students will be able to critically think, analyze and evaluate all types of information available in today’s global society.

**Admission Requirements**

1. Bachelor’s degree in Aviation/Aeronautics or Bachelor’s degree from an accredited institution and a minimum of 20 semester credits of appropriate aviation related undergraduate work.
2. Graduate Record Examination, General Test.
3. Overall undergraduate GPA of 2.75 or a GPA of at least 3.00 for the last two years of undergraduate work.
4. Hold a minimum of a Federal Aviation Administration Private Pilot Certificate or its foreign equivalent.
5. Students must submit a 2-3 page paper answering specific questions per departmental guidelines. One of the questions will address the potential thesis or independent study topic.

**Degree Requirements**

1. **Required Core Courses** are as follows:
   - AVIT 501 . General Issues in Aviation/Aerospace .......... 3 credits
   - AVIT 502 . Aviation Economics ......................................... 3 credits
   - AVIT 503 . Statistics or Psy 541 ....................................... 3 credits
   - AVIT 504 . Research Methods ........................................... 3 credits
   - AVIT 595 . Capstone Course ............................................ 3 credits
   - AVIT 997 or AVIT 998 . Independent Study or Thesis .......... 2 credits or 4 credits
2. A minimum of 30 credits including the 4-credit thesis option, or a minimum of 32 credit hours including comprehensive exams and an independent study. Approval of the thesis option will be granted based upon alignment of research interest with departmental faculty’s research interests and faculty availability.
3. Comprehensive exams are required for those choosing the Independent Study option.
4. Courses 510 – 590 should be taken after the required “core” courses are completed.
5. Follow the Graduate Catalog and Graduate Student Handbook, Master’s Degree for completion of:
   - a. Program of Study
   - b. Advisor Selection
   - c. Independent Study/Thesis Option
   - d. Topic Proposal
6. Aviation 590 and 593 can be taken with permission from a sponsoring faculty member.
7. Must have an overall Grade Point Average (GPA) of 3.0
8. In addition to the required core courses, students will have selected elective courses from the following list to complete the degree:
   - AVIT 510 . Aviation Public Policy and Regulation ............... 3 credits
   - AVIT 511 . Aviation Information Technology ...................... 3 credits
   - AVIT 512 . Aviation Environmental Concerns .................... 3 credits
   - AVIT 513 . Advanced Aviation Safety Management .............. 3 credits
   - AVIT 514 . Aviation Management Theory ............................ 3 credits
   - AVIT 515 . Human Factors: Human Perception in Information System Design ........................................ 3 credits
   - AVIT 516 . Human Factors in Training System Design ........... 3 credits
   - AVIT 517 . Airline Labor Relations and Law .......................... 3 credits
   - AVIT 520 . Strategic Airport Planning .................................. 3 credits
   - AVIT 587 . Supervised Field Work ....................................... 3 credits
   - AVIT 590 . Aviation Seminar ............................................. 1-3 credits
   - AVIT 593 . Individual Research in Aviation .......................... 1-3 credits

**Courses (Avit)**

**501. General Issues in Aviation/Aerospace.** 3 credits. This course is designed to introduce students to graduate school, library resources, and faculty research interests. This course explores the historical, current and future issues related to the aerospace industry.

**502. Aviation Economics.** 3 credits. Pre-requisite: Undergraduate economics course. An in-depth examination of the economic aspects of the air transportation industry, with microeconomic analysis applied to decision making in the airline, general and corporate aviation, and airports. Topics include: basic economics of air transport supply and demand; demand forecasting; cost drivers; yield, revenue and capacity management; regulatory issues; political influences; and unique economic characteristics of international commercial aviation.

**503. Statistics.** 3 credits. This course is an in-depth study of inferential statistics with emphasis on the analysis of variance models and subsequent comparison procedures. In addition, the course will include coverage of correlation and multiple regression techniques as data analytic tools. Also, coverage of survey construction and analysis of survey data will be presented. Course content will be presented within the context of aviation and psychology examples. (Psychology 541: Advanced Univariate Statistics can be substituted for AVIT 503).

**504. Research Methods.** 3 credits. Prerequisites: Avit 503 or Psy 541. Methods and procedures of development, design and analysis related to aviation industry research. Topics include problem identification, research design, survey techniques, and data analysis. The course includes the experience of critically evaluating research projects and developing a research project based on the principles discussed in class.

**510. Aviation Public Policy and Regulations.** 3 credits. A discussion of the initiation, formulation and implementation of aviation public policies and their effects upon the various segments of the aviation industry. Various regulatory areas such as scheduled air carriers, general aviation, airport operations, air traffic control and international agreements will be analyzed.

**511. Aviation Information Technology.** 3 credits. This course will focus on a variety of information technology systems that are in use and their impact on successful operations. An overview of current and emerging technologies in various database, data communication and e-commerce systems will be explored.

**512. Aviation Environmental Concerns.** 3 credits. This course examines current environmental issues within the aviation industry in the context of historical environmentalism, current laws and regulations, and emerging research findings. A broad survey of earth systems precedes a focused examination of contemporary environmental concerns.

**513. Advanced Aviation Safety Management.** 3 credits. An in-depth study of aviation safety management concepts and principles as they relate to effective safety programs within the airlines, corporate aviation, general aviation and airports.

**514. Aviation Management Theory.** 3 credits. An in-depth review of organizations in the aviation industry, their structures, environments and leadership as it relates to human behavior. Topics include organizational design, climate and the interactions with individuals, groups, and different organizational structures within the airline, general aviation, corporate aviation and airport organizations.

**515. Human Factors: Human Perceptions in Information Systems Design.** 3 credits. Human perception and information processing will be discussed in relation to information system design requirements to optimize human performance. Topics include information systems design with regard to compatibility, perception, attention, situation awareness and decision processes. Applications to current workstation design will allow students to have a greater understanding of human centered design goals.
The department of Biochemistry and Molecular Biology offers graduate programs leading to the M.S. and, Ph.D., degrees. All programs are research-oriented and students begin research work during their first year. These graduate programs prepare scholars for a variety of careers including academic teaching and research, and research associated careers in various governmental, industrial, and private research laboratories.

The department is housed within the Edwin C. James Medical Research Facility of the University of North Dakota School of Medicine and Health Sciences. Research is conducted in the areas related to cell signaling, protein/protein interactions, and proteomics. Joint faculty from the Department of Pathology (UND School of Medicine and Health Sciences) provides additional research opportunities for graduate students in our program in the areas of heavy metal toxicology, tumorgenesis and cancer biomarkers.

**MASTER OF SCIENCE DEGREE**

**Mission Statement and Program Goals**

The masters program in the Department of Biochemistry and Molecular Biology will provide formal classroom instruction and mentored research experiences that enable and encourage students to become competent scientists. The M.S. graduate will be competitive for a broad scope of career paths. These include but are not limited to pursuing a terminal degree, working in a research setting, or other science-related career options.

**Goal 1:** M.S. graduates will have a foundational knowledge of biochemistry and molecular biology.

**Goal 2:** M.S. graduates will have the ability to conduct meaningful scientific inquiry.

**Goal 3:** M.S. graduates will possess communication skills necessary to relate the results of their scientific queries clearly to others.

**Goal 4:** M.S. graduates will demonstrate professional and ethical scientific behavior, including a commitment to continual professional development.

**Admission Requirements**

1. A four-year bachelor’s degree from a recognized college or university.
2. Minimally, the applicant successfully will have completed the following coursework:
   - General biology or zoology (one year sequence)
   - General chemistry (one year sequence)
   - Organic chemistry (minimum of 6 semester credits)
3. Coursework in calculus, physics, and analytical chemistry, cell biology, molecular biology, biochemistry, and genetics is recommended.
4. The general Graduate Record Examination is required.
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5. *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

**Degree Requirements**

Students seeking the Master of Science degree through the Department of Biochemistry and Molecular Biology at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Department of Biochemistry and Molecular Biology.

1. A minimum of 30 credit hours including research and thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
4. A grade of “C” or better in BIMD 500 and an overall GPA of at least 3.0.
6. Required Courses:

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<th>Course Number</th>
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<td>BIMD 500</td>
<td>Cellular and Molecular Foundations of Biomedical Science</td>
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<td>BIMD 513</td>
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<td>BMB 533</td>
<td>Advanced Topics</td>
<td>3</td>
</tr>
<tr>
<td>BMB 590</td>
<td>Research</td>
<td>10</td>
</tr>
<tr>
<td>BMB 998</td>
<td>Thesis</td>
<td>4</td>
</tr>
</tbody>
</table>

Total 30
DOCTOR OF PHILOSOPHY
Mission Statement and Program Goals

The Ph.D. program in the Department of Biochemistry and Molecular Biology will provide formal classroom instruction and mentored research experiences that enable and encourage students to become competent, creative, and independent biomedical scientists.

Goal 1: Ph.D. graduates will have a foundational knowledge of biochemistry and molecular biology.

Goal 2: Ph.D. graduates will have the ability to conduct meaningful scientific inquiry.

Goal 3: Ph.D. graduates will possess communication skills necessary to relate the results of their scientific queries clearly and convincingly to others.

Goal 4: Ph.D. graduates will demonstrate professional and ethical scientific behavior, including a commitment to continual professional development.

Admission Requirements

1. A four-year bachelor’s degree from a recognized college or university.

2. Minimally, the applicant successfully will have completed the following coursework:
   - General biology or zoology (one year sequence)
   - General chemistry (one year sequence)
   - Organic chemistry (minimum of 6 semester credits)

3. Courses in calculus, physics, analytical chemistry, cell biology, molecular biology, biochemistry, and genetics are recommended.

4. The general Graduate Record Examination is required.

5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

A student who has begun the Master of Science Program in Biochemistry and Molecular Biology may transfer into the doctoral program and have work completed incorporated into the doctoral program if approved by the BMB graduate faculty and the Dean of the Graduate School. Students in the master’s program who wish to proceed toward the Ph.D. degree without obtaining an M.S. may request permission to do so after they meet the following requirements:

1. Accumulation of a minimum of 19 graduate credits with a GPA of 3.5 or greater.

2. Minimum cumulative GPA of 3.0 in BIMD 500, 510, 513, 515, 516 and at least one credit of BMB 533.

3. A minimum of 4 credits of BMB 590.

Degree Requirements

Students seeking the Doctor of Philosophy degree through the Department of Biochemistry and Molecular Biology at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Department of Biochemistry and Molecular Biology.

1. Performance of original research of a quality suitable for publication in a refereed, professional journal and the preparation of a dissertation based thereon.

2. A minimum of 90 credit hours, including research and dissertation.

3. At least one-half of the credits must be at or above the 500-level.

4. A maximum of one-fourth (usually eight-to-nine semester credits) of the credit hours required for the degree may be transferred from another institution.

5. A grade of “B” or better in BIMD 500 and an overall GPA of at least 3.0.

6. Passing performance on oral and written comprehensive examinations covering the coursework in the major and related areas.


8. Required Courses:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIMD 500</td>
<td>Cellular and Molecular Foundations of Biomedical Science</td>
<td>6</td>
</tr>
<tr>
<td>BIMD 510</td>
<td>Basic Biomedical Statistics (Scholarly Tool)</td>
<td>2</td>
</tr>
<tr>
<td>BIMD 513</td>
<td>Seminars in Biomedical Sciences</td>
<td>1</td>
</tr>
<tr>
<td>BMB 514</td>
<td>Current Literature</td>
<td>2</td>
</tr>
<tr>
<td>BIMD 515</td>
<td>Steps to Success in Graduate School</td>
<td>1</td>
</tr>
<tr>
<td>BIMD 516</td>
<td>Responsible Conduct of Research</td>
<td>1</td>
</tr>
<tr>
<td>BMB 521</td>
<td>Seminar</td>
<td>2</td>
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<tr>
<td>BMB 533</td>
<td>Advanced Topics</td>
<td>6</td>
</tr>
<tr>
<td>BMB 590</td>
<td>Research (minimum)</td>
<td>50</td>
</tr>
<tr>
<td>BMB 999</td>
<td>Research (minimum)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>(Outside of the Department of BMB)</td>
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</tr>
</tbody>
</table>

Required Courses:

BIMD 500. Cellular and Molecular Foundations of Biomedical Science. 6 credits. A series of lectures and discussion groups with emphasis on interrelated themes in basic biochemistry, cell biology and molecular biology. Lectures will include current and emerging areas of research, while discussion will center on methods, techniques and expansion of lecture topics. Fall semester. Prerequisites: a) one year of organic chemistry or b) one semester of organic chemistry and one course in either biochemistry or cell biology or c) permission of course director.

BIMD 510. Basic Biomedical Statistics. 2 credits. Prerequisites: BIMD 500 or permission of course director. A series of lectures and demonstrations to provide students with the basic rationale for the use of statistics in the assessment of biomedical data and a selected set of the most common and useful statistical tests.

BIMD 513. Seminars in Biomedical Sciences. 1 credit. A series of presentations on original research conducted by UND faculty members as well as extramural leaders in the fields of academic and industrial research in the biomedical sciences. Students will participate through assigned reading and writing exercises related to the presentations.

BIMD 515. Steps to Success in Graduate School. 1 credit. A series of lectures and discussion sessions covering topics related to the development of skills and experience important for successful completion of graduate training and transition to post graduate training and employment. Students will examine a variety of issues including choosing an advisor and research topic, charting their course through graduate school, the importance of productivity, how to give a scientific presentation and write a scientific publication, applying for predoctoral grants, and planning for their careers.

BIMD 516. Responsible Conduct of Research. 1 credit. A series of lectures and discussion sessions covering topics related to responsible conduct in research. Students will examine a variety of issues including introduction to ethical decision-making, the experience of conflict, laboratory practices, data management, reporting of research, conflict of interest, and compliance. Examples and case studies will be drawn primarily from the biomedical sciences.

BIMD 514. Current Literature. 1 credit. Second semester. Prerequisite: BIMD 500 or consent of instructor. Students of the department rotate in leading informal reviews, analyses, and the discussions of research papers selected from current journals in the areas of biochemistry and molecular biology. SU grading only.

BMB 521. Seminar. 1 credit. First semester. Prerequisite: BIMD 500 or consent of instructor. Students present topics in biochemistry and molecular biology based on reviews of the current literature. Each presentation is followed by a discussion of the topic by the faculty and students of the department. SU grading only.

BMB 533. Advanced Topics. 1 credit. Second semester. Prerequisites: BIMD 500; alternatively, Biochemistry 301 or equivalent and permission of instructor. The purpose of this course is to provide an in-depth exploration of selected areas of protein structure and function, metabolism, regulation of cell functions, proteomics, recombinant DNA technology, eukaryotic nuclear acid metabolism, and gene expression with the intent of complementing and extending the knowledge base gained in BIMD 500. Extensive independent learning is expected.
540. Special Topics. 1 to 3 credits. Prerequisite: BIMD 500 or consent of instructor. Discussion of a topic in biochemistry and/or molecular biology of current interest to faculty and students.

590. Research. 1 to 12 credits. The assignments deal with pertinent research problems in various aspects of biochemistry and molecular biology.

594. Special Problems in Biochemistry and Molecular Biology. 1 to 6 credits. Prerequisite: Consent of instructor. The student in consultation with a faculty member of the department undertakes a laboratory research project.

595. Readings in Biochemistry and Molecular Biology. 1 to 3 credits. Prerequisite: BIMD 500 or consent of instructor. Selected readings and library research in an area of mutual interest to the student and a faculty member of the department. Conferences and/or written reports are required.

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**Biology**

http://www.und.edu/dept/biology/biology_graduate_program.htm

**FACULTY:** Carmichael, Crossley, Darland, Goodwin (Graduate Director), Kelsch, La Duke, Meberg, Mehl, Newman, Potvin, Pyle, Ralph, Rhen, Schlosser (Chair), Sheridan, Simmons, Sweitzer, Tkach and Vaughan

**DEGREES GRANTED:** Master of Science and Doctor of Philosophy

**PROGRAM DESCRIPTION**

The Department of Biology offers graduate studies leading to the Master of Science (thesis and non-thesis options) and Doctor of Philosophy degrees. These programs are designed to prepare students for academic teaching and research, research in government service, research and developmental opportunities in industry, and functioning as a professional biologist.

The Department offers graduate work in the following areas: Cell Biology; Conservation Biology; Developmental Biology; Ecology; Entomology; Fisheries Biology; Genetics and Genomics; Molecular Biology; Mammalogy; Neurobiology; Ornithology; Parasitology; Physiology; Systematics; and Wildlife Management. A reputation for excellence in the area of “Ecology of the Northern Great Plains” has been developed, and the Ph.D. program has been designated by the Western Interstate Commission for Higher Education (WICHE) as a Western Regional Graduate Program because of its uniqueness and strength. It is, therefore, open to residents of the 13 western states at resident tuition rates.

**Facilities for Graduate Research**

The Department of Biology occupies 58,800 sq. ft. in Starcher Hall. This structure houses classrooms, museums, offices, and research laboratories. There are three large rooftop greenhouses with an adjacent preparation area. The animal care facility includes rooms for aquatic organisms, aquatic bird rooms, observation rooms for behavioral study, and a number of rooms for holding small vertebrates. Other departmental research facilities include an herbarium, controlled environmental chambers, vertebrate and invertebrate research museums, plant and animal tissue culture rooms, data analysis facilities, and molecular biology laboratories. Notable recent departmental additions as part of a core Molecular Biology Facility include ultra- and high-speed centrifuges, Microm HM550 cryostat, Bio-Rad Experian microfluidics station, ABI and Bio-Rad real-time PCR systems, Bio-Rad Tetrad multi-block PCR thermocycler, automated DNA sequencer, UVP Autochenu gel documentation system, Nanodrop spectrophotometer, Fluoview Confocal Microscope, and Microbrightfield Instruments design-based stereology system. Highly specialized instruments not presently available in Biology have been made available to our graduate students by other nearby facilities such as the Department of Chemistry, the Medical School, the USDA Human Nutrition Laboratory, and the UND Energy Technology Center.

The Department operates two field stations for research and class use. The Forest River Biology Area is 40 miles from campus and includes 160 acres consisting of spring brook, swamp, moist and dry woods and a section of the Forest River. The Oakville Prairie Field Station consists of approximately 1000 acres of virgin upland and lowland prairie located 12 miles from campus. Oakville Prairie offers rare native tall-grass prairie and saline seeps. Glacial Lake Agassiz receded from the site approximately 9,300 years ago, leaving a series of beach ridges. These ridges have mostly disappeared, but two of the Ojata Beach Ridges remain on the Oakville site along with 8 Saline Seeps (another geological feature not common elsewhere).

The Biology Department has a history of cooperative research involving the management of sport and commercial fisheries and wildlife with state (North Dakota Game and Fish Department, Minnesota Department of Natural Resources) and federal (US Fish and Wildlife Service) agencies.

**MASTER OF SCIENCE DEGREE**

**Mission Statement and Program Goals**

The mission of the Biology Graduate Program is to prepare our students well for careers in teaching and/or research in academics, government or industry, or for further graduate training. We strive for excellence in graduate education, mentorship and research across the breadth of biology, while focusing on strengths in vital sub-disciplines. We provide enriched, forward-looking graduate experiences in the areas of Ecology, Evolution, and Conservation Biology and Molecular, Cellular, and Developmental Biology. We strive to prepare students for the increasingly important integration of biological knowledge across levels of organization from molecules to the environment.

**Goal 1:** MS Students will demonstrate a broad knowledge and understanding of the major concepts of modern biology across all levels of biological organization from molecules to ecosystems, including the conceptual relationship among these levels of organization, and a deeper understanding of at least one sub-discipline of biology.

**Goal 2:** As students progress through the MS program at the University of North Dakota, they will exhibit an increasing ability to independently engage in the scientific process to both create and disseminate new knowledge. This will include the ability to:

a. Clearly and concisely propose a research project that incorporates the most recent body of knowledge in the discipline, critically analyzes accepted and emerging ideas in the discipline, and poses clear objectives and testable hypotheses along with appropriate methods and techniques for testing those hypotheses.

b. Demonstrate mastery of the technical skills necessary for making observations, gathering and analyzing data, and testing hypotheses in the particular sub-discipline.

c. Synthesize information and communicate the results of their research clearly and effectively in oral, written and visual form, including publication in peer-reviewed outlets and presentation at professional meetings.

**Goal 3:** Students will develop and display an understanding of professional ethics in the conduct of research, teaching, and service as scientists.

**Admission Requirements**

1. Must meet current minimum general requirements as published by the Graduate School.

2. Must provide GRE General test scores. Strength of scores will be considered regarding admission and awarding of departmental support.

3. Minimum GPA of at least 2.75 for all undergraduate work or 3.0 for the junior - senior credits.
4. Students must indicate thesis vs. non-thesis option upon application. M.S. (thesis) students may request a change to M.S. (non-thesis) only within the first two semesters (not including summer) of enrollment. Such requests will be evaluated by the Graduate Director and the student’s advisory committee.

Students admitted to the M.S. program may, after one calendar year, and upon the recommendation of his/her advisory committee, request to by-pass the masters degree and work directly toward the Ph.D. degree. The same GRE and GPA requirements apply for by-pass as for students applying for the doctoral program and through normal application procedures, i.e., a GPA no lower than 3.0 for work completed while in the M.S. program. The recommendation of the advisory committee shall be brought to a vote in a faculty meeting. A minimum of one week before such a meeting, the faculty shall be notified that the student’s updated file shall consist of the materials used for application to the M.S. program, a transcript of all academic work completed at UND, and any additional materials the student wishes to have considered.

Students seeking summer or fall admission should complete their applications by February 15. Students seeking spring admission should complete their applications by October 15. Master’s degree applicants should specify interest in either the thesis or non-thesis option. Inquiries should be directed to the Director of Graduate Studies, Biology Department.

**Degree Requirements**

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Biology Department. The Master of Science degree program is designed to produce broadly trained biologists for job opportunities or continued graduate study.

**Thesis Option**

The M.S. degree program with thesis requires the completion of a program of study of at least 30 semester credits beyond the baccalaureate degree. The program of study, prepared with the approval of a three-member faculty advisor committee, includes the following:

a. A minimum of 30 credits including coursework, research and thesis with research and thesis accounting for no more than 50% of credits.

b. A minimum of two (2) credits of BIOL 503 Seminar (credits included in a. above).

c. Satisfactory completion of an acceptable thesis proposal (written proposal, proposal presentation and proposal defense) evaluated by the student’s advisory committee.

d. BIOL 599 Research and BIOL 998 Thesis credits will not count toward the 32 credits.

e. Satisfactory completion of a comprehensive examination administered by the student’s advisor and two other faculty members selected by the student with the concurrence of the advisor, the faculty members involved and the department chairperson.

f. Satisfactory completion of an acceptable Independent Study. The Independent Study should be substantial and rigorous and involve a written report and a formal oral presentation to the Department.

**DOCTOR OF PHILOSOPHY DEGREE**

**Mission Statement and Program Goals**

The mission of the Biology Graduate Program is to prepare our students well for careers in teaching and/or research in academics, government or industry. We strive for excellence in graduate education, mentorship and research across the breadth of biology, while focusing on strengths in vital sub-disciplines. We provide enriched, forward-looking graduate experiences in the areas of Ecology, Evolution, and Conservation Biology and Molecular, Cellular, and Developmental Biology. We strive to prepare students for the increasingly important integration of biological knowledge across levels of organization from molecules to the environment.

**Goal 1.** Ph.D. students will demonstrate a broad knowledge and understanding of the major concepts of modern biology across all levels of biological organization from molecules to ecosystems, including the conceptual relationship among these levels of organization, and exhibit substantial depth of knowledge and ability to evaluate and communicate relevant theories, controversies, and unanswered questions in at least one sub-discipline of biology.

**Goal 2.** As students progress through the PhD program at the University of North Dakota, they will exhibit an increasing ability to independently engage in the scientific process to both create and disseminate new knowledge. This will include the ability to:

a. Clearly and concisely **propose a research project** that incorporates the most recent body of knowledge in the discipline, critically analyzes accepted and emerging ideas in the discipline, and poses clear objectives and testable hypotheses along with appropriate methods and techniques for testing those hypotheses.

b. Demonstrate mastery of the **technical skills** necessary for making observations, gathering and analyzing data, and testing hypotheses in the particular sub-discipline.

c. **Synthesize information and communicate the results of their research** clearly and effectively in oral, written and visual form, including publication in peer-reviewed outlets and presentation at professional meetings.

**Goal 3.** Students will develop and display an understanding of **professional ethics** in the conduct of research, teaching, and service as scientists.

**Admission Requirements**

1. Must meet current minimum general requirements as published by the Graduate School.

2. May enter the program with a Master’s degree or directly with a Bachelor’s degree.

3. All applicants seeking admission to the biology graduate program must provide GRE General test scores. Strength of scores will be considered regarding admission and awarding of departmental support.

4. Minimum GPA of 3.0 for the Master’s degree work. If applying with only an undergraduate degree, must have a minimum GPA of 2.75 for all undergraduate work or 3.0 for junior - senior credits.
Degree Requirements

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Biology Department.

The Ph.D. degree program requires the completion of a program of study of at least 90 semester credits beyond the baccalaureate degree. The program of study, prepared with the approval of a five-member faculty advisory committee, includes the following:

a. A major area of a minimum 90 credits including coursework, research and dissertation structured at the committee’s discretion but with a minimum of 18 semester credits of course work. Work completed in a master’s program may be incorporated into the doctoral program if approved by the student’s advisory committee.

b. A minor is not required, but each student is expected to show competence in related areas as determined by the student’s faculty advisory committee.

c. A minimum of four (4) credits on BIOL 503 Seminar (included in a, above).

d. Two scholarly tools. The nature of the scholarly tools shall be determined based upon their importance to the student’s field of research as determined by the student’s advisory committee.

e. Satisfactory completion of an acceptable dissertation proposal (written proposal, proposal presentation and proposal defense) evaluated by the student’s advisory committee.

f. Satisfactory completion of a comprehensive examination administered by the student’s advisory committee.

g. Performance of research suitable for publication in refereed professional journals and satisfactory completion of an acceptable dissertation (written dissertation seminar and dissertation defense) based thereon.

Financial Assistance

Financial aid in the form of teaching assistantships, research assistantships, fellowships and internships are available on a competitive basis. Students seeking teaching assistantships should complete their applications by February 15, since most offers for appointments are made beginning in early March. Teaching assistantships are renewable if progress toward the degree and instructional service are satisfactory. Research assistantships may be offered by faculty members for work on specific research projects for nine or twelve month periods.

Courses

(Biol)

503. Seminar. 1 credit. Discussion of selected topics in advanced biology, a different topic each semester.

504. College Biology Teaching. 3 credits. Survey of literature and trends in college biology teaching.

505. Biological Inquiry for Teachers. 3 credits. Prerequisite: Must be a licensed K-12 teacher; Biol 506L. First of general biology course sequence intended for teachers planning to qualify to teach high school biology, or teachers looking to enrich their content knowledge in biology for professional development. Topics will include cell, molecular, developmental and evolutionary biology. May not be used in Ph.D. or Master’s programs.

505L. Biological Inquiry for Teachers Laboratory. 2 credits. Prerequisite: Must be licensed K-12 teacher. This hands-on lab course complements Biol 505 and is intended for teachers planning to enrich their practical skills in biology for professional development. Topics will include cell, molecular, developmental and evolutionary biology. May not be used in Ph.D. or Master’s programs.

506. Ecology for Teachers Laboratory. 2 credits. Prerequisite: Must be a licensed K-12 teacher. This hands-on lab course complements Biol 506 and is intended for teachers planning to qualify to teach high school biology, or teachers looking to enrich their content knowledge in biology for professional development. Topics will include cell, molecular, developmental and evolutionary biology. May not be used in Ph.D. or Master’s programs.

506L. Ecology for Teachers. 3 credits. Prerequisite: Must be a licensed K-12 teacher; Biol 506L. Second of a general biology course sequence intended for teachers planning to qualify to teach high school biology, or teachers looking to enrich their content knowledge in biology for professional development. Topics will include cell, molecular, developmental and evolutionary biology. May not be used in Ph.D. or Master’s programs.

507L. Cellular and Molecular Biology for Teachers Laboratory. 2 credits. Prerequisite: Must be a licensed K-12 teacher. This hands-on lab course complements Biol 507 and is intended for teachers planning to enrich their practical skills in biology for professional development. May not be used in Ph.D. or Master’s programs.

507. Cellular and Molecular Biology for Teachers. 3 credits. Prerequisite: Must be a licensed K-12 teacher; Biol 507L. Third of a general biology course sequence intended for teachers planning to qualify to teach high school biology, or teachers looking to enrich their content knowledge in biology for professional development. Topics will include cell, molecular, developmental and evolutionary biology. May not be used in Ph.D. or Master’s programs.

508L. Natural Resource Policy. 3 credits. A course that provides a detailed review of the major federal laws and key international treaties governing natural resource management and wildlife conservation on federal, state and private lands.

510. Helminthology. 3 credits. Prerequisite: Biology 364 or equivalent. Morphology, physiology, and life histories of the worm parasites of humans and other animals.

522. Medically Important Arthropods. 2 credits. Prerequisites: Biology 363 or 364 or equivalent. The biology, distribution, and health significance of insects and arachnids having human and veterinary importance.

533. Grassland Ecology. 2 credits. Prerequisite: Biology 332 or equivalent. Phytogeography, environmental influences, and community dynamics of grassland ecosystems with emphasis on herbage production, ecosystem modeling, and ecological characteristics of major grass species.

534. Quantitative Ecology. 3 credits. An introduction to the methods employed in the study of the ecology of natural populations/communities of plants and animals. May not be used in Ph.D. or Master’s programs.

535. Animal Societies. 2 credits. Prerequisite: Biology 338 or equivalent. Social organization in animals, emphasizing division of labor, communication, reproductive behavior, and adaptations to the environment.

540. Waterfowl Biology and Management. 2 credits. Classification, biology, and management of waterfowl.

542. Comparative Endocrinology. 3 credits. A comparative study of the hormonal regulation of physiological processes and mechanisms of hormone action in vertebrates and invertebrates.

551. Biochemical Genetics. 3 credits. Prerequisites: Biology 341 and 315 or equivalent. Topics include gene structure, gene protein relationships, transcription and translation, mutation, extra-chromosomal elements, and the regulation of gene expression. There is a substantial emphasis on the genetics of higher organisms.

554. Cytogenetics. 2 credits. Prerequisites: Biology 315 and 367 or equivalent. The cytological basis of genetics with special reference to chromosomal structure, number aberrations, and their effect on inheritance and evolution.

564. Developmental Morphology of Plants. 2 credits. Prerequisite: Biology 361 or consent of instructor. Morphological development of plants with emphasis on the causal factors.

571. Advanced Biometry. 3 credits. Prerequisite: an introductory course in statistics. Advanced topics in the analysis of biological data using statistical software.

576. Special Topics. 1 to 4 credits. Prerequisites: Graduate status or upper division status with consent of instructor. Important and current topics in biology not covered by other courses. Repeatable when topics vary. Examples include: Aquaculture, Big Game Biology, Biorehymrs, Conservation Biology, Fire Ecology, Molecular Techniques, Plant-Animal Interactions, Sex Determination and Speciation.

592. Directed Studies. 1 to 4 credits. Designed to meet the needs of individual and small groups of students in areas of faculty specialization. May be repeated to a total of 12 credits.

599. Research. Credits arranged. Maximum of 15 credits per semester. Intended for students conducting original research in consultation with staff. S/U grading only.

997. Independent Study. 2 credits.

998. Thesis. 1-9 credits, minimum of 4 credits required for thesis option.

999. Dissertation.

These courses can be taken for graduate credit but will involve some extra work above and beyond that for the undergraduate students. Graduate students wishing to take undergraduate courses for graduate credit must inform the instructor at the beginning of the class that they wish to take the course for graduate credit.

312. Evolution. 3 credits.

315. Genetics. 3 credits.

322. General Ecology. 3 credits.

332L. General Ecology Lab. 1 credit.

333. Population Biology. 3 credits.

350. Systematic Botany. 4 credits.

338. Animal Behavior. 2 credits.

338L. Animal Behavior Lab. 2 credits.

341. Cell Biology. 3 credits.

341L. Cell Biology Lab. 1 credit.

350. Plant Biology. 3 credits.

363. Entomology. 4 credits.

356. Parasitology. 2 credits.

386L. Parasitology Lab. 2 credits.

369. Histology. 2 credits.

369L. Histology Lab. 2 credits.
Admission Requirements

1. A four-year bachelor’s degree from a recognized college or university.
2. Completion of the Graduate Management Admission Test (GMAT) with a score that equals or exceeds an overall total score of 500. In certain circumstances, applicants may substitute the GRE or LSAT for the GMAT (with similar percentile scores expected to those noted above). This situation will be determined on a case-by-case basis.
3. An overall grade point average of at least 3.00 in the undergraduate degree program or of at least 3.25 for the last two years, or equivalent, of undergraduate work (based on 4.00 scale).
4. Command of the M.B.A. Prerequisite Curriculum (see description below), demonstrated through satisfactory completion of coursework or testing out of all of the courses found in the M.B.A. Prerequisite Curriculum. An individual may be provisionally admitted if all but nine credits of the M.B.A. Prerequisite Curriculum have been completed as of the date of application. All remaining M.B.A. Prerequisite Curriculum courses must be completed within one year of program admission. During this time, a provisional student will be allowed to take no more than nine credits of graduate coursework. It is critical that all course prerequisites are followed as the initial courses are taken in the program.
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Combined Bachelors/MBA Admission

Individuals at UND currently completing their junior year towards their business degree, may make application to the M.B.A. under combined admission. The M.B.A. program under the combined admission, however, will be a minimum of two years of study, a 550 GMAT and 3.25 GPA. Interested students should consult with the M.B.A. program director.

Joint MBA/JD Program

Admission Requirements

1. Students are required to apply to both the Law School and the Graduate School. Admission recommendations will be made to the Graduate School by the Director of the M.B.A. Program and approved by the Graduate Dean. The Law School Admissions Committee will determine admission into the Law School.
2. Students pursuing the M.B.A. degree program are expected to have completed the M.B.A. Prerequisite Curriculum (undergraduate prerequisite courses) prior to admission.
3. Students pursuing a J.D. degree and wishing to add the M.B.A. degree must do so no later than the third semester of the J.D. program.
4. Admission requirements of each program will remain the same in the joint admission process as what is currently required to be admitted into each program separately.

Degree Requirements

If each degree were earned separately, a student would be required to complete 90 credit hours for the J.D. degree and 32 hours for the M.B.A. The joint degree program will enable a student to receive the two degrees upon completion of 81 law credit hours and 26 M.B.A. credit hours. The School of Law thus accepts 9 credit hours of M.B.A. coursework that will be applicable toward the J.D. degree, and the College of Business and Public Administration accepts 6 credit hours of J.D. courses toward the M.B.A. degree. The total credits required for each degree will be unchanged, because each program will accept credits toward the other degree.

In addition to the required courses for all students earning the J.D. degree, students enrolled in the joint degree program must successfully complete the following School of Law courses: Business Associations I, Business Associations II, and at least two Commercial Law courses. Other School of Law courses may be chosen to fulfill elective requirements.

Each joint degree student must satisfy the Independent Study requirement of the M.B.A. program by completion of a substantial research/writing project on a business-related legal topic or a law-related business topic. The Independent Study project must be supervised by a member of the Graduate Faculty from the College of Business and Public Administration. The student may choose to complete the research/writing project in consultation with a faculty member of the School of Law, who may determine whether the successful completion of the project will satisfy the Upper Level Writing Requirement of the J.D. program. In order to meet this requirement of the J.D. program, this project must be supervised by a member of the law faculty.

Sample Curricular Plan (degree completion in four years)

The first year of the joint degree program will consist of the required curriculum in the School of Law. The third semester of the joint degree program will usually consist of law school courses, with M.B.A. Curriculum courses beginning in the fourth semester. To promote the integration of the two courses of study, courses after the third semester usually will be taken in each of the schools concurrently, rather than having the student located exclusively in one school or the other for an entire semester. Note: This timetable assumes that all undergraduate prerequisite courses have been completed prior to entering the joint program.

Semester 1 (Fall only)
16 hours of the required first year curriculum in the School of Law

Semester 2 (Spring only)
16 hours of the required first year curriculum in the School of Law

Semester 3
15 hours of courses in the School of Law

Semester 4
2 M.B.A. courses (6 credit hours)
6 credit hours of courses in the School of Law

Semester 5
2 M.B.A. courses (6 credit hours)
6 credit hours of courses in the School of Law

Semester 6
6 credit hours of courses in the School of Law
2 M.B.A. courses (6 credit hours)

Semester 7
7 credit hours of courses in the School of Law
Independent Study (2 credit hours)
1 M.B.A. course (3 credit hours)

Semester 8
9 credit hours of courses in the School of Law
1 M.B.A. course (3 credit hours)

Normally, the joint program will be completed in only four years. With summer school classes it may be possible to obtain both degrees even more quickly. All degree requirements in the Law School must be completed within 84 months of starting the program. Both degrees will be awarded simultaneously after all degree requirements are met in both programs.

M.B.A. Prerequisite Curriculum

Applicants must demonstrate command of a core curriculum in business and administration through course work in economics, accounting, quantitative methods, and the functional areas of business, mathematics, and administrative process. This command normally will be demonstrated by completion of the following UND undergraduate courses or their equivalents, or by competency examinations.

<table>
<thead>
<tr>
<th>UND Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 200/201</td>
<td>Elements of Accounting I &amp; II</td>
<td>6</td>
</tr>
<tr>
<td>ISYS 317</td>
<td>Information Systems in Enterprise</td>
<td>3</td>
</tr>
<tr>
<td>Economics 201</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>Economics 202</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>Economics 210</td>
<td>Introduction to Business</td>
<td></td>
</tr>
<tr>
<td>Accounting 200</td>
<td>Business in the Legal Environment</td>
<td>3</td>
</tr>
<tr>
<td>Finance 310</td>
<td>Principles of Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>Management 300</td>
<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>Management 301</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>Marketing 305</td>
<td>Marketing Foundations</td>
<td>3</td>
</tr>
</tbody>
</table>

Degree Requirements

Students seeking a Master’s degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Master of Business Administration Program.

The M.B.A. degree program is an interdisciplinary program taught by the faculty in several departments within the College of Business and Public Administration. The M.B.A. Program Director is responsible for coordinating all aspects of the program. Business courses carrying graduate credit status from the Department of Accounting, Economics, Finance, Information Systems, Marketing, Management, and Political Science and Public Administration are described elsewhere in the Graduate Catalog. The M.B.A. degree program course requirements are:

1. A minimum of 32 semester credits of academic work. The program includes an M.B.A. curriculum of 26 semester credits, including the Independent Study (BADM 997 – 2 credits), and sufficient cognate electives to total 32 semester hours.

2. At least one-half of the credits must be at or above the 500-level electives. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required may be transferred from another institution.

3. Cognate elective courses (6 or 9 credits).

4. The requirement of the final examinations for the M.B.A. degree is satisfied by the successful completion of Management 585, Advanced Strategic Management. Students must complete 12 credits of M.B.A. curriculum courses before enrolling in Management 585.
5. Approval of a written independent study.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management 501</td>
<td>Quantitative Analysis for Management Decisions</td>
<td>3</td>
</tr>
<tr>
<td>Management 585</td>
<td>Advanced Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>Management 515</td>
<td>Advanced Managerial Theory</td>
<td>3</td>
</tr>
<tr>
<td>Marketing 510</td>
<td>Strategic Market Planning</td>
<td>3</td>
</tr>
<tr>
<td>Economics 509</td>
<td>Macroeconomic Decision-Making</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 509</td>
<td>Accounting Information for Decision Control</td>
<td>3</td>
</tr>
<tr>
<td>Finance 501</td>
<td>Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 510</td>
<td>Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>BADM 997</td>
<td>Independent Study</td>
<td>2</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>6 or 9</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>32</td>
</tr>
</tbody>
</table>

Cognate elective courses (6 or 9 credits) may be chosen from those offered at the 300-, 400- and 500-level in the areas of Accounting, Economics, Finance, Information Systems, Marketing, Management, Political Science & Public Administration and related fields, e.g., Aviation Management. All cognate elective courses must be approved by the M.B.A. Program Director prior to enrollment.

Students who already have completed courses similar to those in the M.B.A. curriculum may be required to choose substitutes from the graduate credit offerings listed in this catalog. Substitutions require the prior approval of the M.B.A. Director and the Graduate Dean.

Final Examinations. The requirement of the final examinations for the M.B.A. degree is satisfied by the successful completion of Management 585, Advanced Strategic Management.

Concentration in Accounting

In order to receive a concentration in accounting, a minimum number of courses in accounting must be taken at the undergraduate level. The courses below provide the student with the necessary minimum background to pursue graduate education in accounting. Based on the advice of the M.B.A. Director, additional courses may be recommended, depending on the individual student’s level of preparation and background.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 200 &amp; 201</td>
<td>Elements of Accounting I &amp; II</td>
<td>6</td>
</tr>
<tr>
<td>Accounting 391 &amp; 302</td>
<td>Intermediate Accounting I &amp; II</td>
<td>6</td>
</tr>
<tr>
<td>Accounting 309</td>
<td>Accounting Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 320</td>
<td>Accounting for Production</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 405</td>
<td>Assurance Services</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 411</td>
<td>Business Income Taxation</td>
<td>3</td>
</tr>
<tr>
<td>Total Minimum</td>
<td></td>
<td>24</td>
</tr>
</tbody>
</table>

The graduate level concentration in accounting includes the following:

1. Twelve (12) credits including Accounting 509 and a minimum of nine (9) credit hours to be selected from the following accounting courses: 312, 401, 406, 410, 501 or 591, 503, 504, 507, 508, 592.  
2. Two (2) credits of Independent Study, Business Administration 997. If choosing accounting as a concentration, the Independent Study would focus on the field of accounting.  
3. Of the courses selected from #1 above, a maximum of six hours may be selected from undergraduate (300-499) courses. If undergraduate courses are selected, additional work is necessary for the course to qualify for graduate credit.

Concentration in International Business

This concentration consists of 9 semester hours, including the 6 semester hours of electives comprising the 32-semester hour M.B.A. program. The International Business Concentration requires an additional 3 semester hours, thus making the M.B.A. with the concentration a total of 35 semester hours.

The concentration in International Business includes the following components:

1. UND and the respective foreign college/university must have a formal course transfer agreement in place prior to the approval of the student’s international experience.  
2. Students will be admitted to the M.B.A. program. Those students admitted under qualified status must make significant progress towards satisfying needed prerequisite courses. Approval of the M.B.A. Director is necessary for inclusion in the International Business concentration.  
3. Students will complete the first and the last semesters of their program of study at UND.  
4. Students will take a maximum of nine semester hours from a foreign college/university to be approved for inclusion in their program of study. Students may take additional courses, but they will not be included as part of the M.B.A. program. Courses to be taken at the foreign college/university, and included in the program of study, must be approved by the M.B.A. Director prior to registration.  
5. Students are expected to take a workshop or course of study in cultural language studies from the foreign college/university beyond the nine semester hours of course work mentioned in #4.  
6. The independent study (BADM 997) will most likely be in international business. Data or other types of information relating to the independent study may be collected during the student’s international experience.

Courses

ACCOUNTING

ACCT 501, Seminar in Accounting Problems. 1 to 4 credits. Special problems in accounting and accounting research. May be repeated.

ACCT 503, Accounting Theory. 3 credits. Prerequisite: satisfactory evidence of academic training or practical experience. Theory and use of accounts and accounting principles.

ACCT 504, Advanced Auditing. 3 credits. Prerequisite: satisfactory evidence of academic training or practical experience. Auditing theory and practice.

ACCT 505, Specialized Accounting Problems. 6 credits. Prerequisite: satisfactory evidence of academic training or practical experience. Research, analysis, and problem solving.

ACCT 506, Specialized Accounting Problems. 6 credits. Prerequisite: satisfactory evidence of academic training or practical experience. Research, analysis, and problem solving.

ACCT 507, Advanced Managerial Accounting. 3 credits. Functional uses of accounting in management of the enterprise.

ACCT 508, Fraud Examinations. 3 credits. Prerequisite: Accounting 405 or equivalent. Focuses on understanding types of fraud as well as collecting and evaluating evidence relating to preventing and detecting frauds. Evidence gathering methods will include the examination of documents, publicly available information, and standard practices for interviews and interrogations.

ACCT 509, Accounting Information for Decision and Control. 3 credits. Management accounting concepts and their application in internal planning, control, and decision-making.

ACCT 510, Industrial Quantitative Controls. 3 credits. Prerequisite: Accounting 306. The use of quantitative techniques in business decision-making. Some of the topics included are probability concepts, decision theory, inventory control, and linear programming.

ACCT 575, Special Topics. 3 credits. Specific topic will vary from offering to offering at the discretion of the department. Departmental permission will be required for enrollment. Prerequisites and/or corequisites may be required depending upon the special topic selected. Course may be repeated up to a total of nine credits with permission of department. Regular grading.

ACCT 590, Contemporary Readings in Accounting. 2 credits. Review of outstanding monographs and other writings in the field of accounting.

ACCT 591, Accounting Research. 1 to 6 credits. Individual student projects designed to develop skills in accounting research.

ACCT 592, Research in Federal Tax. 1 to 4 credits. Prerequisite: Accounting 411 or equivalent. Research in Federal Income Tax with emphasis on corporations and shareholders.

ACCT 309, Accounting Information Systems. 3 credits.

ACCT 312, Fund Accounting. 3 credits.

ACCT 401, Advanced Accounting. 3 credits.
ACCT 403, Contemporary Accounting Theory. 3 credits.
ACCT 405, Assurance Services. 3 credits.
ACCT 406, Independent Assurance. 3 credits.
ACCT 410, Federal Individual Income Tax. 3 credits.
ACCT 411, Business Income Taxation. 3 credits.

BUSINESS ADMINISTRATION
BADM 502. Business Research Methods. 3 credits. Prerequisites: Completion of MBA foundation courses or consent of instructor. A study of the methodology of research involving research design, problem definition, information sources, data collection instruments, and the organization and writing of a research paper.
BADM 597. Graduate Cooperative Education. 1-3 credits. Prerequisites: Approved status, approval of MBA Director. A practical experience with an employer closely associated with the student’s academic area. A written report describing the student’s job-related experiences will be prepared. This course may be taken only once. S/U grading only.
BADM 996. Continuing Enrollment. Variable credit.
BADM 997. Independent Study. 2 credits. (See the Academic Policies section for details on 996 and the Degree Requirements section for 997.)

BUSINESS LAW
ACCT 593. Research in Business Law. 1 to 4 credits. Individual projects designed to develop basic skills in legal research.
ACCT 416. Advanced Business Law. 3 credits.

ECONOMICS
ECON 504. Advanced Price Theory. 3 credits. Prerequisite: Economics 308 and 416. Economic theory and methodology; theory of consumer behavior and demand; theory of production and distribution; equilibrium in commodity and factor markets; general equilibrium and welfare; behavior of economists in imperfect competition. Particular attention is given to efficiency and equity ramifications of perfectly competitive economic systems.
ECON 505. Advanced Macroeconomic Theory. 3 credits. Prerequisite: Economics 309 and 416. Advanced study of macroeconomic theoretical models with particular attention to the analysis of business cycles, income growth, and evaluation of public policies concerned with inflation and unemployment.
ECON 509. Macroeconomic Decision-Making. 3 credits. Prerequisite: Economics 309 and 416. Examination and utilization of theory and empirical evidence on macroeconomics in the business decision-making process will be stressed. Particular emphasis will be placed on inflation, interest rate changes, business taxation, and exchange rate movements.
ECON 511. Advanced Business and Economic Forecasting. 3 credits. Prerequisite: Economics 310. Various time series and regression approaches as well as special topics are covered in conjunction with computer-based assignments. Specification, estimation, and diagnostic techniques are emphasized for both forecasting and simulation.
ECON 516. Advanced Managerial Economics. 3 credits. Prerequisites: Econ 201, 117 and 317, Math 146, or permission of the instructor. Microeconomic analysis applied to business decision-making. Topics include the nature and scope of the firm, strategic decisions concerning product line, pricing, entry or exit from specific markets, the internal organization of the firm. Case studies are utilized as a main method of analysis.
ECON 524. Applied Economic Analysis 1. 3 credits. Prerequisites: Economics 410, 411, 416, and 505. Studies of economic impact, with emphasis on defined area employment, income, tax base, infrastructure, and business feasibility. Students will be expected to design and complete studies of professional quality using the tools of economic theory and econometrics, including input-output analysis, and gravity-centropy models.
ECON 530. Seminar in International Economics. 3 credits. Prerequisites: Economics 309 and Economics 338 or consent of instructor. Topics to be discussed include: Advanced Theory Underlying International Trade, Balance of Payments, and International Monetary System. Detailed examination of disequilibria, adjustments and coordination of external and internal monetary and fiscal policies in those areas. Multinational corporations, world trade, New International Economic Order (NIEO) and trade.
ECON 534. Applied Economic Analysis II. 3 credits. Prerequisites: Economics 410, 411, 414, 416, and 504. Economic theory and econometric methods are applied to typical business problems. Examples include: cost estimation, product demand, learning models, scale and size economies, quality change, wage determination and discrimination, investment expenditure, public utility demand, advertising, factor requirements, and optimization of factor mix.
ECON 550. Seminar on the Economics of Regulation. 3 credits. Prerequisites: Economics 308 or Econ 514 or Econ 504, or permission of the instructor. Journal articles in regulatory economics will be discussed in a seminar format. Key components of the course include: the foundation for utility regulation; determining the cost of capital; the importance of cost and demand factors in rate design; energy conservation; and alternatives to rate-of-return regulation.
ECON 575. Advanced Special Topics. 2 to 4 credits. Specific area varies from year to year; some years an important aspect of economic theory; other years, a significant issue in economic policy.
ECON 580. Economic Development. 3 credits. Prerequisites: Economics 504 and 505. The first part of this course focuses on growth theories, globalization, economic development, and sustainable growth. The second part of the course specifically examines economic development for advanced nations, incorporating rural, urban and regional economic analysis. Issues such as rural technology, employment, poverty, housing, transportation, location problems, industrialization, urbanization and sustainable growth in North Dakota and North Central Region are explored.
ECON 592. Research in Economics. 2 to 3 credits. Research work and use of original documents; collecting of material and preparing of special topics and bibliographies; familiarizing the student with government publications and other material available for study of economic problems. 597. Economic Research Internship. 1 to 3 credits. MSAE students are required to participate in a research internship, unless they have chosen the thesis option. Interns may be assigned to governmental agencies, businesses, community organizations, or partnered with faculty members engaged in research. On demand.
ECON 997. Independent Study. 2 credits. The independent study requires the student to investigate a topic in applied economics and to prepare a formal report satisfactory to the MSAE Program Director. F,S,SS
ECON 998. Thesis. 4 credits. The thesis is an original research project completed under the supervision of a thesis committee. F,S,SS Courses listed below are described in the undergraduate section of this catalog, and may be taken by MBA students who did not take them as undergraduates. MBA students taking these courses are expected to perform at a higher level, both in the quality and quantity of work.
ECON 324. Public Finance. 3 credits.
ECON 338. International Economics. 3 credits.
ECON 341. Labor Economics and Labor Relations. 3 credits.
ECON 355. Government Regulation of Business. 3 credits.
ECON 400. History of Economic Thought. 3 credits.
ECON 416. Mathematics for Economics. 3 credits.
ECON 438. International Money and Finance. 3 credits.

FINANCE
FIN 501. Managerial Finance. 3 credits. Prerequisite: Finance 310. The development of financial decision-making skills, using the case-analysis method, through application of financial theory to topical areas of analysis, planning, control, asset management, financial instruments, markets, capital structure, dividend policy, cost of capital, etc.
FIN 520. Investment Theory and Management. 3 credits. Prerequisites: Finance 501 or consent of instructor. An introductory course designed for MBA students in the study of the usage and valuation of the major investment vehicles popular today. Although the ultimate objective is to develop a conceptual framework in which the student can expand his or her knowledge of the investment field, the course is taught in a practical fashion and incorporates materials from both the Chartered Financial Analyst (CFA) and Certified Financial Planner (CFP) curricula.
FIN 575. Special Topics. 3 credits. Specific topic will vary from offering to offering at the discretion of the department. Departmental permission will be required for enrollment. Prerequisites and/or corequisites may be required depending upon the special topic selected. Course may be repeated up to a total of nine credits with permission of department.
FIN 420. Investment Analysis and Portfolio Management. 3 credits.
FIN 475. Cases in Managerial Finance. 3 credits.

MANAGEMENT
MGMT 501. Quantitative Analysis for Management Decisions. 3 credits. Course consists of an application of quantitative techniques for management decisions. Both mathematical techniques and computer analysis of decisions will be stressed. Topics will include deterministic and probabilistic models in areas such as linear and quadratic programming, inventory systems, queuing models, game theory, and simulation.
MGMT 505. Advanced Strategic Management. 3 credits. Prerequisite: 12 credits of M.B.A. core courses or consent of instructor. An integrating course designed to develop coordinating ability and experience in the decision-making process. Taught from the point of view of the top management and by the case method, the course develops an understanding of the overall point of view; through analysis of actual business situations, the appreciation of the role of the production department to other departments and to the business as a whole. Concluding cases place emphasis on the responsibilities of business enterprise to the community and to society generally.
MGMT 515. Advanced Managerial Theory. 3 credits. Prerequisite: Management 515 or consent of instructor. Advanced study of the human resource management within the organization. Topics covered include the environment, the individual, small group, leadership, motivation, job design, evaluation, rewards and growth. Macro-behavioral topics such as organizational design, climate, and organizational process are also covered as these relate to human behavior in organizations.
MGMT 575. Special Topics. 3 credits. Specific topic will vary from offering to offering at the discretion of the department. Departmental permission will be required for enrollment. Prerequisites and/or corequisites may be required depending upon the special topic selected. Course may be repeated up to a total of 9 credits with permission of department.
MGM 596. Individual Research. 1 to 4 credits.
MGM 597. Readings in Management. 3 credits.
MGM 400. Organizational Theory and Analysis. 3 credits.
MGM 407. Wage and Salary Administration. 3 credits.
MGM 408. Issues in Human Resource Management. 3 credits.
MGM 409. Union-Management Relations. 3 credits.
MGM 420. Multinational Management. 3 credits.

INFORMATION SYSTEMS
ISYS 510. Information Systems. 3 credits. Prerequisite: ISys 317. An overview of the role of information systems in the life of an organization, and an overview of current and emerging technologies such as data communications, e-commerce, and data mining.
ISYS 517. Advanced Accounting Systems. 3 credits. Prerequisite: Accounting 309 or equivalent, or permission of instructor. An advanced study of integrated information systems and how these affect business decisions.

MARKETING
MRKT 510. Strategic Market Planning. 3 credits. Prerequisite: Marketing 305. Marketing from the point of view of an executive charged with the marketing function in a business enterprise. The course introduces students to marketing decision making using computerized decision support systems. Students will also work with existing or prospective business in developing a comprehensive marketing plan.
MRKT 540. Marketing Seminar. 3 credits. Prerequisite: Marketing 305. Emerging topics in the field of marketing. On demand.
MRKT 575. Special Topics. 3 credits. Specific topic will vary from offering to offering at the discretion of the department. Departmental permission will be required for enrollment. Prerequisites and/or corequisites may be required depending upon the specific topic selected. Course may be repeated up to a total of 9 credits with permission of department.
MRKT 592. Graduate Research in Marketing. 1 to 3 credits. Prerequisites: BADM 502 and consent of instructor. Repeatable to 6.
MRKT 595. Graduate Readings in Marketing. 1 to 3 credits. Repeatable to 6. Prerequisite: Consent of instructor.

Chemical Engineering
http://www.und.edu/dept/ssem/che/

FACULTY: Benson, Bowman (Graduate Program Director), Ji, Koledka, Kozliak, Mann (Chair), Muggli, Parker, Seames and Tande
Adjunct Professors: Hurley, Olson and Swanson

DEGREES GRANTED: Master of Science, Master of Engineering, Doctor of Philosophy, Combined BSChE/Master of Science and BSChE/Master of Engineering

PROGRAM DESCRIPTION
The Chemical Engineering graduate program, administered from the Department of Chemical Engineering, offers the Master of Science with thesis and non-thesis options, the Master of Engineering, and the Doctor of Philosophy degrees. The department also sponsors the Energy, Environmental, and Interdisciplinary Engineering tracks of the School of Engineering and Mines Ph.D. Engineering program, administers the Sustainable Energy Engineering masters program and participates in the multidisciplinary Environmental Engineering masters program. The M.S. and Ph.D. degrees are the most common options and financial aid is provided to the vast majority of students working towards these degrees. The M.S. or M.Eng. degree is typically completed in 18-24 months of full time study by students holding an accredited baccalaureate degree in chemical engineering.

Research interests in the department include: coal and bio-based fuels and chemicals; energy technologies, processes, and policies; heterogeneous catalysis; photocatalytic oxidation; polymer reaction engineering, synthesis, and rheology; organic aerosol formation and partitioning; mathematical modeling of multicomponent aerosols; polymeric membranes and composite materials; biocomposite, nanocomposite, and nanobiocomposite materials; organic photovoltaic materials; environmental impact of heavy metals and particulate matter; and development of carbon from waste material sources. Projects are often conducted through our interdisciplinary Sustainable Energy Research, Infrastructure and Supporting Education (ND SUNRISE) research program or in collaboration with the Energy and Environmental Research Center (EERC).

MASTER OF ENGINEERING DEGREE
Mission Statement and Program Goals
The mission of the Chemical Engineering Master of Engineering program is to prepare chemical engineers for careers in industry or government. This preparation will be customized to meet specific areas of interest to the student with an emphasis on engineering design.

Goal 1: Graduates will have mastered selected topics in chemical engineering and related areas to achieve their specific goals and objectives.

Goal 2: Graduates will be proficient at engineering design, with the ability to solve complex chemical engineering problems.

Goal 3: Graduates will be well prepared for a career in industry or government in chemical engineering or a related field.

Admission Requirements
1. B.S. degree in Chemical Engineering from an ABET accredited program. Students applying for the combined BSChE/ MEng degree should see the “Engineering Combined Degree Programs” section for additional details.
2. An overall undergraduate GPA of at least 2.50 or a GPA of at least 3.00 for the last two years.
3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
4. *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

Degree Requirements
Students seeking the Master of Engineering degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Chemical Engineering Department. The general degree requirements for the Master of Engineering degree set forth by the Chemical Engineering Department include:

1. A minimum of 30 semester credits with at least 15 credits of chemical engineering at the 500-level.
2. At least 15 credits in engineering design, including either ChE 511 or ChE 512, ChE 595 (3 credits), and 9 credits selected from approved engineering design courses.
3. At least 15 credits of basic and engineering science, including at least 3 credits of chemistry, 3 credits of chemical engineering, 3 credits of mathematics, and 3 credits of chemistry, chemical engineering, or mathematics.
4. A maximum of nine semester credits may be transferred from another institution.
5. A written report documenting work on a successfully completed chemical engineering design project.
6. Comprehensive final examination.
MASTER OF SCIENCE DEGREE
Mission Statement and Program Goals

The mission of the Chemical Engineering Master of Science program is to prepare chemical engineers for careers in industry, government and doctoral studies in chemical engineering or related fields. This preparation will be customized to meet specific areas of interest to the student and for which the faculty is qualified to manage and instruct.

Goal 1: Graduates will have mastered selected topics in chemical engineering and related areas to achieve their specific goals and objectives.

Goal 2: Graduates will be proficient researchers, i.e. they will have the skills required to formulate, assess, and document a hypothesis.

Goal 3: Graduates will be well prepared for a career in industry and/or doctoral studies in chemical engineering or a related field.

Admissions Requirements

1. B.S. degree in chemical engineering from an ABET accredited program. Students applying for the combined BSChE/MS degree should see the “Engineering Combined Degree Program” section for additional details. Students holding a B.S. degree in a science or other engineering field may be admitted to Qualified Status with an obligation to acquire a background in chemical engineering.

2. An overall undergraduate GPA of at least 2.75 or a GPA of at least 3.00 for the last two years. (An overall GPA of at least 3.3 for the combined BSChE/MS degree is required).

3. Graduate Record Examination General Test for those with undergraduate degrees from non-ABET accredited programs.

4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

5. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Chemical Engineering Department.

Thesis Option:

1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.

2. At least one-half of the credits must be at or above the 500-level.

3. A maximum of nine semester credits may be transferred from another institution.

4. Required Courses: ChE 562 (2 cr); ChE 591 (3 cr); ChE 998 (4 cr); and at least 21 credits of coursework from chemical engineering and related fields, which may include a minor or cognate, for a total of 30 credits.

5. A thesis documenting research on a topic related to chemical engineering.

Non-Thesis Option:

1. A minimum of 32 credits, including credits granted for independent study.

2. At least one-half of the credits must be at or above the 500-level.

3. A maximum of nine semester credits may be transferred from another institution.

4. Required Courses: ChE 562 (2 cr); ChE 591 (4 cr); ChE 997 (2 cr); and at least 24 credits of coursework from chemical engineering and related fields, for a total of 32 credits.

5. Preparation of a written independent study report approved by the faculty advisor.

6. Comprehensive final examination.

Courses (ChE)

501. Advanced Transport Phenomena. 3 credits. Prerequisite: ChE 301 and Math 266. This course is designed to give an advanced treatment of momentum, heat, and mass transfer suitable for graduate students in chemical engineering, mechanical engineering, and environmental engineering. This course will involve using advanced mathematics to model transport systems of importance in engineering science and design.

503. Fuels Technology. 3 credits. 3 to 6 hours. Processing and utilization of low rank fuels.

504. Air Pollution Control. 3 credits. Background equivalent to Chem 122, Math 265, and Physics 252 is expected. Identification of major air pollutants from stationary and mobile sources and methods of controlling their emissions; dispersion of air pollutants in the atmosphere; photochemical air pollution; federal and state regulations.

507. Advanced Unit Operations. 3 to 6 credits. Background equivalent to ChE 405 is expected. One or more of the following: fluid flow, heat flow, evaporation, humidification and dehumidification, drying, gas absorption, distillation, and extraction.

508. Advanced Unit Operations. 3 to 6 credits. Continuation of the first semester’s work in advanced unit operations.

509. Advanced Chemical Engineering Thermodynamics. 3 credits. Background equivalent to ChE 403 is expected. Chemical Engineering processes from the standpoint of quantitative thermodynamics. Special emphasis on thermodynamics of chemical reactions.

510. Advanced Chemical Process Control. 3 credits. Prerequisites: Math 266, ChE 408 or equivalents. Analysis and design of advanced chemical process control systems including: dead time compensation, feed forward and adaptive control, multi-variable control, digital computer control and the use of Z-transforms to get the discrete-time dynamic response of chemical process systems.

511. Advanced Chemical Engineering Kinetics. 3 credits. Background equivalent to ChE 421 is expected. Theory and practice of industrial chemical reactor design. Advanced topics in kinetics of industrial chemical reactors.

512. Advanced Separations. 3 credits. Prerequisites: Background equivalent to ChE 405, 421, and Math 265 is expected. Analysis of rate-based chemical engineering separations such as adsorption membrane separations, chromatography, and crystallization.

515. Design of Engineering Experiments. 3 credits. Prerequisite: Math 265. Design and analysis of experimental data including block and factorial arrangements, significance of data, and mathematical modeling.

535. Metallic Corrosion and Polymer Degradation. 3 credits. Reviews the forms of metal corrosion and of polymer degradation; discussion of control and mitigation techniques.

562. Seminar in Chemical Engineering. 1 credit. Conferences and reports on current developments in Chemical Engineering. S/U grading only.

591. Research. Credit hours to be arranged. Analysis, planning, and detailed study of definite problems; individual laboratory work on some selected problems to develop the power of independent investigation. S/U grading only.

933A. Special Topics. 1 to 3 credits. Topics of current interest to be considered each semester. Regular grading.

933B. Special Topics. 1 to 3 credits. Topics of current interest to be considered each semester. S/U grading.

995. Design Project. 3 to 6 credits. Prerequisite: Restricted to the Master of Engineering students and subject to approval by the student’s Advisor. A three to six credit course of engineering design experience involving individual effort and formal written report. S/U grading only.

997. Independent Study. 2 credits.

998. Thesis. 1 to 9 credits. Development and documentation of scholarly activity demonstrating proficiency in Chemical Engineering at the master’s level. F,S,SS. S/U
Chemistry

http://www.und.edu/dept/chem/mainpage.html

FACULTY: H. Abrahamson, J. Delhommelle, M. Hoffmann (Chair), E. Kozlik, A. Kubatova, D. Pierce, I. Smoliakova, L. Stahl, K. Thomasson (Graduate Director) and J. Zhao

Associate Members of the Graduate Faculty:
J. Abrahamson, R. Chu, G. Du, A. Novikov, S. Hightower

DEGREES GRANTED: Master of Science and Doctor of Philosophy

PROGRAM DESCRIPTION

The Department of Chemistry offers graduate programs leading to the degrees of Master of Science and Doctor of Philosophy with majors in inorganic chemistry, organic chemistry, physical chemistry, and analytical chemistry. The department offers a B.S./M.S. program (using the non-thesis M.S. program) for students who meet the admission criteria listed below.


MASTER OF SCIENCE DEGREE
(Thesis Option)

Mission Statement and Program Goals

The mission of the Department of Chemistry graduate M.S. program is to provide quality learning experiences in both hands-on laboratory research and classroom settings to post-baccalaureate students. These experiences will establish critical thinking and communication skills based on the theory, principles, and techniques of chemistry. Graduates will be prepared to become professional research chemists essential contributors technically competent to undertake any important task (under strategic guidance of a Ph.D. Chemist).

Goal 1: Learning Chemistry: Students will increase their knowledge of chemistry facts and relationships, both theoretical and practical, improve their logical and critical thinking skills, including the interpretation of experiments designed by Ph.D. chemists.

Goal 2: Communicating Chemistry: Students will learn to communicate effectively in writing and in oral presentations on technical topics.

Goal 3: Acting Professionally: Students will learn the most appropriate way to get a job done by acting ethically and professionally.

Admission Requirements

1. A baccalaureate degree with a major in chemistry.
2. A cumulative Grade Point Average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergrad work.
3. Undergraduate credit in mathematics through integral calculus.
4. One year of physics.
5. Graduate Record Examination General test for all students. (Chemistry subject test also required for all applicants without a baccalaureate degree in Chemistry.)
6. International Students: Minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing). Applicants may also meet language requirements by presenting IELTS scores of 6.5.
7. International applicants who have received their bachelor's or master's degree in the United States or English-speaking Canada are not required to submit the TOEFL or IELTS.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

Degree Requirements

Students seeking the Master of Science (Thesis Option) Degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Chemistry Department.

Thesis Option (32 credits total):
1. A minimum of 32 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
4. Required Courses:
   a. Chem 509 (Graduate Seminar) – 1 credit
   b. Six (6) credit hours from major sequence
      - Analytical: two from 541, 542 or 543
      - Inorganic: 510, and one of: 511, 512
      - Organic: 520 and either 521 or 522
      - Physical: two from 530, 531, 532
   c. Six (6) credit hours of 500-level chemistry courses from two divisions other than the major.
   d. Three (3) credit hours of additional elective coursework
   e. Chemistry 599 (Research) 10-12 credits
   f. Chem 998 – (Thesis) 4-6 credits.

MASTER OF SCIENCE DEGREE
(Combined B.S./M.S. Non-Thesis Option)

Mission Statement and Program Goals

The mission of the Department of Chemistry combined B.S./M.S. program is to provide quality learning experiences in classroom and hands-on laboratory research and classroom settings to post-baccalaureate students. These experiences will establish critical thinking based on the theory, principals, and techniques of chemistry. Graduates will be prepared to become professional chemist in a variety of situations.

Goal 1: Learning Chemistry: Students will increase their knowledge of chemistry facts, relationships, and laboratory skills, improve their critical thinking skills, and learn to work as professional chemists.

Goal 2. Acting Professionally: Students will learn the most appropriate way to get a job done by acting ethically and professionally.
Admission Requirements (Combined B.S./M.S. Program)

1. Completed the junior year (95 semester credits) in a Chemistry baccalaureate program with cumulative and chemistry GPAs of 3.0 or better in upper division courses in an American Chemical Society (ACS) certified program.*+ International degrees will be evaluated for ACS certification equivalency.
2. One year general chemistry, one year organic chemistry, one semester analytical chemistry, and one semester physical chemistry.
3. International Students: A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing). Applicants may also meet language requirements by presenting IELTS scores of 6.5.
4. International applicants who have received their bachelor’s or master’s degree in the United States or English-speaking Canada are not required to submit the TOEFL or IELTS.
   * Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
5. At least one letter of recommendation must be from a chemistry faculty member.
   + Students will be admitted to Graduate School upon completion of 125 credits.

degree Requirements (B.S./M.S. Non-thesis Option)

Students seeking the Bachelor of Science combined with the Master of Science (Non-Thesis Option) Degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Chemistry Department.

Non-Thesis Option (32 credits total):

1. Twelve (12) credits of graduate chemistry from area of specialization. May include one 400-level course from the list below.*+
2. Nine (9) elective credits (may come from departments other than chemistry).*
3. One (1) credit of Chem 509 (Graduate Seminar) or Chem 488 (taken for graduate credit).
4. Eight (8) credits from either Co-op track or Research Track.
5. A maximum of one-fourth of the credit hours required for the degree may be transferred for another institute.
6. Two (2) credits of Chem 997 (Independent Study Report). Preparation of a written independent study and oral presentation of results to advisor and interested faculty are required for successful completion of this course.
7. A written Comprehensive Examination in area of chemistry specialization will be taken while in residence. Students will be required to pass the nationally normalized ACS exam in their area of specialization at a proficient level.
8. Required Courses:
   a. One (1) Chem 509 (Graduate Seminar) or Chem 488 (taken for graduate credit)
   b. Two (2) credits of Chem 997 (Independent Study Report). Preparation of a written independent study and oral presentation of results to advisor and interested faculty are required for successful completion of this course.
   c. Eight (8) credit hours from either Co-op track or Research Track
      1. Co-op Track:
         Six (6) credits Chem 537 (Graduate Cooperative Education)
      2. Research Track:
         Eight (8) credits Chem 599 (Research)
   d. Twelve (12) credits of graduate chemistry from area of specialization. May include one 400-level course.
      1. Analytical: 541, 542, 543, 461
      2. Inorganic: 510, 511, 512, 454, 455, 463
      3. Organic: 520, 521, 522, 455, 463
      4. Physical: 530, 531, 532, 464, 465
   e. Nine (9) elective credits (may come from departments other than chemistry).*

* The following undergraduate courses are eligible for inclusion on graduate programs of study as long as they are NOT required for the B.S. degree. Additional assignments and higher standards of accomplishment are required of students taking these courses for graduate credit: Chem 454, Inorganic Chemistry; Chem 455, Spectroscopy and Structure; Chem 461, Instrumental Analysis; Chem 463, Advanced Synthesis; Chem 464, Physical Chemistry I; and Chem 465, Physical Chemistry II. See the Undergraduate catalog for course descriptions.
+ Requires prior approval of student’s committee.

DOCTOR OF PHILOSOPHY DEGREE

Mission Statement and Program Goals

The mission of the Department of Chemistry Ph.D. program is to provide quality learning experiences, primarily, in hands-on laboratory research and also in classroom settings to post-baccalaureate students. These experiences will establish independent critical thinking and professional communication skills based on the theory, principles, and techniques of chemistry. Graduates will be prepared to work as independent professional researchers in chemistry capable of contributing to the original literature.

Goal 1: Learning Chemistry: Students will increase their knowledge of chemistry facts and relationships, both theoretical and practical, significantly develop their logical and critical thinking skills, including the design and interpretation of experiments.

Goal 2: Communicating Chemistry: Students will learn to communicate effectively in writing and in oral presentations on technical topics.

Goal 3: Acting Professionally: Students will learn the most appropriate way to get a job done by acting ethically, professionally, and becoming an independent scholar.

Admission Requirements (Ph.D. Program)

1. A baccalaureate degree with a major in chemistry.
2. Undergraduate credit in mathematics through integral calculus.
3. One year of physics.
4. Graduate Record Examination General test for all students. (Chemistry subject test also required for all applicants with- out a baccalaureate degree in Chemistry).

5. Students with a bachelor’s degree may be directly admitted into the Ph.D. program.

6. International Students: Minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing). Applicants may also meet language requirements by presenting IELTS scores of 6.5.

7. International applicants who have received their bachelor’s or master’s degree in the United States or English-speaking Canada are not required to submit the TOEFL or IELTS.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

Degree Requirements

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Chemistry Department.

The degree of Doctor of Philosophy with a major in chemistry is a research degree and is conferred only in recognition of high achievement in independent scientific research and scholarship.

A candidate for the Ph.D. degree with a major in chemistry must complete a research problem in one of the four fields of chemistry. The scope of the doctoral dissertation will be such as to require the equivalent of at least one full-time academic year of research. Some doctoral research will require a substantially longer time. This research is expected to make a significant contribution to the candidate’s chosen field of chemistry. When the major professor decides that the candidate has satisfactorily completed the research problem, the candidate, in accordance with the regulations of the University, is required to prepare a dissertation covering the research.

1. Completion of 90 semester credits beyond the baccalaureate degree

2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.

3. Required Courses:
   a. Two (2) credits of Chem 509 (Graduate Seminar)
   b. Nine (9) credits of 500-level courses from major sequence
      - Analytical: 541, 542, 543
      - Inorganic: 510, 511, 512
      - Organic: 520, 521, 522
      - Physical: 530, 531, 532
   c. Twelve (12) credits of elective courses (at least nine must be 500-level Chemistry courses; six of these nine must be taken in two divisions other than the major).
   d. Chem 599 (Research) 55-57 credits
   e. Chem 999 (Dissertation) 10-12 credits

Courses

(Chem)

509, Graduate Seminar. 1 credit. Student presentation of a seminar based on current peer-reviewed literature.

510. Intermediate Inorganic Chemistry. 3 credits. Three hours lecture. Prerequisite: Chem 454 or equivalent. Review of atomic concepts, molecular topologies, and symmetry. Theories of bonding including directed and undirected atomic orbital view. An introduction to the chemistry of transition metals.

511. Advanced Inorganic Chemistry. 3 credits. Three hours lecture. Prerequisite: Chem 510. Structure of coordination compounds, mechanisms of inorganic reactions, biochemical applications of inorganic chemistry.

512. Organometallic Chemistry. 3 credits. Prerequisite: Chem 454. Preparation, bonding and reactivity of organometallic compounds, both main group and transition metal.

519. Special Topics in Inorganic Chemistry. 1 to 3 credits. Prerequisite: Chem 510. Topic of current interest to be considered each semester; may be repeated for credit if topic is different.


529. Special Topics in Organic Chemistry. 1 to 3 credits. Prerequisite: Chem 520 or 521. Topic of current interest. May be repeated for credit if topic is different.

530. Chemical Thermodynamics. 3 credits. Three hours lecture. Prerequisite: Chem 465 or equivalent. Application of classical and statistical thermodynamics to chemical equilibrium, phase equilibrium and the physical properties of solutions.

533. Chemical Dynamics. Three credits. Three hours lecture. Prerequisite: Chem 465 or equivalent or consent of instructor. Study of the kinetics of complex, coupled chemical reactions in gas and solution phases; dynamics of gas phase reactions.

532. Quantum Mechanics in Chemistry. 3 credits. Three hours lecture. Prerequisite: Chem 352. Application of the time-dependent Schroedinger equation to rotational, vibrational and magnetic spectroscopy; selection rules. Relation of molecular structural parameters and spectroscopic measurements; principles of group theory.

534. Quantum and Computational Chemistry. 3 credits. Three hours lecture. Prerequisite: Chem 532. Study of the electronic structure of atoms and molecules using modern approximation methods; formal aspects of various perturbation and variational techniques as applied to chemical problems.

537. Graduate Cooperative Education. 1-9 credits. Prerequisites: M.S. students must have minimum of 26 credits. Permission of Department Chair. Ph.D. students must have a minimum of 52 credits. Practical experience of applying advanced concepts in chemistry. Experience will vary from student to student and must be coordinated with co-op host.

539. Special Topics in Physical Chemistry. 1 to 3 credits. Prerequisites: consent of department. Topic of current interest. May be repeated for credit if topic is different.

541. Analytical Spectroscopy. 3 credits. Three hours lecture. Prerequisite: Chem 461 or equivalent. Fundamentals of analytical spectroscopy including principles of emission spectroscopy, flame photometry, atomic absorption and Raman spectroscopy, ultraviolet/visible spectroscopy, and fluorescence.

542. Electrochemical Methods. 3 credits. Prerequisite: Chem 461 or equivalent. Three hours lecture. Topics ranging from the fundamentals of electrochemistry (including thermodynamics, kinetics, and mass transfer) to applications of electroanalytical techniques such as cyclic voltammetry, digital simulation, and spectromicroelectrochemistry are discussed.

543. Chromatography. 3 credits. Prerequisite: Chem 461 or equivalent. Three hours lecture. Fundamentals of modern chromatographic techniques including principles of band broadening, gas chromatography, liquid chromatography, and representative sampling problems.

549. Special Topics in Analytical Chemistry. 1 to 3 credits. Prerequisite: Chem 540. Topic of current interest to be considered each semester; may be repeated for credit if topic is different.

561. Foundations of Chemistry for Teacher Development. 3 credits. Prerequisites: Must be a licensed K-12 teacher; Chem 561L; instructor consent. Second of a chemistry course sequence intended for: a) teachers planning to qualify to teach high school chemistry; or b) teachers looking to enrich their content knowledge in chemistry for professional development. Topics include elementary principles and theories of chemistry, matter, measurement, atoms, ions, molecules, reactions, chemical calculations, thermodynamics, bonding, molecular geometry, periodicity, gases. May not be used in Ph.D. or Master’s programs.

561L. Introduction to Guided Inquiry Learning in Chemistry. 2 credits. Prerequisite: Must be a licensed K-12 teacher; Chem 562L. Fourth of a chemistry course sequence intended for: a) teachers planning to qualify to teach high school chemistry; or b) teachers looking to enrich their content knowledge in chemistry for professional development. Topics include: Equilibrium and kinetic principles of chemistry; behavior of solutions; rates of reactions; thermodynamics; aqueous equilibria (acid/base, solubility); electrochemical cells; chemical behavior of main-group elements; nuclear chemistry. May not be used in Ph.D. or Master’s programs.
562L. Intermediate Guided Inquiry Learning in Chemistry. 2 credits. Prerequisites: Must be a licensed K-12 teacher; Chem 561 and 562L. Third of a chemistry course sequence intended for: a) teachers planning to qualify to teach high school chemistry; or b) teachers looking to enrich their content knowledge in chemistry for professional development. Topics include: colligative properties; chemical kinetics and equilibria; acid-base chemistry; thermodynamics; electrochemistry; and pedagogical issues. May not be used in Ph.D. or Master’s programs.

563. Organic and Biochemistry for Teacher Development. 3 credits. Prerequisites: Must be a licensed K-12 teacher; Chem 563L. Sixth of a chemistry course sequence intended for: a) teachers planning to qualify to teach high school chemistry; or b) teachers looking to enrich their content knowledge in chemistry for professional development. Topics include: hydrocarbons; alcohols; amines; aldehydes and ketones; carboxylic acids and their derivatives; proteins; carbohydrates, lipids; nucleic acids, enzymes; generation of biochemical energy; and pedagogical issues. May not be used in Ph.D. or Master’s programs.

563L. Guided Inquiry Learning in Organic and Biochemistry. 2 credits. Prerequisites: Must be a licensed K-12 teacher; Chem 561 and 562L. Fifth of a chemistry course sequence intended for: a) teachers planning to qualify to teach high school chemistry; or b) teachers looking to enrich their content knowledge in chemistry for professional development. Topics include: hydrocarbons; alcohols; amines; aldehydes and ketones; carboxylic acids and their derivatives; proteins; carbohydrates, lipids; nucleic acids, enzymes; and pedagogical issues. May not be used in Ph.D. or Master’s programs.

599. Research. Credits arranged. Maximum of 15 credits each semester. May be repeated for credit.

Civil Engineering

www.engineering.und.edu/ce

FACULTY: Gullicks, Jerath, Lim, Mamaghani, Moretti (Chair and Graduate Director) and Suleiman

DEGREES GRANTED: Master of Engineering and Master of Science

PROGRAM DESCRIPTION

The Department of Civil Engineering offers graduate programs leading to the Master of Engineering degree and the Master of Science degree. The Master of Engineering degree permits specialization in the following options: soils-structures engineering, environmental engineering, water resources engineering, and general civil engineering. The Master of Engineering degree program is designed to provide an opportunity for engineers to achieve formal education beyond the Baccalaureate level with a strong and directed emphasis toward the practice of engineering. The focus of the program is on the development of competency in the area of engineering design. The goal of the program is development of the student as a practitioner capable of systematically solving complex problems of society within his or her field.

The Department offers a combined Bachelor of Science in Civil Engineering/Master of Engineering degree program. The intention of the combined program is to allow qualified students to complete requirements for both a baccalaureate degree and a master’s degree in one year beyond the time required to complete the baccalaureate degree. See Combined Degree Program under the School of Engineering and Mines section for additional details.

The Department of Civil Engineering also participates in an interdisciplinary Ph.D. Engineering Program. See Ph.D. Program under the School of Engineering and Mines section or contact the Civil Engineering Department.

MASTER OF ENGINEERING

Mission Statement and Program Goals

The mission of the Master of Engineering program in Civil Engineering is to prepare students for careers in private and public practice of civil engineering and related fields. The major emphasis of the program is to foster a deeper understanding of the engineering design process. The program has four main options. These are soils-structures engineering, environmental engineering, water resources engineering, and general civil engineering.

Goal 1: Students will build on knowledge gained in their undergraduate program of study to achieve a fuller understanding of civil engineering and the engineering design process.

Goal 2: Students will perform a detailed design project in a specific focus area related to civil engineering.

Goal 3: Graduates will be prepared for a career in private or public practice in civil engineering and related fields.

Admission Requirements

1. Bachelor of Science degree in Civil Engineering from an ABET accredited or equivalent program.
2. Graduate Record Examination General Test for applicants from non-ABET accredited programs.
3. A cumulative Grade Point Average (GPA) of at least 2.5 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A = 4.00).
4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 23/30 (Speaking); 18/30 (Listening); 17/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

5. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Degree Requirements

Students seeking the Master of Engineering degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Civil Engineering Department.

1. A minimum of 30 semester credits in a major option, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
4. Preparation of a written design project approved by the faculty advisor.
5. Required Courses:

Soils-Structures Option:

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<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CIEN 501</td>
<td>Mechanics of Materials II</td>
<td>3</td>
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<td>CIEN 502</td>
<td>Structural Stability</td>
<td>3</td>
</tr>
<tr>
<td>CIEN 513</td>
<td>Design Project</td>
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Environmental Option:

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<tr>
<td>CIEN 531</td>
<td>Environmental Engineering III</td>
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<tr>
<td>CIEN 532</td>
<td>Environmental Engineering IV</td>
<td>3</td>
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<tr>
<td>CIEN 533</td>
<td>Industrial Wastes</td>
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<tr>
<td>CIEN 535</td>
<td>Hazardous Wastes</td>
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<td>CIEN 595</td>
<td>Design Project</td>
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Water Resources Option:

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<tr>
<td>CIEN 523</td>
<td>Applied Hydraulics</td>
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<td>CIEN 524</td>
<td>Open Channel Hydraulics</td>
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<td>CIEN 525</td>
<td>Surface Hydrology</td>
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<td>OR</td>
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<td>GEOL 417</td>
<td>Hydrogeology</td>
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<tr>
<td>CIEN 595</td>
<td>Design Project</td>
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General Civil Engineering Option:

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<tbody>
<tr>
<td>CIEN 501</td>
<td>Mechanics of Materials II</td>
<td>3</td>
</tr>
<tr>
<td>CIEN 523</td>
<td>Applied Hydraulics</td>
<td>3</td>
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<td>CIEN 531</td>
<td>Environmental Engineering III</td>
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<td>CIEN 595</td>
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MASTER OF SCIENCE

Mission Statement and Program Goals

The mission of the Master of Science program in Civil Engineering is to prepare students for careers in private and public practice of civil engineering and for advanced study in the field of civil engineering. The major emphasis of the program is to foster a deeper understanding of the engineering research process. Students in the program usually specialize in environmental engineering, structural engineering, water resources engineering, or pavement materials engineering.

Goal 1: Students will build on knowledge gained in their undergraduate program of study to achieve a fuller understanding of civil engineering and the engineering research process.

Goal 2: Students will perform a detailed research project in a specific focus area related to civil engineering.

Goal 3: Graduates will be prepared for a career in private or public practice in civil engineering and related fields and for further advanced study in the field of civil engineering.

Admission Requirements

1. Minimum general admission requirements in the Admission section of the Graduate catalog.
2. A baccalaureate degree in engineering or science from a recognized college or university.
3. Graduate Record Examination scores on the General Test will be required for those holding undergraduate degrees from other than ABET-accredited programs.
4. A cumulative Grade Point Average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A = 4.00).
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IETLS scores of 6.5.
6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Civil Engineering Department.

Degree requirements will be those listed by the Graduate School for the M.S. degree, both for the thesis option and the non-thesis option. There are no specific departmental degree requirements beyond those listed in the graduate catalog for the M.S. degree.

Thesis Option:

1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
4. The program may include just the major, the major and a minor, or the major and a cognate area. The major must include 20 credits from the major department, and a minor or cognate area must include at least nine credits.
5. Preparation of a written thesis approved by the faculty advisor (998 Thesis, 4-9 credits).
6. Comprehensive final examination.

Non-Thesis Option:

1. Thirty-two (32) credits including credits required for the major.
2. A minimum of two credits of Independent Study.
3. At least one-half of the credits must be at or above the 500-level.
4. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
5. Preparation of a written independent study approved by the faculty advisor (997, 2 credits).
6. Comprehensive final examination.

Course offerings vary, by semester, based on student demand and instructor loads.

Courses (CIEN)


502. Structural Stability. 3 credits. Prerequisite: Engr 203. Stability of columns, beam-columns and frames, inelastic buckling, critical loads by the energy method, torsional buckling.


523. Applied Hydraulics. 3 credits repeatable to 9 (when topics vary). Prerequisite: CIEN 423. Study of advanced topics in hydraulics. Computer applications. Content will vary.

524. Open Channel Hydraulics. 3 credits. Prerequisite: CIEN 306. Study of advanced topics in open channel hydraulics. Computer applications.

525. Surface Hydrology. 3 credits. Prerequisite: CIEN 421. Extreme rainfalls and flood frequency analysis, regionalization; runoff generation, routing, and basin modeling; urban storm water design; GIS and remote sensing applications in hydrology; recent techniques and developments in surface hydrology.

531. Environmental Engineering III. 3 credits. Prerequisite: CIEN 431. Unit Operation and process design for water and wastewater treatment; physical, chemical, and biological systems; plant design project, computer-assigned design analysis. Content emphasis will vary.

532. Environmental Engineering IV. 3 credits. Prerequisite: CIEN 431. Advanced theory and special methods in municipal and industrial water and wastewater treatment including treatment plant control, equipment studies, nutrient removal, tertiary treatment and toxic pollutants control. Content emphasis will vary.
Clinical Laboratory Science

http://pathology.med.und.nodak.edu/cls/

FACULTY: Coleman, Paur (Graduate Program Director), Peterson, Porter, Schill, Solberg and Triske

DEGREES GRANTED: Master of Science

PROGRAM DESCRIPTION

The Department of Pathology Clinical Laboratory Science Program offers a graduate program leading to the Master of Science Degree in Clinical Laboratory Science (CLS), non-thesis option. The course of study enhances the student’s knowledge and skills in several major categorical areas of clinical laboratory science. The curriculum is designed to prepare students for careers as administrative laboratory directors, clinical laboratory consultants, technical supervisors or laboratory educators. Students are required to attend three one-week laboratory courses and a one-week capstone course.

The program is offered both on campus and through distance learning. The primary method of distance learning course delivery is WEB based. Students participating in online coursework are required to have Internet access. Specific computer requirements are available from the CLS program. A limited number of teaching and research assistantships are available for students wishing to study on campus.

Mission Statement and Program Goals

The mission of the Master of Science Clinical Laboratory Science (MS, CLS) program at the University of North Dakota is to generate and disseminate an advanced scholarly curriculum through distance and on-campus courses to baccalaureate degreeed, certified clinical laboratory science professionals throughout the state, nation, and world. The curriculum is designed to prepare graduates for leadership roles in education, consulting, and healthcare administration.

Goal 1: Work independently utilizing critical thinking and problem solving skills to effectively communicate the responsibilities of the clinical laboratory in patient care management to all participants of the healthcare team.

Goal 2: Apply theories of laboratory management including financial, quality, and personnel management.

Goal 3: Demonstrate knowledge of advanced scholarly curriculum that encompasses the scope of practice in clinical laboratory science.

Goal 4: Demonstrate effective communication skills, both oral and written, across multiple topics or disciplines.

Admission Requirements

Applicants who are seeking admission to Graduate School must meet all of the minimum general graduate school admission requirements identified in the Graduate School Catalog. In addition, the prospective students must fulfill the requirements for admission to the graduate program in Clinical Laboratory Science.

1. B.A. or B.S. degree and successful achievement in the CLS (NCA) or the MT (ASCP) certification examinations. (Include proof of certification with Graduate School application.)
2. Cumulative Grade Point Average (GPA) of at least 3.0 for the junior and senior years of undergraduate work (based on A=4.00).
3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5. *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
4. International applicants who have received their bachelor’s or master’s degree in the United States or English-speaking Canada are required to submit the TOEFL or IELTS. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
5. Prior experience in a medical laboratory is recommended.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Clinical Lab Science Program.

1. A minimum of 32 semester credits with at least 28 credits in the clinical laboratory sciences.
2. A cognate area of study or minor (minimum of 9 credits) is optional.
3. Required core courses:
   CLS 501 ... Quality Assurance in the Clinical Laboratory .................. 2 cr
   CLS 502 ... Erythrocytes in Health and Disease ........................... 2 cr
   CLS 503 ... Leukocytes in Health and Disease .............................. 2 cr
   CLS 504 ... Medical Microbiology for Laboratory Professionals ................. 2 cr
   CLS 505 ... Financial Management of the Clinical Laboratory .......... 2 cr
   CLS 506 ... Clinical Chemistry .................................................. 2 cr
presents an overview for financial management of clinical laboratories. Students learn several basic financial operation concepts, how to evaluate productivity and how to manage expenses, wages and supply inventories for maximum cost containment. Students learn how to plan for capital expenditures, set laboratory fee rates and plan and implement a budget.

506. Clinical Chemistry. 2 credits. This course addresses the complex and difficult problems that have arisen as a byproduct of the effort to make effective use of the resources of analytical chemistry in support of the practice of medicine.

507. Immunohematology. 2 credits. A detailed study of the blood groups of man and laboratory aspects of blood banking with special reference to theoretical and clinical applications.

508. Leadership and Conflict Resolution in the Health Sciences. 2 credits. The course will provide basic and advanced training in becoming an effective leader in health service professions. Students will learn emotional intelligence skills that support leadership, how to mediate conflict through a transformative process, and problem solving facilitation techniques. In addition, students will learn how to apply their new skills for more effective living.

509. Educational Methodologies in Laboratory Science. 2 credits. This course will include information concerning the creation of instructional and evaluative material for teaching clinical laboratory science. Classroom management techniques and the peer review process for instructors will also be included.

510. Erythrocytes in Health and Disease Laboratory. 1 credit. Laboratory evaluation of disorders of erythrocytes are presented using a case study approach. Blood and bone marrow smears are provided for morphologic study. Selected special stains and procedures are performed and discussed.

511. Leukocytes in Health and Disease Laboratory. 1 credit. This course is the study of the leukocyte. It includes discussions of the normal white cells with an emphasis on molecular structure, molecular function, production and regulation. The course continues with studies of the molecular basis of the disease of the leukocyte. The role of the laboratory in the diagnosis of these conditions is stressed and current research tools are included.

512. Immunohematology Laboratory. 1 credit. This course is designed to provide students with knowledge of computer usage in Health Sciences. It will include hardware configuration, software applications in health care and on-line searching of periodicals. Instruction will be primarily on-line and require specific computer requirements.

514. Computer Applications in Clinical Laboratory Science. 2 credits. This course is designed to provide students with knowledge of computer usage in Health Sciences. It will include hardware configuration, software applications in health care and on-line searching of periodicals. Instruction will be primarily on-line and require specific computer requirements.

515. Capstone Course in Clinical Laboratory Science. 2 credits. Prerequisites: Completion of at least 20 credits in the Clinical Laboratory Science Master of Science Program. The Capstone Course in Clinical Laboratory Science (CLS) provides the student with a number of tools that they can use in their leadership roles in the CLS profession. The student will learn basic facilitation skills for leading meetings and solving problems in the work place. The student will develop their own professional Web page and learn how to create Web pages for their business or place of employment. They will learn about important computer applications such as Visual Basic, Excel and Power Point. The student will learn about informatics in the health sciences including applications of Internet use, Streaming Technology and Blackboard Teaching software.

516. Special Topics. 1 to 4 credits. Topical courses in laboratory medicine organized on a semester by semester basis.

517. Health Administration for the Clinical Laboratory Professional. 2 credits. Overview of the organization and financing of health care services including an examination of the philosophical, political, and economic foundations underlying the U.S. health care system. Students also will be introduced to a myriad of health care administration resources and case studies, including decision tools for adopting new technology and quality improvement strategies.

518. Molecular Diagnostics. 2 credits. An overview of specific molecular biology application in the laboratory and a discussion of cell biology, DNA chemistry, genetics, nucleic acid extraction and modification, blotting, polymerase chain reaction, and probes in relation to diagnostic investigations.

519. Molecular Diagnostics Laboratory. 1 credit. Focused application of molecular biology techniques including operation of equipment, DNA extraction and measurement, blotting, polymerase chain reaction, and utilization of probes.

520. Medical Microbiology Laboratory. 1 credit. This course includes the structural, biochemical and immunological identification of human pathogens and the elimination or confirmation of organisms utilized in biological terrorism.

521. Seminar. 1 credit.

522. Directed Study in Laboratory Medicine. 1 credit. Designed to meet the needs of individual students in laboratory medicine. Primarily for graduate students.

523. Independent Study. 2 credits. The independent study is designed to require the student independently to investigate a topic related to the major field of study.

Graduate Certificate in Clinical Laboratory Science Management

Certificate Description

The Certificate in Clinical Laboratory Science (CLS) Management provides advanced skills to practicing laboratory professionals in health administration, leadership, conflict management, quality assurance and health informatics. The program is offered by distance learning. The method of course delivery is WEB based. Specific computer requirements are available from the CLS graduate program.

Admission Requirements

1. A.B. or B.S. degree in a science discipline
2. Minimum 2.5 GPA in undergraduate coursework
3. Work experience and/or a desire to work in the CLS field

Required Courses

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<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
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<td>Quality Assurance in the Clinical Laboratory</td>
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</tr>
<tr>
<td>CLS 502</td>
<td>Financial Management of the Clinical Laboratory</td>
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</tr>
<tr>
<td>CLS 503</td>
<td>Leadership and Conflict Resolution in the Health Sciences</td>
<td>2</td>
</tr>
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<td>CLS 514</td>
<td>Computer Applications in Clinical Laboratory Science</td>
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<tr>
<td>CLS 517</td>
<td>Health Care Administration for the Lab Professional</td>
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Electives (two of the following):

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<tr>
<td>CLS 519</td>
<td>Molecular Diagnostics Laboratory*</td>
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</tr>
<tr>
<td>CLS 521</td>
<td>Advanced Clinical Immunology for Laboratory Professionals</td>
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</table>

* One-week courses on campus, not available by Distance Learning.

University of North Dakota
Communication

http://www.und.edu/dept/scomm/

FACULTY: Conway, Fiordo (Graduate Coordinator), Kalbfleisch, Ommen, Rakow, Rendahl and Shafer

DEGREES GRANTED: Master of Arts and Doctor of Philosophy

PROGRAM DESCRIPTION

The Communication Program offers graduate programs leading to the Master of Arts and the Doctor of Philosophy degrees. The Masters program in Communication strikes a purposeful balance between specialization and integration among the various approaches to the study of human communication. The Ph.D. program in Communication and Public Discourse provides the opportunity for specialized study in various aspects of communication. Both the Masters and Ph.D. programs provide a flexible array of advanced coursework and intensive research. For Ph.D. students, the program culminates in the doctoral dissertation. Both the Masters and Ph.D. programs offer the opportunity for students to develop a broad range of professional and scholarly competencies. The Masters program expands the professional options for graduates as well as prepares them for more advanced study. The Ph.D. program prepares graduates for positions in the academy, industry, and government. The student’s plan of study is prepared and directed in cooperation with the student’s adviser and faculty committee.

MASTER OF ARTS

Mission Statement and Program Goals

The Master of Arts program in communication strikes a purposeful and creative balance between the study and practice of human communication. The intent of the M.A. program is to graduate students with professional and scholarly competencies enabling them to be leaders in assessing and improving public communication and/or pursuing an advanced degree.

In the area of communication theory, M.A. graduates are expected to:

1. Distinguish between and explain basic tenets of major theoretical positions in the field.
2. Compare and contrast at least two models or definitions of communication.
3. Demonstrate breadth of knowledge about at least two significant topics or concepts relevant to communication or depth in one topic or concept.
4. Apply or develop a communication theory to frame a research project.
5. Explain the development of communication studies as an academic discipline.
6. Acquire particular expertise in an area of communication scholarship relevant to their career.
7. Critically assess the implications of communication practices for civic discourse.

In the area of communication research, M.A. graduates are expected to:

1. Demonstrate familiarity with the basic principles and issues of social scientific, humanistic, rhetorical, and critical communication research methods.
2. Be conversant with the range of methodologies used in communication research, including quantitative/qualitative approaches.
3. Identify the main scholars, scholarship, and journals applicable to their area of interest.
4. Conceptualize and design an independent research project.
5. Assess the strengths and weaknesses of published communication studies.
6. Find and evaluate information relevant to an area of professional practice.
7. Conduct research leading to usable research findings.

In the area of professional practice, M.A. graduates are expected to:

1. Understand the possible relationships between practice and theory.
2. Transfer and apply findings of communication research to professional practice.
3. Display highly competent verbal and written communication skills.
4. Integrate emerging communication technologies into the workplace.
5. Serve the public interest by using communication theory and research to address practical, real-world situations.
6. Exhibit competence in teaching (if applicable).
7. Provide informed leadership in their area of professional practice (if applicable).

Admission Requirements

The Communication Graduate Faculty will recommend admission based on the following applications materials.

Master of Arts in Communication:

1. Statement of interest, including personal goals and the relevance of the M.A. in Communication to those goals.
2. Acceptable performance on Graduate Record Examination General Test.
3. Completion of the equivalent of 20 undergraduate credits in speech communication and/or mass communication, journalism or related field, including at least 12 upper division credits.
4. Minimum 3.0 undergraduate Grade Point Average.
5. Three letters of recommendation.
6. To be considered for a teaching assistantship, the student must submit a statement of teaching philosophy.
7. Students whose native language is not English must submit results of the TOEFL, with a minimum score of 600 to be admitted.

Degree Requirements

Students seeking the Master of Art degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Communication Program.

1. COMM 500 (Graduate Studies in Communication), COMM 501 (Theories of Communication), and COMM 502 (Research Methods in Communication).
2. A minimum of 30 credits in communication for the thesis option or 32 credits for the non-thesis option if a minor or cognate is not chosen.
3. If a minor or cognate is approved by the student’s advisory committee, 30 credits are necessary for the thesis option or 32 credits for a non-thesis option.
4. A minor or cognate option will include a major with a minimum of 20 Credits in communication and a minimum of 9 credits in a minor or cognate.
5. Written and oral final examinations are administered to Master candidates.
6. Thesis option Master candidates will defend their theses in the final oral examination.
7. Non-thesis option Master candidates will be expected to defend orally independent study reports and two term papers or projects completed in any course on their program of study.
8. Both thesis and non-thesis candidates are administered written comprehensive examinations after the completion of 18 hours of graduate credit. The Coordinator of Graduate Studies appoints three-person examining committees from the Graduate Faculty, normally drawn from the Communication Program, and chaired by the student’s adviser to conduct the final oral examination for non-thesis students.

**DOCTOR OF PHILOSOPHY DEGREE**

**Mission Statement and Goals**

The Ph.D. program in communication and public discourse provides the opportunity to explore the range of ways human symbolic activity affects the public sphere. The intent of the Ph.D. program is to graduate students with scholarly competencies enabling them to assume roles as intellectual leaders of the field of communication as well as public intellectuals stimulating discussion of significant communication issues.

In the area of communication **theory**, Ph.D. graduates are expected to:

1. Understand the ontological, epistemological, and ideological principles and differences of major theoretical positions in the field.
2. Contribute to critical discussion of models and definitions of communication.
3. Demonstrate depth of knowledge about at least three significant topics or concepts relevant to communication.
4. Be familiar with major scholars and works across the spectrum of communication studies.
5. Conduct a comprehensive literature review of work relevant to a scholarly project.
6. Generate new theoretical insights from critical reading, analysis, and research.
7. Integrate theoretical insights into an in-depth analysis of an aspect of public discourse.

In the area of communication **research**, Ph.D. graduates are expected to:

1. Understand the basic principles of social scientific, humanistic, rhetorical, and critical communication research approaches.
2. Compare positions on the role of and relationships between theory and research.
3. Contribute to critical discussion of research issues, methods, and ethics.
4. Know the range of methodologies and their logic used in communication research.
5. Demonstrate expertise in using at least two research methodologies.
6. Design, propose, seek funding for, and carry out independent research projects.
7. Describe the use, significance, and limitations of their research results.

In the area of **professional practice**, Ph.D. graduates are expected to:

1. Be knowledgeable of the field of communication, its historical development, professional associations, and major debates and issues.
2. Demonstrate teaching competency.
3. Articulate a philosophy of service or engagement to guide contributions to the field, higher education or other professional setting, and the public.
4. Be familiar with processes of submission, review, presentation, and publication of scholarly work.
5. Have exemplary skills in writing and presenting scholarly work for a variety of audiences.
6. Contribute to public discussion of significant communication issues.

**Admission Requirements**

Admission Requirements for the Doctor of Philosophy degree in the School of Communication include:

1. Successful completion of a master’s degree.
2. Statement of interest, including personal goals and the relevance of the Ph.D. in Communication and Public Discourse to those goals.
3. Original academic paper, 10-15 pages in length, reflecting the student’s ability to articulate and synthesize ideas.
4. Three letters of recommendation from sources familiar with the applicant’s potential as a doctoral student in Communication.
5. Graduate Record Examination General Test (500 Verbal, 500 Quantitative).
6. To be considered for a teaching assistantship, the student must submit a statement of teaching philosophy and letters of recommendation must address the student’s teaching abilities.
7. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IETLS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, and applicants whose native language is not English. Applicants may also meet language requirements by presenting IETLS scores of 6.5.

8. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Note: For both Masters and Ph.D. applicants, students whose native language is not English are not permitted to hold teaching assistantships unless they have attained a score of at least 50 on the SPEAK (Speaking Proficiency English Assessment Kit) or the TSE (Test of Spoken English). The test is administered at the University, after the student arrives on campus.
Degree Requirements

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the School of Communication.

Requirements for the Doctor of Philosophy Degree set forth by the Communication Program include:

1. Completion of 90 semester credit hours beyond the baccalaureate degree. Thirty credit hours from a Masters degree in communication or related discipline may be applied toward the 90 credit hours. 30 cr

2. Core Requirements, including:
   a. COMM 500 (Graduate Studies in Communication)
   b. COMM 501 (Theories of Communication)
   c. COMM 502 (Research Methods on Communication)
   d. Two (2) credit hours approved by committee from other coursework

3. Theory Requirements, including:
   a. COMM 508 (Rhetorical and Communication Theory)
   b. COMM 509 (Media and Mass Communication Theory)
   c. Theory Course, selected from a menu of options

4. Scholarly Tools Requirements, including:
   a. COMM 510 (Advanced Research Methods in Communication)
   Or
   b. COMM 520 (Criticism and Communication, offered alternatively as media criticism or rhetorical analysis)
   c. Interdisciplinary Qualitative Tools, including one course selected from a menu of options
   d. Interdisciplinary Quantitative Tools, including one course selected from a menu of options

5. Major Area Courses, including three courses, with up to one course outside Communication 9 cr

6. Elective Courses, including three courses, with up to one course outside communication 9 cr

7. Comprehensive Examination, taken over the student’s first 36 credit hours of coursework as a Ph.D. student. 36 cr

8. Dissertation 15 cr

Total 90 cr

Courses (Comm)

500. Graduate Studies in Communication. 1 credit. An overview of the study of communication emphasizing the differences between graduate and undergraduate studies. To develop a common core of knowledge for beginning graduate students, the course introduces students to the history of the communication field, current issues in communication studies and the future of communication.

501. Theories of Communication. 3 credits. Theory and model construction in communication with special attention to selected theories of speech communication and mass communication.

502. Research Methods in Communication. 3 credits. Study of the methodologies of historical, descriptive, survey and experimental research in communication.

504. Semiotics and Visual Communication. 3 credits. Application of visual communication theories to the analysis, interpretation, and critical assessment of media images.

507. Communication, Technology, and Media. 3 credits. An examination of the role of media technologies in shaping communication processes and of the way societies respond to technological change. Covers issues such as emerging digital technologies, technological determinism, technology transfer, access, and cost.

508. Rhetorical and Communication Theory. 3 credits. Prerequisite: Admission to Ph.D. program or consent of instructor. Surveys the principal rhetorical and communication theories associated with the communication subdisciplines of rhetoric and interpersonal communication with special emphasis on definitional and modeling issues. S/2

509. Media and Mass Communication Theory. 3 credits. Prerequisite: Admission to Ph.D. program or consent of instructor. An examination of contemporary theories in mass communication and media studies, beginning with the mass society paradigm and ending with postmodern media studies. F/2

510. Research Methods in Communication. 3 credits. Prerequisite: Admission to Ph.D. program or consent of instructor. Discussion of principal theories and models in the Communication discipline, with a focus on current debates and contemporary research methods. S/2

512. Law and Ethics in Communication. 3 credits. Application of principles of law and ethics to diverse communication and mediated contexts. Covers issues such as right, wrong, goodness, and evil as well as copyright, confidentiality, privacy, and trial level remedies.

520. Criticism and Communication. 3 credits. A study of various methods of criticism applied to several types of communication including: public communication, film, electronic media, and print media.

521. Perspectives on Media Writing. 3 credits. An analysis of historical and technological developments in contemporary media writing styles and content and a critical analysis of the cultural content of media writing with regard to serving diverse audiences with targeted messages. Examines the intended and real effects of persuasive forms of writing on intended audiences, including speech writing and writing for print and broadcast. Students write in a variety of media styles to improve their own media writing skills.

525. Interpersonal Relations and Communication. 3 credits. Face-to-face and mediated transactions between two people or people in small groups in diverse settings. Deals with inquiry, conflict management, interpersonal sensitivity, individuality, and conformity.

530. Gender, Culture, and Communication. 3 credits. An examination of how males and females from different cultural, ethnic and national backgrounds use, and are portrayed by, communication institutions and processes. Covers issues of representation, identity and difference.

540. Seminar: Organizational Communication. 3 credits. Study of theories and practice of communication in group, intergroup and organizational settings with attention to methods of research and analysis.

545. Advocacy and Communication. 3 credits. Focuses on various communication strategies designed to influence audiences across contexts (e.g., advertising, journalism, public relations, social movements, grass root activities). Theories of public relations, rhetoric, mass communication, and persuasion are applied to specific cases of mediated and face-to-face advocacy.

550. International and Global Communication. An analysis of international media, comparative telecommunications systems and globalization. Covers issues such as transnational communication, global journalism, satellite broadcasting and communication in diplomacy and international affairs.

555. Film/Video as Communication. 3 credits. A view of film from analytical, promotional, and critical perspectives. Cinematography is addressed in historical, creative, semantic, rhetorical, and technical contexts. Cinema, directors, genres, and problems from diverse nations are examined. Students write commentaries and promotions for oral and print media sources.

570. Seminar in Communication. 3 credits, repeatable for credit up to 15 with change in topic. In-depth studies in specific communication areas such as relational communication, rhetoric and public discourse, intercultural/international communication. May be repeated for credit with change of topic (up to 15 hours).

591. Individual Readings and Research. 3 credit limit per semester. Directed readings and research in speech communication and mass communication topics and issues. May be repeated to a total of 12 credits.


998. Thesis. 1-4 credits, minimum of 4 credits for thesis option.

999. Dissertation. 15 credits.

301. Psychology of Communication. 3 credits.

310. Communication and Diversity. 3 credits.

401. Organizational Communication. 3 credits.

402. International/Intercultural Communication. 3 credits.

403. Community Relations. 3 credits.

404. Advertising and Society. 3 credits.

405. Social Implications of the Information Society. 3 credits.

406. Media Consequences and Effects. 3 credits.

407. Communication, Technology and the Future. 3 credits.

412. Communication Law. 3 credits.

428. History of American Journalism. 3 credits.

461. Political Communication. 3 credits.
Communication Sciences and Disorders

http://www.und.edu/dept/cdis/index.html

FACULTY: Madden (Graduate Director & Chair), Rami, Robinson, Schill, Seddoh and Swisher

DEGREES GRANTED: Master of Science and Doctor of Philosophy

PROGRAM DESCRIPTION

The Department of Communication Sciences and Disorders offers graduate programs leading to the Master of Science degree in Speech-Language Pathology, and the Doctor of Philosophy in Communication Sciences and Disorders.

The master’s degree program has been accredited by the Council on Academic Accreditation in Speech-Language Pathology and Audiology. A graduate degree is required for students planning a career in speech-language pathology and audiology. It is anticipated that graduates with a master’s degree will meet the academic and practicum requirements for the Certificate of Clinical Competence of the Boards of Examiners in Speech-Language Pathology and Audiology. The Master of Science degree with thesis or without thesis is available with a major emphasis in Speech-Language Pathology and with supporting work in Audiology.

The doctoral program provides a background of study in normal and disordered speech, language and hearing. This program prepares the student for employment in a variety of settings including university teaching and research, clinical services and research, and/or research and consultation in industry.

MASTER OF SCIENCE

Mission Statement and Program Goals

The larger mission of the Department of Communication Sciences and Disorders (CSD) is to provide its students with a liberal arts education through the College of Arts and Sciences, including instruction in the arts and sciences, communication skills, habits of independent thought, and the understanding of diverse cultures. The specific mission of CSD is to provide academic and clinical instruction, supervised clinical practicum, and research experience for students that will lead to state, regional and national accreditation and licensing; to provide clinical services to individuals, groups and agencies within the University and the greater Grand Forks area; to provide professional leadership in local, state, and national organizations; to contribute to the body of knowledge concerning communication sciences and communication disorders; and to serve the University through participation in its governance. This mission is directed at meeting the interests and needs of the University of North Dakota constituency.

Admission Requirements

1. Graduate Record Examination—General Test.
2. Overall undergraduate GPA of at least 2.7 and a 3.00 in the courses required for an undergraduate major in Communication Sciences Disorders.
3. Admittance to approved status typically requires an undergraduate major in Communication Sciences Disorders.
4. Those admitted to Qualified Status must have at least 12 semester credits of undergraduate work in the field, but will be required to complete the coursework for the undergraduate major.
5. Criteria used in admission decisions:
   a. Scores on the Graduate Record Examination General test,
   b. All grade point averages from previous undergraduate, post-baccalaureate and graduate studies,
   c. The extent and quality of previous clinical, research, and service activities, and the
d. Quality of speaking, writing, and interpersonal skills.
6. Admissions applications should include documentation of their qualifications relative to the criteria above.
7. Admissions for summer and fall enrollment and the award of financial aid will be based on applications completed by February 15.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Communication Sciences and Disorders Department.

Thesis Option:

1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
4. Required Courses:

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Scholarly Tools:

EFR 515 3

School Practicum:

CSD 585 10

Electives:

CSD 595 1-3
CSD 597 1-3

Thesis:

CSD 998 4

Total 49-64

Non-Thesis Option:

1. Thirty-two (32) credits including credits required for the major.
2. A minimum of two credits of Independent Study.
3. At least one-half of the credits must be at or above the 500-level.
4. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
5. Preparation of a written independent study approved by the faculty advisor.
6. Comprehensive final examination.
7. Required Courses:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CSD 525</td>
<td>3</td>
</tr>
<tr>
<td>CSD 531</td>
<td>3</td>
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<tr>
<td>CSD 532</td>
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<tr>
<td>CSD 533</td>
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<tr>
<td>CSD 536</td>
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<tr>
<td>CSD 538</td>
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<tr>
<td>CSD 542</td>
<td>3</td>
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<tr>
<td>CSD 552</td>
<td>3</td>
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<tr>
<td>CSD 583</td>
<td>3</td>
</tr>
<tr>
<td>CSD 584</td>
<td>1-16</td>
</tr>
<tr>
<td>CSD 572</td>
<td>3</td>
</tr>
</tbody>
</table>

Scholarly Tools:
- EFR 515 3

School Practicum:
- CSD 585 10

Electives:
- CSD 595 1-3
- CSD 597 1-3

Independent Study:
- CSD 997 2

Total: 47-62

Students wishing to qualify for employment in a school setting must complete requirements for a teaching credential as a graduate student. This will include T&L 400, Methods and Materials for Speech Clinicians, and CSD 585, Practicum in the School Setting. Students must also take the Praxis I Teacher Certification Examination.

Graduate Students already having a teaching credential with some other major must take T&L 400 and practicum in a school before being recommended for employment in a school.

**DOCTOR OF PHILOSOPHY DEGREE**

**Mission Statement and Program Goals**

The larger mission of the Department of Communication Sciences and Disorders (CSD) is to provide its students with a liberal arts education through the College of Arts and Sciences, including instruction in the arts and sciences, communication skills, habits of independent thought, and the understanding of diverse cultures. The specific mission of CSD is to provide academic and clinical instruction, supervised clinical practical, and research experience for students that will lead to state, regional and national accreditation and licensing; to provide clinical services to individuals, groups and agencies within the University and the greater Grand Forks area; to provide professional leadership in local, state, and national organizations; to contribute to the body of knowledge concerning communication sciences and communication disorders; and to serve the University through participation in its governance. This mission is directed at meeting the interests and needs of the University of North Dakota constituency.

**Admission Requirements**

1. A master’s degree in communication sciences and disorders, speech-language pathology, audiology, speech and hearing science, or a related field.
2. Graduate Record Examination-General Test.
3. An overall grade point average of 3.0, on a 4.0 scale, in graduate coursework in speech-language pathology, audiology, or a related area.
4. Criteria used in admission decisions will include:
   - a. Scores on the Graduate Record Examination General Test,
   - b. All grade point averages from previous undergraduate, post-baccalaureate and graduate studies,
   - c. The extent and quality of previous clinical, research, and service activities; and
   - d. Quality of speaking, writing and interpersonal skills.
5. Admissions applications should include documentation of the applicant’s qualifications relative to the criteria above.

**Degree Requirements**

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Communication Sciences and Disorders Department.

1. Completion of 90 semester credits beyond the baccalaureate degree.
2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.
3. Completion of a dissertation, which incorporates independent work that is an original contribution to knowledge.
4. With approval of a student’s Faculty Advisory Committee, up to one-half of the work beyond a master’s degree may be transferred from another institution.
5. At least one-half of the work must be in the major field.
6. Successful completion of a comprehensive examination.

**Required Courses:**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSD 501</td>
<td>12</td>
</tr>
<tr>
<td>CSD 597</td>
<td>9</td>
</tr>
<tr>
<td>Psych 541</td>
<td>3</td>
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<tr>
<td>Psych 543</td>
<td>3</td>
</tr>
<tr>
<td>EFR 518</td>
<td>3</td>
</tr>
<tr>
<td>CSD 592</td>
<td>3</td>
</tr>
<tr>
<td>CSD 595</td>
<td>8</td>
</tr>
<tr>
<td>Cognate</td>
<td>9</td>
</tr>
<tr>
<td>CSD 999</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
</tr>
</tbody>
</table>

The Doctor of Philosophy degree in Communication Sciences & Disorders is a research degree and is conferred only in recognition of high achievement in independent scientific research and scholarship. This research is expected to make a significant contribution to the student’s chosen area of study.

Students will enter holding a Master’s degree in Speech Pathology, Audiology, or Speech and Hearing Science. Students without this degree or equivalent coursework will be required to complete a core curriculum of the following eight courses currently offered at the Master’s level: CSD 531, 532, 533, 536, 538, 542, 552, and 562.

**Courses**

(CSD)

501. Seminar in Speech-Language Pathology. 1 to 3 credits. Prerequisite: Consent of instructor. May be repeated as topics change.

501.01 A study of the application of current and emerging data in the area of clinical assessment and management of speech disorders in children and adults with communication impairments.

501.02 A study of the application of current and emerging data in the area of clinical assessment and management of language disorders in children and adults with communication impairments.
501.03 A study of the application of current and emerging data in the area of clinical assessment and management of disorders of hearing in children and adults with communication impairments.

525. Introduction to Research in Speech-Language Pathology and Audiology. 3 credits. Research methods in Speech-Language Pathology and Audiology. Steps in research before data analysis is undertaken. Culminates in a research proposal.

531. Clinical Audiology I. 3 credits. Prerequisites: CSD 431 or consent of instructor. Advanced audiological concepts and techniques including speech audiometry, masking, bone conduction, advanced pure tone testing, pediatric hearing evaluation, and the psychoacoustical bases of audiometric assessment.

532. Neurogenic Communication Disorders I. 4 credits. Prerequisites: CSD 422 and 231. Study of the representation or organization of language in the human brain as determined by multidisciplinary techniques such as neuroimaging, electrical stimulation mapping, etc. Includesaphasia and communication disturbance in adults following traumatic injury to the brain, and also clinical management.

533. Investigations in Child Language. 3 credits. Prerequisites: CSD 343. Student formulation of questions and concerns about normal and disordered child language which are studied through a search of pertinent literature and through observation and analysis of children’s linguistic production.

534. Advanced Management of Articulation and Phonological Disorders. 2 credits. Prerequisite: CSD 333, or equivalent. Advanced knowledge of articulation and phonological disorders; skills needed to assess and treat individuals with these disorders. Emphasis on childhood apraxia, velopharyngeal disorders, cognitive disorders, hearing loss, tongue thrust, dialectal differences, dysarthrias in children, and phonemic disorders concurrent with language disorders.


537. Advanced Clinical Management. 2 credits. Prerequisite: completion of undergraduate major sequence in CSD or consent of instructor. Integrated study of the processes involved in total clinical case management including the development of communication and observation competence, clinical literacy, creative problem solving, decision making, supervisory and consultation skills.


552. Neurogenic Communication Disorders III. 3 credits. Prerequisite: CSD 532, 542, or equivalents. Assessment and intervention strategies for adults with traumatic brain injury, dysarthria, and apraxia, and swallowing disorders. Includes the study of normal and abnormal swallowing, and swallowing disorders in children.

572. Neurogenic Communication Disorders IV. 3 credits. Prerequisites: CSD 422 and CSD 532. A study of cognitive and communication deficits that accompany right hemisphere damage, as well as traumatic brain injury, their diagnosis and management.

580. Interprofessional Health Care. 1 credit. The purpose of the course is to learn to work effectively in an interdisciplinary health care team, using a shared patient-centered approach. Students work with other team members from physical therapy, nursing, occupational therapy, medicine, social work, clinical lab science, and dietetics. Case studies using problem-based learning techniques are the primary teaching strategy. S/U grading.

583. Evaluation and Service Delivery. 3 credits. The study of: 1) the underlying principles and philosophies of evaluation in speech-language pathology, including interviewing, administering and interpreting diagnostic tests and protocols, and client counseling; and 2) the concepts and principles of service delivery including creative problem solving, decision making, collaboration, and management of services.

584. Advanced Clinical Practicum. 1 to 16 credits. Prerequisites: CSD 485 and consent of instructor, provision of clinical services to individuals with communication disorders under the supervision of an ASHA certified supervisor. Placement will be the UND Speech-Language-Hearing Clinic or a departmentally-approved external site.

585. Practicum in the School Setting. 10 credits. Prerequisites: Graduate standing and consent of the department. Supervised practicum in a University-approved cooperating school.

586. Advanced Clinical Practicum: Audiology. 1 to 16 credits. The administration and interpretation of tests and procedures for evaluation of human auditory functioning; practice involving interviews, case histories and client counseling.

592. Research Design in Speech and Hearing Sciences. 3 credits. Prerequisites: Psych 541, Psych 543. The use of speech science instrumentation and data collection and analysis in human speech, language, and hearing.

595. Research Problems in Speech-Language Pathology-Audiology. 1 to 3 credits. Prerequisite: consent of instructor. A. Speech-Language Pathology, B. Audiology. In special problems in Communication Disorders, 1 to 3 credits. Prerequisite: Consent of the instructor. An examination of special topics in communication disorders.

997. Independent Study. 2 credits.

998. Thesis. 4 credits.

999. Dissertation. 10 credits.

343. Language Development. 3 credits.

431. Introduction to Audiology. 3 credits.

531. Aural Rehabilitation. 3 credits.

497. Special Problems in Communication Disorders. 1 to 3 credits.
5. International applicants who have received their bachelor’s or master’s degree in the United States or English-speaking Canada are not required to submit the TOEFL or IELTS.

Applicants with a background in mathematics, science or engineering will also be considered if they are adequately prepared in the field of computer science.

Students who do not meet all of these prerequisites may be admitted in Qualified or Provisional status with the obligation of meeting the remaining requirements early in their graduate study but without graduate credit.

Degree Requirements

Students seeking the Master of Science degree must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Computer Science Department.

Required Core Courses - 12 credits (2 from each group):

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSci 522</td>
<td>Theoretical Foundations</td>
<td>3</td>
</tr>
<tr>
<td>CSci 532</td>
<td>Programming Languages &amp; Paradigms</td>
<td>3</td>
</tr>
<tr>
<td>CSci 575</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CSci 565</td>
<td>Advanced Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>Group 2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSci 513</td>
<td>Advanced Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSci 543</td>
<td>Advanced Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CSci 551</td>
<td>Distributed Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSci 555</td>
<td>Computer Networks</td>
<td>3</td>
</tr>
</tbody>
</table>

Tracks (Choose One):

- Applied Software Engineering Track (Non-thesis):
  - CSci 463 Software Engineering                                              | 3       |
  - CSci 565 Advanced Software Engineering                                      | 3       |
  - Electives 9-12                                                             |         |
  *May not include CSci 500 or more than 3 credits of CSci 591*

- CSci 566 Software Engineering Project                                        | 3-6     |
- CSci 997 Independent Study                                                   | 2       |

Computer Science Track (Thesis):

- Electives 12                                                                 |         |
*May not include CSci 500, CSci 566 or more than 3 credits of CSci 591*
- CSci 998 Thesis                                                              | 6       |

Computer Science Track (Non-thesis option, 32 credit hours):

- Electives 18                                                                |         |
*May not include CSci 500, CSci 566 or more than 3 credits of CSci 591*
- CSci 997 Independent Study                                                  | 2       |
*in a format suitable for publication*

Preparation of an oral presentation of the study to the adviser, Graduate Director and interested faculty and students.

All students must also successfully complete a written comprehensive examination.

DOCTOR OF PHILOSOPHY IN SCIENTIFIC COMPUTING

PROGRAM DESCRIPTION

The Department of Computer Science offers graduate study leading to the Doctor of Philosophy in Scientific Computing emphasizing the development of software, the science, and the technology required to support Computational Science. The department is a part of the John D. Odegard School of Aerospace Sciences, which provides unique opportunities for research by faculty and graduate students. There is especially strong interest within the department in the areas of artificial intelligence, compiler design, database, networks, operating systems, graphics, simulation, software engineering, and theoretical computer science.

Mission Statement and Program Goals

The mission of the Computer Science Department’s graduate program is to serve as a center for intellectual and educational development that promotes critical and logical thinking, and the mastery of a student-focused Computer Science curriculum. The graduate program strives to prepare students to become lead or supporting researchers in any branch (bioinformatics, atmospheric science, software design, etc.) of Computational Science.

Given the breadth of disciplines served by scientific computing and the wide range of experience we expect students to bring to the program, the curriculum has been designed such that the student will gain invaluable “practice experience” by experiencing first-hand the needs of practitioners in that particular field. A number of hardware and software computing platforms are available to students.

Goal 1: Graduates will be prepared to become experts in the fields of Computational Science.

Goal 2: Graduates will be proficient in the use of high-performance computing platforms and computing techniques.

Admission Requirements

1. Master’s degree, normally in an engineering or science related field with an overall graduate GPA of at least 3.25 (on a 4.0 scale), or a Bachelor’s degree, normally in an engineering or science related field with an overall undergraduate GPA of at least 3.00 (on a 4.0 scale) and the Graduate Record Examination General Test.

2. Prerequisites:
   - Expertise in a high level language and a basic knowledge of data structures.
   - Basic knowledge of formal languages, automata, and computability.
   - Basic knowledge of computer architecture or operating systems.
   - Basic knowledge of calculus, statistics, and linear algebra.

3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
   *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

4. International applicants who have received their bachelor’s or master’s degree in the United States or English-speaking Canada are not required to submit the TOEFL or IELTS.

The department recognizes that the prerequisite expertise identified above may be acquired in several ways. Students who do not meet all of the requirements may be admitted to qualified status with the obligation of meeting the remaining requirements early in their graduate study, but without graduate credit.

Degree Requirements

All students are required to obtain interdisciplinary graduate training. This requirement may be met by:

a) Taking two course clusters from the computational category and one course cluster from an applications category, or...
b) Taking three course clusters from the computational category and conducting dissertation research in an applications category in the applicable department.
   - Course clusters must be approved by the student’s Faculty Advisory Committee.
   - Students may, with approval of the Computer Science Department’s Graduate Committee, design their own applications category cluster.
   - The student’s Faculty Advisory Committee must include one member from the applicable applications cluster or dissertation research.
   - The Computer Science Department’s Graduate Committee must approve the Faculty Advisory Committee membership.
   - Students who have a degree in a field other than Computer Science are not required to obtain interdisciplinary graduate training. These students are required to take three computational category course clusters. In addition, the student’s Faculty Advisory Committee will comprise only Computer Science faculty.

Students with approved Bachelor degree:
   - Complete 51-66 credit hours of coursework.
   - Complete eight of the core courses.

Students with approved Master degree:
   - Complete 27-39 credit hours of coursework.
   - Complete four of the core courses.

Elective courses: CSci 500 and CSci 566 may not be used as electives. Only 3 credits of CSci 591 may be used as an elective.

Successful completion of a written qualifying examination taken within the first two years of admittance into the program.
CSci 599 Dissertation research (9-21 credits).
CSci 999 Dissertation (12 credits maximum).
Final oral examination, which includes a defense of the dissertation.

Core courses:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CSci 513</td>
<td>Advanced Database Systems</td>
</tr>
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</tr>
<tr>
<td>CSci 575</td>
<td>Analysis of Algorithms</td>
</tr>
</tbody>
</table>

CORE CLUSTERS:

Computational Clusters:

The computing clusters contain related courses that provide depth of knowledge in specialized computing systems or methods.

1. **Software Engineering Cluster**: Software engineering combines the ideas from engineering, management, and math disciplines in order to improve our ability to build complex software systems on time and within the budget. Requires any three of the following courses:
   - CSci 463: Software Engineering. 3 credits.
   - CSci 565: Advanced Software Engineering. 3 credits.
   - CSci 582: Software Architecture. 3 credits.

2. **Data Management Cluster**: The cluster enhances a student’s knowledge in data engineering and management. It includes the study of database systems, data management, data mining and data warehousing, digital libraries and information retrieval and systems.

Requires the following three courses:
   - CSci 455: Database Management Systems. 3 credits.
   - CSci 513: Advanced Database Systems. 3 credits.
   - CSci 515: Data Engineering and Management. 3 credits.

3. **Artificial/Computational Intelligence Cluster**: The goal of this track is to provide the student with both classical and advanced topics in artificial and computational intelligence. It includes the study of problem solving methods, approximate reasoning, machine learning, decision making, data mining and other application techniques. Requires the following three courses:
   - CSci 543: Advanced Artificial Intelligence. 3 credits.
   - CSci 544: Soft Computing. 3 credits.
   - CSci 554: Applications in AI/Computational Intelligence. 3 credits.

4. **Distributed Systems Cluster**: The goal for this track is to provide the student with an understanding of the hardware technologies (hardware, network, and storage devices) required to develop a machine suitable for high performance computing. Requires the following three courses:
   - CSci 427: Advanced Data Communications. 3 credits.
   - CSci 551: Distributed Operating Systems. 3 credits.
   - CSci 555: Computer Networks. 3 credits.

5. **High Performance Computing Cluster**: The cluster provides an understanding of the system architecture (hardware, network, and storage devices) and the software technologies (MPI, PVM, and Java) required to create a system capable of high performance computing. Requires the following three courses:
   - CSci 452: Operating Systems II. 3 credits.
   - CSci 532: Programming Languages and Paradigms. 3 credits.
   - CSci 575: Analysis of Algorithms. 3 credits.

6. **Graphics and Visualization Cluster**: The goal of this track is for the student to master the OpenGL graphics library, to develop a working understanding of signal and image processing techniques, and to be able to apply those skills to the visualization of results generated by complex computer simulations. Requires the following three courses:
   - CSci 446: Computer Graphics. 3 credits.
   - CSci 448: Computer Graphics. 3 credits.
   - CSci 547: Scientific Visualization. 3 credits.

7. **Modeling and Simulation Cluster**: In this cluster the student will study the various techniques for developing mathematical models and software simulations to predict the behavior of complex physical phenomena. Requires the following three courses:
   - Math 460: Mathematical Modeling. 3 credits.
   - CSci 445: Mathematical Modeling and Simulation. 3 credits.
   - CSci 545: Discrete Dynamical Systems Modeling and Simulation. 3 credits.

Application Clusters:

The application clusters provide exposure to specific scientific disciplines that commonly make use of scientific computing methods. In addition to the clusters listed here, other clusters may be defined by the Faculty Advisory Committee with approval of the Computer Science Department’s Graduate Committee.

1. **Computational Mathematics Cluster**: This cluster provides an understanding of the computational methods used to solve complex mathematical problems on a digital computer. Requires three graduate level mathematics courses. Possible courses are:
   - Math 461: Numerical Analysis I. 3 credits.
   - Math 462: Numerical Analysis II. 3 credits.
   - Math 465: Topics in Operations Research. 3 credits.

2. **Computational Chemistry Cluster**: This cluster provides an understanding of the mathematical tools used to solve several major classes of problems in modern theoretical
chemistry on a digital computer. Requires three graduate level chemistry courses. Possible courses include:

Chem 464. Physical Chemistry I 3 credits.
Chem 465. Physical Chemistry II 3 credits.
Chem 530. Chemical Thermodynamics 3 credits.
Chem 534. Quantum Chemistry 3 credits.

3. Computational Physics Cluster: This cluster provides an understanding of the mathematical tools used to solve current problems in modern physics on a digital computer. Requires the following courses:

- Phys 402. Computers in Physics. 3 credits.
- Phys 509. Methods of Theoretical Physics. 3 credits.

And one of the following (3 credits each):

- Phys 540. Phys 541. Phys 542, Phys 543, or Phys 545.

4. Atmospheric Sciences Cluster: This cluster provides an understanding of the mathematical tools used to solve several major classes of problems in modern atmospheric sciences on a digital computer. Requires the following courses:

- AtSc 505. Advanced Atmospheric Dynamics. 3 credits.
- AtSc 530. Numerical Weather Prediction. 3 credits.

And one of the following (3 credits each):

- AtSc 531, AtSc 532, AtSc 535, AtSc 540, AtSc 555 or AtSc 575

**Combined Degree Program**

To encourage undergraduate computer science students to extend their studies to include a graduate degree, the Computer Science Department has a combined program which permits students to earn both B.S. and M.S. degrees in the discipline. This program allows students to designate two three-credit hour courses to count for both degrees. The two-credit-hour courses designated for both degrees must not have been completed at the time of application and they must have graduate course standing.

Students may be admitted to the Computer Science Combined Degree Program after completion of 90 credit hours towards the B.S. degree with a GPA of at least 3.0, and before completion of the B.S. degree.

Completed applications must be received at the Graduate School by May 15 for Fall semester admittance and August 15 for Spring semester admittance. A complete application includes:

1. Graduate School application and application fee
2. Three letters of reference
3. Statement of Purpose
4. Transcripts
5. Program of Study - Computer Science Combined Degree

The student is admitted to the Graduate School on the completion of 125 credit hours towards the B.S. degree with a GPA of 3.0 or higher. Students in the program may opt to be awarded their B.S. and M.S. degrees sequentially or at the same time.

**Courses**

(CSc)

500. Graduate Orientation. 1 credit. A discussion of various research and applied computing projects. Continued enrollment required of all graduate students until a research/project topic and an advisor are selected. S/U grading.

501. Topics in Computer Science. 1 to 3 credits. Prerequisite: Consent of instructor. Selected topics from current developments in Computer Science.

513. Advanced Database Systems. 3 credits. Prerequisite: CSci 455. A study of concurrency control, recovery, query processing and optimization, security, and new advancements including research issues in database systems.

515. Data Engineering and Management. 3 credits. Prerequisite: CSci 513. This course studies theoretical and applied research issues related to data engineering and management. Topics will reflect state-of-the-art and state-of-the-practice activities in the field. The course focuses on well-defined theoretical results and empirical studies that have potential impact on the acquisition, management, storage, and graceful degradation of data, as well as in provision of data services.

522. Theoretical Foundations of Computer Science. 3 credits. Prerequisite: CSci 435. A selection of topics from theoretical computer science, possibly including formal languages, automata, other models of computation, and the theory of computability, decidability, and complexity.

532. Programming Languages and Paradigms. 3 credits. A study of current topics in programming languages and paradigms. Course content may vary with current issues and student interests.

537. Graduate Cooperative Education. 1 to 3 credits. Prerequisite: A minimum of 9 graduate credits in Computer Science. A practical work experience in advanced computing supervised by the student’s advisor. Requirements include a 10-page report and an oral presentation upon completion of the work experience. S/U grading only.

543. Advanced Artificial Intelligence. 3 credits. Prerequisite: CSci 365 or CSci 384. Study and application of advanced and recent topics drawn from two or more areas of Artificial Intelligence: problem solving, knowledge representation, expert systems, approximate reasoning, planning, machine learning, natural language processing and perception.

544. Soft Computing. 3 credits. Prerequisite: CSci 543. This course will provide the students with some knowledge of the new computational paradigm and emerging distributed technology, called Soft Computing, of the recent events in Artificial Intelligence, as well as its application. Soft Computing consists of various new computing techniques, such as Fuzzy Set and Logic, Neural Network, Genetic Algorithm and Evolutionary Computing, as well as Probabilistic Reasoning, which are different from the classical AI techniques that are based on the symbolic reasoning/processing.

545. Discrete Dynamical Systems Modeling and Simulation. 3 credits. Prerequisite: CSci 445. A study of various modeling methods applicable to large scale distributed and parallel systems. Topics include cellular automata, grid models, and chaos theory.

546. Advanced Computer Graphics. 3 credits. Prerequisites: CSci 446, Math 265. An introduction to advanced topics in computer graphics. Included are light and color theory, image processing and compression, spatial-frequency transformations, ray-tracing, sampling theory, and topics of current interest.

547. Scientific Visualization. 3 credits. Prerequisites: CSci 446 and CSci 546. This course will conduct a detailed study of visualization techniques useful in the analysis of engineering and scientific data. Topics include the study of physical models, methods of computational science; two- and three-dimensional data types; visual representation schemes for scalar, vector, and tensor data; isosurface and volume visualization methods; visual monitoring and interactive steering.

551. Distributed Operating Systems. 3 credits. Prerequisites: CSci 370, CSci 451; and one of CSci 327, CSci 427 or CSci 555. A study of operating systems in the context of distributed systems and distributed processing. Topics include: interprocess communication, process synchronization, distributed file systems and memory management, performance measurement and evaluation. A modern distributed processing system will be examined.

554. Applications in AI/Computational Intelligence. 3 credits. Prerequisite: CSci 543. Corequisite: CSci 544. This course will be run as a sequence of CSci 544 Soft Computing. It will provide students with some applications of soft computing techniques in the field of computational intelligence as well as those traditional AI techniques. Numerous applications in the various domains such as data mining, decision-support system, pattern recognition, classification, reasoning, analysis, prediction, etc.

555. Computer Networks. 3 credits. Prerequisite: CSci 327. A study of new and developing network architectures and communication protocols. Broadband technologies will be considered including BISDN, ATM networks, and other high-speed networks.

562. Formal Specification Methods. 3 credits. Prerequisites: CSci 435 and 463. A foundational course that introduces several formal specification techniques for construction and analysis of software artifacts. Included are rigorous program development, abstract specifications of modules, and modeling of concurrent and distributed software.

565. Advanced Software Engineering. 3 credits. Prerequisite: CSci 463. A study of current topics related to the design and implementation of large software systems. Course content may vary with instructor and student interest. Potential topics include: software testing and validation, programming environments, program metrics and complexity, design methodologies, software reliability and fault tolerance.

566. Software Engineering Project. 3 to 6 credits. Prerequisite: CSci 463. The complete development of a useful software product, including specifications, design, documentation, coding, testing and verification. Students may work in teams. The project is supervised by the students’ Independent Study Advisor. This course may not be used as an elective for the thesis option in computer science. S/U grading.

575. Analysis of Algorithms. 3 credits. Prerequisite: CSci 435. The time and space complexity of classical computing algorithms is analyzed. NP hard and NP complete problems are characterized and illustrated.

582. Software Architecture. 3 credits. Prerequisites: CSci 435 and CSci 463. Software architecture is a fairly young sub-discipline within software engineering; it is aimed at guiding the designer’s feet along the road. It includes various architectural styles, patterns (or styles), domain specific architectural design, formal architectural description, design patterns (or styles), domain specific architectural design, formal architectural description languages (FADLs), software connectors (simple and composite), architectural analysis, and middleware and component-based software development.

588. Data Structures, Algorithms, and Software Design in C++. 3 credits. This course is intended for the Scientific Computing Ph.D. students. The course attempts to integrate C++ via laboratory sessions. More specifically, this course tries to incorporate...
Counseling Psychology and Community Services

http://www.und.nodak.edu/dept/registrar/catalogs/catalog/graddept/depts/coun.htm#PhD

FACULTY: Beal, Juntunen (Ph.D. Training Director), Loewy (Chair), Perry (Ph.D. Graduate Program Director), Pinterits, Walker, Wettersten, Whitcomb (Master’s Director) and White

DEGREES GRANTED: Master of Arts and Doctor of Philosophy

PROGRAM DESCRIPTION

The Department of Counseling Psychology and Community Services offers graduate programs leading to the Master of Arts in Counseling and Doctor of Philosophy in Counseling Psychology. The Doctor of Philosophy in Counseling Psychology is accredited by the American Psychological Association (APA). Graduates of the M.A. program are eligible to apply for licensure as a school Counselor in North Dakota as well as other states. Completion of the M.A. program partially fulfills requirements for certification as a School Counselor or certification as a Certified Rehabilitation Counselor or licensure as an Addiction Counselor in North Dakota. The Ph.D. in Counseling Psychology provides preparation for licensure as a Psychologist in North Dakota, as well as other states.

MASTER OF ARTS

Mission Statement

The Master of Arts is appropriate for those who wish to become counselors in community agencies, such as addiction treatment clinics, mental health centers, rehabilitation centers, and family service organizations. The Master of Arts is also appropriate for those planning careers in college counseling and student development services and for those who wish to become counselors in elementary, middle, junior high, or high schools. A commitment to social justice and appreciation of diversity are integrated throughout the curriculum. The Department of Counseling is also committed to seeking and valuing diversity in students and staff. Diversity, used here in a very broad sense includes the variety of cultures, backgrounds, values, and experiences found among faculty and students; it also includes the diversity of our professional ways of practice, our ways of learning, and our personal and professional goals. In training, the M.A. Program curriculum works to integrate diversity awareness and appreciation into all course offerings, with the goal of encouraging students to explore and appreciate diversity in all situations. We are committed to training multiculturally competent counselors. Students are admitted to one of four program emphases: Addiction Counseling, Community Agency Counseling, Rehabilitation Counseling, or School Counseling, each of which has separate requirements.

Program Goals

Students are expected to: (a) acquire knowledge in eight areas of competency listed below at the level expected for an entry-level master’s position in counseling; (b) demonstrate critical thinking skills through written assignments and oral presentations; (c) articulate an awareness of the needs of diverse populations and develop sensitivity and skills to meet these needs, (d) demonstrate counseling skills such as empathic listening, clarification, cognitive reframing, confrontation, and crisis intervention; (e) demonstrate the ability to reflect upon one’s values, beliefs, skills, and interventions, particularly in the context of a clinical supervisory relationship in which accepting and responding positively to feedback are expected; (f) conduct an independent research project, analyze the findings, and report the results in a manuscript; and (g) develop ethical decision-making skills demonstrated not only via knowledge (in the list below), but also in the process of counseling clients, conducting research, and various other counselor roles (such as advocate and consultant). The eight knowledge areas are: (a) Human Growth and Development (HGD), (b) Social and Cultural Foundations (SCF), (c) Helping Relationships (HR), (d) Group Work (GW), (e) Career and Lifestyle Development (CLD), (f) Appraisal (A), (g) Research and Program Evaluation (RPE), and (h) Professional Orientation & Ethics (PO).

Admission Requirements

1. A four-year bachelor’s degree from a recognized college or university.
2. Twenty semester credits of coursework in the behavioral sciences at the undergraduate level, which must include theories of personality, abnormal psychology, developmental psychology, and statistics. Course in psychology and sociology may be applied toward this prerequisite. Courses in other social science disciplines where the focus is on the description or explanation of individual or group behavior may be accepted in fulfillment of this prerequisite at the discretion of the department.
3. A cumulative Grade Point Average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A= 4.00).
4. Satisfactory performance on the Graduate Record Exam General Test or the Miller Analogies Test.
5. Favorable recommendations and the admission committee’s perception of the “best fit” based on the applicant’s personal statement.
6. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
7. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
Students seeking the Master of Arts degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Counseling Psychology and Community Services Department.

**Thesis Option:**
1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
4. Preparation of a written independent study approved by the faculty advisor.
5. Comprehensive final examination.
6. Required Courses

**Non-Thesis Option:**
1. Thirty-two (32) credits including credits required for the major.
2. A minimum of two credits of Independent Study.
3. At least one-half of the credits must be at or above the 500-level.
4. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
5. Preparation of a written independent study approved by the faculty advisor.
6. Comprehensive final examination.
7. Required Courses

### Addiction Emphasis

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>501</td>
<td>Ethics</td>
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<tr>
<td>502</td>
<td>Professional Issues in Counseling</td>
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</tr>
<tr>
<td>510</td>
<td>Counseling Methods</td>
<td>3 cr</td>
</tr>
<tr>
<td>515</td>
<td>Methods of Research</td>
<td>3 cr</td>
</tr>
<tr>
<td>516</td>
<td>Counseling Research Lab</td>
<td>1 cr</td>
</tr>
<tr>
<td>518</td>
<td>Psychological Testing</td>
<td>3 cr</td>
</tr>
<tr>
<td>519</td>
<td>Career Counseling</td>
<td>3 cr</td>
</tr>
<tr>
<td>529</td>
<td>Dynamics of Addiction</td>
<td>3 cr</td>
</tr>
<tr>
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<td>Theory of Counseling, Personality &amp; Development</td>
<td>3 cr</td>
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<tr>
<td>552</td>
<td>Multicultural Counseling</td>
<td>3 cr</td>
</tr>
<tr>
<td>580</td>
<td>Counseling Practicum</td>
<td>4 cr</td>
</tr>
<tr>
<td>587</td>
<td>Addictions Counseling Internship</td>
<td>4-6 cr, up to 12 total</td>
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<tr>
<td>997/8</td>
<td>IS or Thesis</td>
<td>2 or 4 cr</td>
</tr>
<tr>
<td>T&amp;L 350</td>
<td></td>
<td>3 cr</td>
</tr>
<tr>
<td>COUN 565</td>
<td>Child and Adolescent Development</td>
<td>3 cr</td>
</tr>
<tr>
<td>Psy 451</td>
<td></td>
<td>3 cr</td>
</tr>
<tr>
<td>or COUN 565</td>
<td>Mid and Older Adult Dev.</td>
<td>3 cr</td>
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### Community Agency

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<tr>
<td>501</td>
<td>Ethics</td>
<td>2 cr</td>
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<tr>
<td>502</td>
<td>Prof. Issues</td>
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</tr>
<tr>
<td>510</td>
<td>Methods of Counseling</td>
<td>3 cr</td>
</tr>
<tr>
<td>515</td>
<td>Research</td>
<td>3 cr</td>
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<tr>
<td>516</td>
<td>Research Lab</td>
<td>1 cr</td>
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<tr>
<td>517</td>
<td>Psychological Testing</td>
<td>3 cr</td>
</tr>
<tr>
<td>518</td>
<td>Group Theory and Process</td>
<td>3 cr</td>
</tr>
<tr>
<td>519</td>
<td>Career</td>
<td>3 cr</td>
</tr>
<tr>
<td>530</td>
<td>Theory</td>
<td>3 cr</td>
</tr>
<tr>
<td>532</td>
<td>Multicultural</td>
<td>3 cr</td>
</tr>
<tr>
<td>580</td>
<td>Practicum</td>
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</tr>
<tr>
<td>584</td>
<td>Community Counseling Internship</td>
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<td>997/8</td>
<td>IS or Thesis</td>
<td>2 or 4 cr</td>
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### Plus 2 credits of electives from the following:

<table>
<thead>
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<th>Course Code</th>
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<tbody>
<tr>
<td>529</td>
<td>Addiction</td>
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</tr>
<tr>
<td>565</td>
<td>Child &amp; Adult</td>
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<tr>
<td>565</td>
<td>Mid &amp; Older Adult</td>
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</tr>
<tr>
<td>565</td>
<td>Special Topics</td>
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<td>585</td>
<td>Research Practicum</td>
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### Rehab Emphasis

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<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>506</td>
<td>Rehab Counseling: Foundations &amp; Ethics</td>
<td>3 cr</td>
</tr>
<tr>
<td>510</td>
<td>Methods of Counseling</td>
<td>3 cr</td>
</tr>
<tr>
<td>514</td>
<td>Rehab Counseling: Assessment &amp; Evaluation</td>
<td>3 cr</td>
</tr>
<tr>
<td>515</td>
<td>Methods of Research</td>
<td>3 cr</td>
</tr>
<tr>
<td>516</td>
<td>Counseling Research Lab</td>
<td>1 cr</td>
</tr>
<tr>
<td>518</td>
<td>Group Theory and Process</td>
<td>3 cr</td>
</tr>
<tr>
<td>519</td>
<td>Career Counseling</td>
<td>3 cr</td>
</tr>
<tr>
<td>530</td>
<td>Theory of Counseling, Personality &amp; Development</td>
<td>3 cr</td>
</tr>
<tr>
<td>532</td>
<td>Multicultural Counseling</td>
<td>3 cr</td>
</tr>
<tr>
<td>580</td>
<td>Counseling Practicum</td>
<td>4 cr</td>
</tr>
<tr>
<td>588</td>
<td>Rehabilitation Counseling Internship</td>
<td>3-4 cr, up to 8 total</td>
</tr>
<tr>
<td>997/8</td>
<td>IS or Thesis</td>
<td>2 or 4 cr</td>
</tr>
<tr>
<td>RHS 309</td>
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<tr>
<td>RHS 310</td>
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<td>3 cr</td>
</tr>
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<td>Total</td>
<td>51 (IS) or 53 (Thesis)</td>
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</tr>
</tbody>
</table>

Students may enroll in the counseling practicum (COUN 580 or COUN 581) after they have satisfactorily completed at least ten credits in the program including: COUN 510: Counseling Methods; COUN 530: Theory; COUN 501: Ethics; COUN 506: Rehabilitation Counseling; or COUN 550: Ethics and Professional Issues in Counseling Psychology. Students in the Addiction Emphasis may need additional coursework in order to be eligible for licensure as an addiction counselor in the state of North Dakota. This coursework includes, but is not limited to: T&L 350: Development and Education of the Adolescent; or COUN 565: Child and Adolescent Development; PSYC 451: Advanced Developmental Psychology; or COUN 565: Middle and Older Adulthood; and PPT 441: Drugs Subject to Abuse.

After successfully completing practicum, students will enroll in an Internship in COUN 584, 587, 588, or 589, depending on program emphasis, which is a two-semester supervised counseling experience at an external site. Internship will typically be completed during the second year in the program for full-time students. Internship assignments are individually arranged and administered by the department’s Internship Coordinator.

In addition to this practitioner course sequence, students are required to complete a series of research training experiences, culminating in the completion of the Independent Study (COUN 997), an independent research project conducted under the direction of the student’s advisor. Students are encouraged to begin considering and planning their research project early in their program.

After completing the majority of coursework for the degree and advancing to candidacy, students are eligible to sit for the Master’s Comprehensive Examination, which is offered once each fall and spring semester. A passing score on the examination is required for graduation.

**SCHOOL COUNSELING EMPHASIS – DISTANCE**

The Department of Counseling offers graduate programs leading to the Master of Arts in Counseling. Graduates of the M.A. program are eligible for licensure as a school counselor in North Dakota as well as other states. UND College of Education & Human Development’s Master of Art in Counseling with an Emphasis in School Counseling prepares students to promote the academic, career, personal, and social development of K-12 students. Completion of coursework prepares students for licensure from the North Dakota Educational Standards and Practices Board as a school counselor, and is compatible with licensure requirements in other states.
Through online courses, practical experiences, and two extended-weekend, on-campus visits for two consecutive summers, students will be prepared to assist individuals in elementary schools, middle schools, and high schools. Students will receive a broad, theoretical foundation in counseling, plus hands-on experiences that will provide the skills and training needed to become a professional school counselor. A commitment to social justice and appreciation of diversity is also integrated throughout the curriculum.

**Admission Requirements**

- Twenty semester credits of coursework in the behavioral sciences at the undergraduate level, which must include educational psychology, educational instruction methods, developmental psychology, and statistics (courses in psychology, education and sociology may be applied toward this prerequisite). Coursework in other social sciences disciplines where the focus is on the education, description or explanation of individual or group behavior may be accepted in fulfillment of this prerequisite at the discretion of the Counseling Department.

- Admission is based on achievement in undergraduate work, satisfactory performance on the Graduate Record Exam General Test or the Miller Analogies Test (Addiction, Community Agency and Rehab emphases only), favorable letters of recommendation and the admission committee’s perception of the “best fit” based on the applicant’s personal statement. In addition to the standard online application for UND, applicants must complete the “Supplemental Application Form and Undergraduate Coursework Summary” found at the department’s website: www.counseling.und.edu.

**Degree Requirements**

- Prerequisites: 20 hours of Behavioral Sciences, including educational psychology, instructional methods, statistics, and developmental psychology.

- Students may enroll in the school counseling practicum after they have satisfactorily completed at least ten credits in the program. After successfully completing practicum, students will enroll in Internship in School Counseling which is a two-semester (4-6 credit) supervised counseling experience at elementary and secondary school sites. Students with a current teaching license will complete 4 credit (400 hours) internships while students without educational backgrounds will be required to complete a 6 credit (600 hour) internship. Internship will typically be completed during the final semesters of the program. Internship placements are individually arranged in collaboration with the Department’s Internship Coordinator.

- In addition to the professional school counseling course sequence, students are required to complete a series of research training experiences, culminating in the completion of an independent research project conducted under the direction of the student’s adviser. Students are encouraged to begin considering and planning their research project early in their program.

After completing the majority of coursework for the degree and advancing to candidacy, students are eligible to sit for the Master’s Comprehensive Examination, which is offered once each fall and spring semester. A passing score on the examination is required for graduation.

**Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>COUN 501</td>
<td>Ethics</td>
<td>3 cr</td>
</tr>
<tr>
<td>COUN 510</td>
<td>Counseling Methods</td>
<td>3 cr</td>
</tr>
<tr>
<td>COUN 515</td>
<td>Methods in Research</td>
<td>3 cr</td>
</tr>
<tr>
<td>COUN 516</td>
<td>Research Lab</td>
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<tr>
<td>COUN 517</td>
<td>Psychological Testing</td>
<td>3 cr</td>
</tr>
<tr>
<td>COUN 518</td>
<td>Group Theory and Practice</td>
<td>3 cr</td>
</tr>
<tr>
<td>COUN 519</td>
<td>Career Counseling</td>
<td>3 cr</td>
</tr>
<tr>
<td>COUN 522</td>
<td>Management of School Counseling Programs</td>
<td>2 cr</td>
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<td>COUN 523</td>
<td>Elementary School Counseling</td>
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<td>COUN 524</td>
<td>Middle School Counseling</td>
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<tr>
<td>COUN 525</td>
<td>Secondary School Counseling</td>
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<tr>
<td>COUN 526</td>
<td>Educational Collaboration</td>
<td>3 cr</td>
</tr>
<tr>
<td>COUN 527</td>
<td>School Based Family Counseling</td>
<td>3 cr</td>
</tr>
<tr>
<td>COUN 530</td>
<td>Theories of Counseling, Personality and Development</td>
<td>3 cr</td>
</tr>
<tr>
<td>COUN 532</td>
<td>Multicultural Counseling</td>
<td>3 cr</td>
</tr>
<tr>
<td>COUN 581</td>
<td>School Counseling Practicum</td>
<td>3 cr</td>
</tr>
<tr>
<td>COUN 589</td>
<td>School Counseling Internship</td>
<td>2-3 cr, 6-8 total</td>
</tr>
<tr>
<td>COUN 997</td>
<td>Independent Study</td>
<td>2 cr</td>
</tr>
<tr>
<td>COUN 998: Thesis</td>
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<td>4 cr</td>
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</table>

**COMBINED PROGRAM IN COUNSELING WITH A REHABILITATION EMPHASIS**

**Program Description**

To encourage students who are majoring in Rehabilitation and Human Services to extend their studies to include a graduate degree, the Department offers a Combined Program in Counseling with a Rehabilitation Emphasis. The Combined Program allows students to earn a bachelor’s degree in Rehabilitation and Human Services and a master’s degree in Counseling with a Rehabilitation Emphasis in approximately five years. This would be a year less than is typically required to complete these degrees separately.

**Admission Requirements**

The deadline for a completed application to be received in the Graduate School is February 1. In addition to the admission requirements for the Counseling master’s program, a completed application must include the following:

1. At least 95 credits hours (including credits in progress) towards the bachelor’s degree in Rehabilitation and Human Services, including RHS 200, RHS 309, RHS 310, and Parts IV, V and VI in the RHS curriculum.
2. Minimum GPA of 3.0 in all undergraduate work.
3. Written statement of interest in Rehabilitation Counseling as a profession.

Students are granted approved admission status in the Graduate School when they have completed a total of 125 credits with an overall GPA of 3.0 or higher. This program allows students to designate two three-credit graduate courses to count for both degrees. These courses would be COUN 514 and COUN 519.

The B.S. degree in Rehabilitation and Human Services and the M.A. degree in Counseling are granted at the same time. In the event that a student does not complete the graduate degree, the undergraduate degree is granted only after the completion of 125 credits, including an approved rehabilitation internship.

**Degree Requirements**

1. Completion of an additional 24 undergraduate credits during or after the senior year.
2. Completion of the following 35 credits of graduate course work in the Counseling Department: 506, 510, 514, 515, 516, 518, 519, 530, 531, 532, 533, and 580.
3. Completion of 8 credits of COUN 588: Rehab Counseling Internship.
4. Completion of COUN 997: Independent Study (2 cr.) or COUN 998: Thesis (4 cr.).
DOCTOR OF PHILOSOPHY
COUNSELING PSYCHOLOGY

Mission Statement and Program Goals

The program provides preparation at the Ph.D. level for employment in a variety of academic and human service settings. These settings include: community mental health agencies, private practice, college and university counseling centers, hospitals and medical centers, or college and university departments of counseling and psychology. The program provides preparation for licensure as a psychologist and is accredited by the American Psychological Association. The curriculum adheres to recommendations of the American Psychological Association for the preparation of counseling psychologists and reflects a model which equally emphasizes science and practice.

The program accepts students at the post bachelor’s and post master’s level. The Department is committed to diversity, particularly to training for Native Americans, and Native American mental health issues.

Goal 1: To prepare entry-level counseling psychologists who are well trained in both the practice and science of the profession.

Goal 2: To prepare counseling psychologists who are leaders in the field, especially as it relates to serving diverse and underserved populations.

Admission Requirements

1. Keep grade of B or higher in at least four graduate level counseling courses or equivalent, including Counseling Methods, Theories and Techniques of Counseling, Counseling Practicum and Research Methods.
2. Overall GPA of 3.0
3. Eighteen (18) semester credits of undergraduate psychology including coursework in general psychology, developmental psychology, abnormal psychology, personality theory, experimental and research methods, and statistics.
4. Graduate Record Examination—General Test, verbal, quantitative and writing.

Students are selected on the basis of undergraduate GPA, master’s degree GPA (if applicable), evaluations of pre-practicum and practicum performance when appropriate to the master’s degree program, scores on the verbal, quantitative and writing subtests of the Graduate Record Examination, references, vocational training and experiences, career goals, and perceived “best fit” by the admissions committee based on the applicant’s personal statement and the research and clinical interests of the faculty. Doctoral graduates from a recent three-year period have had the following average grades and scores: undergraduate GPA 3.44, master’s GPA 3.88, GRE-V 535, GRE-Q 606 and GRE-W 4.97. A balance between numbers of male and female students is preferred in the program. Students from minority ethnic groups are strongly encouraged to apply.

Degree Requirements

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Counseling Psychology and Community Services Department.

1. Completion of 90 semester credits beyond the baccalaureate degree
2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.
3. A major in Counseling Psychology, a minor in Psychology (21 credits).
4. Psychological foundations coursework in the following areas: biological bases of behavior, cognitive/affective bases of behavior, social psychological bases of behavior, and individual differences bases of behavior.
5. Two scholarly tools (of four courses each): 1) Research Methods/Statistics, and 2) Assessment/Diagnosis.
6. A qualifying exam.
7. Dissertation
8. Comprehensive Examinations

Cognate in the Department of Counseling Psychology and Community Services

A cognate in the Department of CPCS, consisting of a minimum of nine semester credits of counseling coursework may be taken by master’s or doctoral students in related fields. Cognate coursework should be planned in consultation with a member of the department faculty. Cognates will not include practicum or internship; students interested in these experiences should consider a formal minor in Counseling (below).

Minor in the Department of Counseling Psychology and Community Services

A minor in the Department of CPCS consisting of a minimum of 20 semester credits of counseling coursework may be taken by master’s or doctoral students majoring in a related field. Such a minor should include the following five courses: 510, 517, 519, 530, and 532. All doctoral students who wish to complete a minor in the department must include a Counseling faculty member on the Faculty Advisory Committee and should seek advice about appropriate courses and course sequences.

Department Evaluation of Students

The CPCS faculty conduct periodic reviews of students’ progress in the MA and PhD programs, including their academic performance, counseling and psychoeducational skills, professionalism, and ethics. An interview may be required as part of the review. Deficits identified through faculty review may result in either a requirement that the student engage in remedial work or the removal of the student from the program.

As noted in Standard 7.04 of the 2002 Ethics Code of the American Psychological Association, students may need to disclose personal information if that information is necessary to evaluate or obtain assistance for students whose personal problems could reasonably be judged to be preventing them from performing their training or professionally related activities in a competent manner or posing a threat to the students or others.

The practice of counseling requires significant self-disclosure for the person receiving counseling. CPCS students must become very familiar with this process. Therefore, it is an essential training component of the Department to provide assignments and classroom experiences that call for student self-disclosure of a personal nature, in an atmosphere of respect and confidentiality, to an extent not expected in other academic disciplines. The nature or extent of expected self-disclosure is specified in each course syllabus.

Courses

501. Ethics: Counseling and Counseling Psychology, 3 credits. Focus will be on the Codes of Ethics and Standard of Practice of the American Psychological Association and corresponding ethics codes for subspecialties within the counseling profession. Students will learn to interpret these codes and apply them to their professional practice.
502. Professional Issues in Counseling. 1 credit. Corequisite: COUN 501, only for students who have completed the Community Agencies Electives and Additions Electives. An introduction to counseling practice and services in mental health, addiction, and other community agencies. Emphasizes professional issues in the field, professional development and career paths, and related topics.

503. Personality Psychology. 3 credits. Prerequisite: Graduate standing in Counseling or Psychology. Historical development of modern psychology with an emphasis on philosophical precursors to psychology, experimental and systematic phases of early psychological thought, important issues during the growth of psychology, and current and future trends.

506. Rehabilitation Counseling: Foundations and Ethical Issues. 3 credits. Comprehensive introduction to the rehabilitation profession, including past, present, and future trends. Areas emphasized: profession philosophy; organizational structure; historical and legislative influence; rehabilitation process and service delivery systems; professional issues, ethical codes, and behavior.

510. Counseling Methods. 3 credits. Two training components are combined to provide an intensive practicum experience. The didactic component introduces the basic interviewing and active listening skills; a laboratory component provides practice in the practical application of those skills in simulated counseling interviews.

511. Rehabilitation Counseling: Assessment and Evaluation. 3 credits. An introduction to assessment and related ethical issues in rehabilitation counseling. Assessment for vocational ability and independent living will be emphasized. Theory and research will be addressed, within a primarily applied framework.

515. Methods of Research. 3 credits. Methods and procedures of research development, design and analysis related to counseling and behavioral science. Experience in formulating and developing an individual research project. Considers research ethics and protection of human participants.

516. Counseling Research Laboratory. 1 credit. Prerequisite: COUN 515. Introduces basic procedures in analysis of counseling research data. Topics including data coding, data entry and use of statistical packages are presented in an individualized manner. Repeatable to 2 credits.

517. Psychological Testing. 3 credits. The application of principles of psychological measurement to selected instruments in the areas of intellectual functioning and aptitudes; educational and occupational achievements; career interests; and personality. Development of test interpretation skills.

518. Group Theory and Process. 3 credits. Addresses the principles and practices of support, task, psycho-educational and therapeutic groups with various populations in a multicultural context. Includes discussion of issues relevant to group processes. Involves participation and leading group experiences.

519. Career Counseling. 3 credits. An introduction to the psychology of careers and to the practice of career counseling. Career development theories, occupational classification systems, assessment instruments, and the use of occupational information for career education and life planning are included. Career counseling strategies for use with a diverse population are introduced.

522. Management of School Counseling Programs. 2 credits. Study of the organization and administration of counseling programs in school settings, including foundations of program development and evaluation. Characteristics of effective school counselors. Consideration of professional and ethical concerns in school counseling.

523. Elementary School Counseling. 2 credits. Exploration of models of elementary counseling and examination of counseling materials in implementing a counseling program.

524. Middle School Counseling. 2 credits. Exploration of models of middle school counseling and examination of counseling materials in implementing a middle school counseling program.


526. Educational Collaboration. 3 credits. Prerequisite: enrollment in School Counseling Distance Program or permission of instructor. The course provides an overview of relevant theoretical models, approaches and specific issues of families in order for school personnel to facilitate student adjustment and achievement. Collaboration for school improvement, program implementation, and work with parents, educators and professionals in the community is emphasized.

527. School-Based Family Counseling. 3 credits. Prerequisite: enrollment in School Counseling Distance Program or permission of instructor. The course provides an overview of relevant theoretical models, approaches and specific issues of families in order for school personnel to facilitate student adjustment and achievement.

529. Dynamics of Addiction. 3 credits. The course emphasizes the addiction and recovery process and the importance of prevention and intervention. Topics include prevention of addiction disorders for individuals and families. Shared characteristics of behavioral and chemical addictions, addiction theory, research, and policy will be addressed.

530. Theories of Counseling, Personality and Development. 3 credits. Study and analysis of counseling interventions based on different theoretical models, emphasizing personality and human development. Course involves viewing videotapes of simulated or actual counseling sessions, role-play demonstrations, and role played practice of various theoretically based counseling interventions.

531. Multicultural Counseling. 3 credits. This course offers an introduction to counseling theories and interventions appropriate for American ethnic and non-ethnic minority clients. The values suppositions of various cultural groups will be examined. In-class group experience is included.

548. Advanced Vocational Psychology. 3 credits. Prerequisite: COUN 519 or equivalent; admission to doctoral program. Advanced study of major career counseling theories, models, and methods.

551. Research Issues in Counseling Psychology. 3 credits. Prerequisite: Admission to the doctoral program. This seminar is designed to increase students' self-efficacy and ability to examine critically research issues in Counseling Psychology and their relationship to practice. Students will further develop and demonstrate skills necessary to conduct the science of Counseling Psychology, including the problem conceptualization, study design and the writing of proposals.

552. Counseling Psychology Professional Seminar I. 1 credit. Prerequisite: Admission to the doctoral program in Counseling Psychology. An examination of the skills necessary for developing as a counseling psychologist trainee, with an emphasis on critical analysis, writing, and self-examination. Introduction to the breadth of competencies expected in counseling and professional psychology.

553. Counseling Psychology Professional Seminar II. 1 credit. Prerequisite: Admission to the doctoral program in Counseling Psychology. An introduction to the profession of Counseling Psychology, emphasizing the history of the specialty, the philosophical underpinnings of Counseling Psychology values, and the organizational structure of leadership in the discipline.

554. Preparation for the Predoctoral Internship. 1 credit. Prerequisite: Admission to the doctoral program in Counseling Psychology or Clinical Psychology and permission of instructor. A focused preparation of skills necessary for successful attainment of a predoctoral internship in Counseling Psychology. Emphasis on self-presentation and interview skills.

555. Advanced Psychometrics. 3 credits. Prerequisite: COUN 517 or equivalent; admission to doctoral program. A critical examination of the rationale, construction, and use of structured personality tests and interest instruments, including current views of test validity and reliabilities, prediction models, and related observational techniques.

556. Supervision Theory and Technique. 3 credits. Prerequisite: Admission to the doctoral program or instructor permission. A survey and critical examination of approaches, techniques and issues in providing supervision to counselors-in-training. Includes reading of current theory and research on supervision, critical analysis of approaches to supervision, demonstrations, and role-played experiences of different supervision techniques.

561. Consulation Theory and Practice. 2 credits. This course provides an introduction to theories, models and practices of mental health and psychological consultation. Consultation for both preprofessional and professional programs will be defined. Practices include initiating and developing a consultation relationship, developing a consultation contract, enacting the contract, and consultation process.

562. Consultation Lab. 1 credit. Pre- or Co-requisite: COUN 561. Under supervision by a number of the faculty, students will develop and implement a consultation project with an organization or client from the community. S/U grading only.

563. Advanced Application of APA Ethical Standards. 2 credits. This elective course is designed for students in the second or third year of doctoral study, those who have already completed some work with clients and are seeking an opportunity to think more critically about the application of ethical expectations to professional work. The course will emphasize the integration of ethical and legal standards and the implementation of such standards in case-based exercises.

564. Advanced Therapy Techniques. 3 credits. This elective course is designed for advanced students who are engaged in clinical practice and have completed COUN 530 (Theories of Counseling Personality and Development) or its equivalent. The course will provide focused discussion and application of various evidence-supported techniques to case material.

565. Professional Seminars. 1 to 3 credits. Prerequisite: consent of instructor. Seminars are designed to present current research and supplement coursework in several areas. May be repeated up to eight credits. S/U grading only.

568. Personality Assessment. 3 credits. Prerequisite: COUN 517 or equivalent and admission to the doctoral program or permission of instructor. Theory, research, evidence, and training in the administration, scoring, interpretation and use of personality assessment instruments. Clinical interviewing and checklists, behavioral observations and report writing skills. Issues of race, ethnicity, gender, age and disability in the use of these instruments is emphasized. A two-hour lab provides supervised practice in test administration and scoring.

569. Cognitive Assessment. 3 credits. Prerequisite: COUN 517 or equivalent and admission to the doctoral program or permission of instructor. Theory, research, evidence, and training in the administration, scoring, interpretation and use of cognitive assessment instruments. Clinical interviewing and checklists, behavioral observations and report writing skills. Issues of race, ethnicity, gender, age and disability in the use of these instruments is emphasized. A two-hour lab provides supervised practice in test administration and scoring.

580. Counseling Practicum. 4 credits. Prerequisites: COUN 510; COUN 501 or 506 or permission of instructor; COUN 530 or permission of instructor; 10 completed COUN credits. Introduction to counseling practice. Emphasis on development, improvement, and evaluation of counseling relationships. Interview skills in counseling practice with live supervision. S/U grading only.

581. School Counseling Practicum. 3 credits. Prerequisites: COUN 501, 510, 530 or permission of instructor, 10 completed COUN credits. Introduction to counseling practice in a school setting. Emphasis on improvement and evaluation of individual and group counseling relationships. Development of skills in applying the role of counselor to the school environment. S/U only.
Doctoral Practicum. 3 credits. Prerequisite: Admission to doctoral program. Participation in the activities of a counseling agency or similar appropriate organization. Continued development of counseling, assessment, and consultation skills with individuals, couples, groups, organizations, and communities in a multicultural context. Participation in small group and individual supervision and in case conferences. S/U grading only.

Community Counseling Internship. 3 to 4 credits (up to 8 total). Prerequisite: Counseling 580. Professional practice in counseling, assessment, consultation, teaching, or research in an approved community agency. Supervision must meet criteria established by the department and the Graduate School. S/U grading only. F.S. Department permission needed for SS enrollment.

Counseling Psychology Research Practicum. 1 to 3 credits. This course involves student participation in one of several, topical research groups conducted by faculty on an ongoing basis. Groups will design and carry out research studies, and prepare manuscripts for publication or presentation. May be repeated up to 8 credits. S/U grading only.

Practicum in Supervision. 1 to 3 credits. Prerequisites: COUN 560. Supervised experience in providing supervision to counselors-in-training. Experience may be gained in supervising beginning students in role-played labs, live supervision in practicum, individual supervision, and/or small group supervision of interns. May be repeated up to 6 credits. S/U grading only.

Addictions Counseling Internship. 4 to 6 credits (up to 12 total). Prerequisite: Counseling 580. Professional practice in counseling, assessment, consultation, teaching, or research in an approved agency specializing in addictions counseling. Supervision must meet criteria established by the department and the Graduate School. S/U grading only. F.S. Department permission needed for SS enrollment.

Rehab Counseling Internship. 3 to 4 credits (up to 8 total). Prerequisite: Counseling 580. Professional practice in counseling, assessment, consultation, teaching, or research in an approved agency specializing in rehabilitation counseling. Supervision must meet criteria established by the department and the Graduate School. S/U grading only. F.S. Department permission needed for SS enrollment.

School Counseling Internship. 2 to 3 credits (6-8 total). Prerequisite: Counseling 581 and permission of the department. Supervised internship in a school setting. Emphasis on observing and performing guidance and counseling methods and techniques. Knowledge and performance of the roles and duties of professional school counselors. Supervision must meet criteria established by the department and the Graduate School. S/U grading.

Problems in Counseling. 1 to 3 credits. Supervised independent study or application of selected problems in the counseling field. S/U grading only.

Readings in Counseling. 1 to 3 credits. Reading in selected areas of counseling. May be repeated up to six credits. S/U grading only.

Continuing Enrollment. 1 to 12 credits.

Independent Study. 2 credits.

Thesis. 4 credits.

Dissertation. 1 to 12 credits.

Mission Statement and Program Goals

The mission of the Department of Criminal Justice is broadly subsumed within the three functions of teaching, research and service to achieve the production and dissemination of knowledge guided by the principle of a just system of social regulation and control in the advancement of societal well-being. The goals of the teaching mission are achieved primarily through direct classroom instruction supplemented by experiential learning opportunities grounded in establishing foundations for lifelong learning. The research mission addresses both basic and applied research intended to contribute to the advancement of knowledge in the discipline of Criminal Justice as well as operational issues confronting criminal justice agencies and institutions. The Department of Criminal Justice meets its service mission through participation in departmental, college, and university governance, as well as involvement in professional and community activities that contribute to the betterment of the criminal justice discipline, the community and society.

1. Develop advanced analytic and communication skills.
2. Develop advanced understanding of criminological theories.
3. Develop an advanced understanding of statistics and research methods.
4. Develop an advanced understanding of various criminal justice relevant concepts.

Admission Requirements

In addition to the admission requirements of the Graduate School, the following requirements must be met by all applicants with the exception of those applying under the J.D./Ph.D. specialization:

1. A master’s degree in criminal justice or a related field.
2. A cumulative G.P.A. of at least 3.0 for all coursework taken for graduate credit.
3. Achieve a minimum combined score of 1,000 on the verbal and quantitative components of the Graduate Record Exam (GRE).
4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5. *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
5. Students who have received a bachelor’s degree or higher from the United States or English speaking Canada are not required to submit a TOEFL.

Combined J.D/Ph.D Option: Students currently enrolled in an ABA accredited law school or individuals with a juris doctorate (J.D.) from an ABA accredited law school may be eligible for admission to the Ph.D. program in criminal justice. Interested individuals should contact their graduate program director for details.

Degree Requirements

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Department of Criminal Justice.

1. Complete a minimum of 60 credit hours beyond the master’s degree.
2. Complete 9 semester hours of criminological theory and 15 semester hours of doctoral level research methods/analysis.

3. Complete an additional 18 credit hours of electives of which:
   a. A minimum of 9 elective credits must be taken in criminology.
   b. Up to 9 elective credits, not previously taken for graduate credit, may also be selected from any courses approved by the student’s advisory committee and offered for graduate credit at either the University of North Dakota or Minot State University.

4. Complete examination in criminological theory and research methods/analysis prior to submission and approval of the dissertation prospectus.

5. Complete the examination in one area of specialization (to be determined in consultation with the student’s advisory committee).


J.D./Ph.D. Specialization

Option 1: Students who have successfully completed all requirements from an ABA accredited law school all requirements for, and have been awarded, a Juris Doctorate (J.D.) degree may complete the Ph.D. in Criminal Justice through meeting the Theory and Methods/Statistics requirements of the doctoral program, successfully passing the comprehensive examination, and successfully defending a dissertation.

Option 2: Students currently enrolled in an ABA accredited law school, may also complete requirements for the J.D./Ph.D. option. These students must and successfully complete the Theory and Methods/Statistics components of the doctoral program, the comprehensive examination and defend a dissertation. Students on this track must receive their J.D. prior to or coincident with receipt of their Ph.D.
The strategies are linked by a set of organizing principles that are the area of sustainability science and Earth System Science and Policy.

Management is a professional degree for those who seek careers as both in and outside the classroom. The Master of Environmental edge across traditional disciplinary boundaries, and active dialogue through an internship. The MEM program is especially in management of the Earth system and resources, acquired through practical experience especially through the Internship. The Master of Environmental Management is a professional degree for those who seek careers as environmental policymakers.

**Goals and Associated Learning Outcomes**

To achieve the MEM degree mission, we target specific goals in the area of sustainability science and Earth System Science and Policy. The strategies are linked by a set of organizing principles that are essential to all program activities. These include:

1. **Excellence in learning.** In order to represent the full complexity of nature and sustainability science, crucial elements of the MEM’s learning objectives include: a student-structured curriculum, a multi-disciplinary teaching approach, and experiential learning environments, especially emphasized through the Internship.

2. **Excellence in discovery.** Projects and research activities within the MEM are driven by societal needs and values and occur within an Earth System Science paradigm, in which the Earth is treated as a single system that cannot be understood by summing the features of its component parts.

3. **Excellence in engagement.** Through its outreach and service activities, one of the chief aims of MEM is to put knowledge to work creating new opportunities that advance society, solve scientific and social problems related to Earth System Science, and Policy, and empower citizens to make informed decisions about their environment.

Given the broad mission statement and organizing principles of the Earth System Science and Policy program, MEM goals specifying learning outcomes for graduates of the program include:

1. A breadth of knowledge in Earth System Science and Policy and the ability to apply that knowledge to address societal-driven sustainability science research.

2. A strong foundation in applications-driven science, basic science, geographical information systems (GIS), remote sensing, environmental policy, and statistics.

3. Valuable hands-on experiences and the ability to understand the fundamental value of experimental work needed to substantiate theoretical developments, and ensure the optimal development of environmental management practices.

4. Written and oral communication skills that will facilitate the presentation of ideas to peers and the public.

5. The ability to function within multi-disciplinary teams to accomplish goals of interest to the group and enable successful development of management practices.

6. Skills and experience using cutting-edge computer technology to solve complex research and applications problems.

7. An awareness of issues of scale associated with environmental sustainability and Earth System Science and Policy, i.e., spatial, temporal, impact, etc., and a broad sense of ethical and professional responsibilities.


**Admission Requirements**

Applicants who are seeking admission to Graduate School must meet all the minimum general education requirements identified in the Graduate School Catalog. In addition students must fulfill the requirements below for admission to Earth System Science and Policy graduate degree programs.

1. Hold a Bachelor’s degree from an accredited college or university.

2. Have satisfactorily completed a minimum of college-level algebra plus 3 credits of college statistics or calculus.

3. Have completed a minimum of 6 semester credit hours in natural and 6 semester credits in social sciences, e.g., economics, sociology, psychology, political science, anthropology/archeology, or related fields.

4. Have earned a minimum average GPA of 3.00 on a 4.00 scale, on all upper division college-level coursework.

5. Submit score from the Graduate Record Examination (GRE) General Test.

6. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

7. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
Degree Requirements

Students seeking the Master of Environmental Management degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Earth System Science and Policy Department.

The overarching goal of all the degree programs offered in Earth System Science and Policy is to facilitate the acquisition of skills required to solve environmental problems or to seize opportunities presented by a changing environment. Much of the responsibility for learning rests upon the student.

1. Students enrolled in the MEM program will take the sequences ESSP 501, 501R, 501L (offered in the Fall) and ESSP 502, 502R, 502L (offered in the Spring). Students will complete the basic two-semester core sequence of courses during their first year of study.

2. A minimum of 36 credits, including six to nine credits for Internship is required.

3. At least one-half of the credits must be at or above the 500 level.

4. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.

5. By the end of the first semester the student will select a chair of her/his Advisory Committee and, in consultation with that chair, recommend membership on the Advisory Committee.

6. Students must file with the Graduate School an approved program of study before the completion of fifteen credits of coursework.

7. Students must maintain a GPA of 3.00, and comply with the requirements of the graduate school. Grades poorer than “C” will not be accepted as fulfilling degree requirements.

8. Complete written and oral comprehensive examinations to qualify for candidacy in the MEM program. These will occur no later than one month before leaving for the internship and will entail a 5 to 15 page written description and an oral presentation of their intended internship project.

9. In place of a thesis, MEM students must submit a comprehensive written report of their internship with an appropriate organization. The written report will be in the form of an Independent Study Report, following the guidelines and procedures for such a report set by the Graduate School. Students shall make a final oral presentation to an audience from the ESSP program, stakeholders affected by their project, and relevant professionals.

10. All exams will be administered and evaluated by the student’s Advisory Committee.

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MASTER OF SCIENCE

Mission Statement and Program Goals

The mission of the Master of Science in ESSP is to provide an integrated and creative learning environment that fosters intellectual growth, critical thinking, and practical engagement, especially in research and management of the Earth system and resources. The MS program is a thematic one, emphasizing practical experience, student-centered learning, and integration of knowledge across traditional disciplinary boundaries, and active dialogue both in and outside the classroom. The Master of Science is designed to accommodate a large range of research interests all of which must be multi-disciplinary. It is intended for those primarily interested in the science of the Earth’s systems, as well as how that science can be integrated into programs of action that lead to sustainability. Those who are highly focused in a particular discipline are encouraged to seek graduate opportunities in that discipline. Requirements for an MS degree will culminate in submission and defense of a thesis.

Goals and Associated Learning Outcomes

To achieve the MS mission, we target specific goals in the area of sustainability science and Earth System Science and Policy. The strategies are linked by a set of organizing principles that are essential to all program activities. These include:

1. **Excellence in learning.** In order to represent the full complexity of nature and sustainability science, crucial elements of the MS’s learning objectives include: a student-structured curriculum, a multi-disciplinary teaching approach, and experiential learning environments.

2. **Excellence in discovery.** Research within the MS program is driven by societal needs and values and occurs within an Earth System Science paradigm, in which the Earth is treated as a single system that cannot be understood by summing the features of its component parts.

3. **Excellence in engagement.** Through its outreach and service activities, one of the chief aims of the program is to put knowledge to work creating new opportunities that advance society, solve scientific and social problems related to Earth System Science and Policy, and empower citizens to make informed decisions about their environment.

Given the broad mission statement and organizing principles of the Earth System Science and Policy program MS goals specifying learning outcomes for graduates of the program include:

1. A breadth of knowledge in Earth System Science and Policy and the ability to apply that knowledge to address societal-driven sustainability science research.

2. A strong foundation in applications-driven science, basic science, geographical information systems (GIS), remote sensing, environmental policy, and statistics.

3. Valuable hands-on experiences and the ability to understand the fundamental value of experimental work needed to substantiate theoretical developments.

4. Written and oral communication skills that will facilitate the presentation of ideas to peers and the public.

5. The ability to function within multi-disciplinary teams to accomplish goals of interest to the group.

6. Skills and experience using cutting-edge computer technology to solve complex applications problems.
An awareness of issues of scale associated with environmental sustainability and Earth System Science and Policy, i.e., spatial, temporal, impact, etc., and a broad sense of ethical and professional responsibilities.

An awareness and preparation for a lifetime of learning.

Admission Requirements

Applicants who are seeking admission to Graduate School must meet all of the minimum general education requirements identified in the Graduate School catalog. In addition, students must fulfill the requirements below for admission to Earth System Sciences and Policy graduate degree programs.

1. Hold a bachelor’s degree from an accredited college or university.
2. Have satisfactorily completed a minimum of college-level algebra plus 3 credits of college statistics or calculus.
3. Have completed a minimum of 12 semester credits in the natural or physical sciences, e.g., physics, chemistry, geosciences, biology or related sciences.
4. Have earned a minimum average GPA of 3.00 on a 4.00 scale, on all upper division college-level coursework.
5. Submit score from the Graduate Record Examination (GRE) General Test.
6. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5. *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
7. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Earth System Science and Policy Department.

The overarching goal of all the degree programs offered in Earth System Science and Policy is to facilitate the acquisition of skills required to solve environmental problems or to seize opportunities presented by a changing environment. Much of the responsibility for learning rests upon the student.

1. Students enrolled in the MS program will take the sequences ESSP 501, 501R, 501L (offered in the Fall) and ESSP 502, 502R, 502L (offered in the Spring). Students will complete the basic two-semester core sequences of courses during their first year of study.
2. A minimum of 36 credits beyond the baccalaureate is required, including six to nine credits for thesis.
3. At least one-half of the credits must be at or above the 500 level.
4. A maximum of one-fourth of the credits must be at or above (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
5. By the end of the first semester the student will select a chair of her/his Advisory Committee and, in consultation with that chair, recommend membership on the Advisory Committee. The Advisory Committee will have 3 members, at least two of whom must be from the ESSP faculty. If the student is pursuing a minor concurrently with the MS in ESSP, one of the committee members will be from the department of the minor.
6. Students must file with the Graduate School an approved program of study before the completion of fifteen credits of coursework.
7. Students must maintain a GPA of 3.00, and comply with the requirements of the graduate school. Grades poorer than “C” will not be accepted as fulfilling degree requirements.
8. MS student must complete oral and written examinations to qualify for candidacy in the Master of Science program. These will occur no later than the end of the first year of coursework and will entail a 15 to 30 page written description and an oral presentation of their intended research project.
9. Successful completion, and oral defense, of a thesis is required for the MS degree.
10. All exams will be administered and evaluated by the student’s Advisory Committee.

DOCTOR OF PHILOSOPHY

Mission Statement and Program Goals

The mission of the Doctor of Philosophy in ESSP is to provide an integrated and creative learning environment that fosters intellectual growth, critical thinking, and practical engagement, especially in research and management of the Earth system and resources. The PhD program is a thematic one, emphasizing practical experience, student-centered learning, and integration of knowledge across traditional disciplinary boundaries, and active dialogue both in and outside the classroom. The PhD in Earth System Science and Policy is intended to prepare innovative researchers and problem-solvers for the public and private sectors, as much as for academia. Its core requirement is an original contribution, presented in final form as a dissertation that assesses, mitigates, manages, remedies, or prevents a significant environmental problem. The program is multi-disciplinary and practical in nature, involving faculty from various disciplines and institutions, from public or private research laboratories, and stakeholders.

Goals and Associated Learning Outcomes

To achieve the PhD mission, we target specific goals in the area of sustainability science and Earth System Science and Policy. The strategies are linked by a set of organizing principles that are essential to all program activities. These include:

1. Excellence in learning. In order to represent the full complexity of nature and sustainability science, crucial elements of the PhD’s learning objectives include: a student-structured curriculum, a multi-disciplinary teaching approach, and experiential learning environments.
2. Excellence in discovery. Research within the PhD program is driven by societal needs and values and occurs within an Earth System Science paradigm, in which the
Earth is treated as a single system that cannot be understood by summing the features of its component parts.

3. **Excellence in engagement.** Through its outreach and service activities, one of the chief aims of the program is to put knowledge to work creating new opportunities that advance society, solve scientific and social problems related to Earth System Science and Policy, and empower citizens to make informed decisions about their environment.

Given the broad mission statement and organizing principles of the Earth System Science and Policy program, PhD goals specifying learning outcomes for graduates of the program include:

1. A breadth of knowledge in Earth System Science and Policy and the ability to apply that knowledge to address societal-driven sustainability science research.
2. A strong foundation in applications-driven science, basic science, geographical information systems (GIS), remote sensing, environmental policy, and statistics.
3. Valuable hands-on experiences and the ability to understand the fundamental value of experimental work needed to substantiate theoretical developments.
4. Written and oral communication skills that will facilitate the presentation of ideas to peers and the public.
5. The ability to function within multi-disciplinary teams to accomplish goals of interest to the group.
6. Skills and experience using cutting-edge computer technology to solve complex applications problems.
7. An awareness of issues of scale associated with environmental sustainability and Earth System Science and Policy, i.e., spatial, temporal, impact, etc., and a broad sense of ethical and professional responsibilities.

**Admission Requirements**

Applicants who are seeking admission to Graduate School must meet all of the minimum general education requirements identified in the Graduate School catalog. In addition, students must fulfill the requirements below for admission to Earth System Science and Policy graduate degree programs.

1. Hold a Master’s degree from a recognized college or university.
2. Have satisfactorily completed a minimum of college-level algebra plus 3 credits of college statistics or calculus, AND a minimum of 12 semester credit hours in natural or physical sciences, e.g., physics, chemistry, geosciences, biology or related sciences, AND 6 semester credits in social sciences, e.g., economics, geography, environmental studies, sociology, psychology, anthropology, archeology, political science or related fields.
3. Have earned a minimum average GPA of 3.50 on a 4.00 scale on all graduate-level coursework.
4. Submit score for the Graduate Record Examination (GRE) General Test.
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

**Degree Requirements**

Students seeking the Doctorate degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Earth System Science and Policy Department.

The overarching goal of all the degree programs offered in Earth System Science and Policy is to facilitate the acquisition of skills required to solve environmental problems or to seize opportunities presented by a changing environment. Much of the responsibility for learning rests upon the student.

1. Students enrolled in the PhD program will take (in most cases) the sequences ESSP 501, 501R, 501L (offered in the Fall) and ESSP 502, 502R, 502L (offered in the Spring). Students will complete the basic two-semester core sequence of courses during their first year of study.
2. A minimum of 90 credits (30 of which must be taken in the Earth System Science and Policy Program) beyond the baccalaureate, including acceptable master’s degree work, and up to 18 credits for dissertation is required for the PhD degree.
3. PhD students will be required to spend a minimum of two semesters, full-time, on the UND campus after receiving a master’s degree.
4. Students must complete at least 6 credits of approved academic work per year.
5. By the end of the first semester in the doctoral program, the student will select a chair of her/his Advisory Committee. By the end of the second semester, the student will select membership of the Advisory Committee, in consultation with the chair. The Advisory Committee will have at least five members, at least three of which must be from the ESSP faculty. One of the committee members will be appointed by the Dean of the Graduate School. That member will be from outside the ESSP Department. The committee will assist the student in course selection and definition of a research topic and will also administer and evaluate all examinations that are required for completion of the degree.
6. ESSP PhD students must file with the Graduate School an approved program of study by the end of their second semester.
7. Students must maintain a GPA of at least 3.00 with no grades below “B” and comply with the requirements of the Graduate School. Any student whose GPA falls below 3.00 will be placed on probation and will have one semester to raise the GPA to 3.00 or above.
8. All students must take a qualifying exam to advance to candidacy in the PhD program. Part of the written requirement requires all students to write a dissertation proposal in a style appropriate for submission to a funding organization or agency. Students will present their proposal for review no later than two years from the date of admission to the ESSP doctoral program. To be advanced to candidacy the PhD student will also take a qualifying exam, which will be administered early in the student’s second year. Successful completion, and oral defense, of a dissertation is also required for the PhD degree.
9. All exams will be administered and evaluated by the student’s Advisory Committee.

Course Number | Course Title | Credits
--- | --- | ---
ESSP 501 | Earth System Science & Policy I | 5
ESSP 501R | Earth System Science & Policy I Recitation | 3
ESSP 502 | Earth System Science & Policy II | 2
ESSP 502R | Earth System Science & Policy II Recitation | 3
ESSP 502L | Earth System Science & Policy II Laboratory | 2
ESSP 506 | Doctoral Research | 1-15
ESSP 999 | Dissertation | 6-18

Courses (ESSP)

501. Earth System Science and Policy I. 5 credits. Prerequisite: Graduate standing in ESSP. Corequisites: ESSP 501R, 501L. An overview of the fundamental issues from five research areas: Biodiversity and Ecosystem Functioning; Climate and Environmental Change; Land and Resource Management; Environmental Policy, Management, and Communication; and Human Health and the Environment. Material will be presented “situationally” in a problem-based learning environment. ESSP faculty and guest lecturers will present background information relevant to the topics. Students are expected to engage actively in the learning process by 1) determining what further information they need to understand the problem, 2) researching the questions, 3) clearly and concisely presenting the findings of their research to one another.

501R. Earth System Science and Policy Recitation. 3 credits. Prerequisite: Graduate standing in ESSP. Corequisites: ESSP 501, 501L. Small group discussions to include many parties to an environmental issue.

501L. Earth System Science and Policy Laboratory I. 2 credits. Prerequisite: Graduate standing in ESSP. Corequisites: ESSP 501, 501R. Laboratory session. Will require one or more full day field trips; may require one or more weekend field trips.

502. Earth System Science and Policy II. 5 credits. Prerequisites: ESSP 501, 501R, 501L, Corequisites: ESSP 502R, 502L. Course follows the design of ESSP 501 but with more emphasis on written reports and team projects. At the beginning of the semester, students will either select or be assigned a topic for an interdisciplinary team project for completion by the end of the semester. The team project helps students acquire an interdisciplinary outlook, and fosters communication and cooperation within a positive multi-disciplinary work environment. This will provide students with skills that are integral to the management of complex environmental problems they will face in the world beyond academia.


506. Ecosystem Services: Valuing Nature in a Market Society. 3 credits. Prerequisite: Consent of instructor. Analyzes the services and goods provided by natural and human-made ecosystems with a primary focus on the agroecosystems and grasslands of the northern Great Plains. Explores the scientific framework of ecosystem services, their disruption or disturbance, their economic and ecological values, methods of analyzing these values, and policy implications.

520. Earth Systems Modeling. 3 credits. Prerequisite: Graduate standing in ESSP, or consent of instructor. Introduction to statistical and deterministic approaches for modeling earth systems, including use of modeling to support management and policymaking. Develops systems thinking skills and emphasizes modeling as a framework for environmental analysis and problem solving. Students will learn how different classes and scales of models are used to explore different type of environmental questions. Emphasis will be on the dynamic, interdependent and interactive relationships between human activities and ecosystem function and structure as well as the effects of these activities on biogeochemical cycles, energy flow, and biodiversity. Students will use these analyses to evaluate opportunities to shift toward more sustainable human behavior.

540. Advanced Topics in Geospatial Technologies. 3 credits. Prerequisite: Consent of instructor. The course’s intent is to stay abreast of technological developments in a rapidly evolving field. Course contents will vary according to where the advances have the most immediate impact. The goal is to provide students exposure and hands-on experience needed to apply technologies to significant Earth system problems. Among technologies to be discussed are sensors for satellites and aircraft, data acquisition and image processing tools, verification and validation techniques, precision navigation by Global Positioning Satellites, and advanced uses of Geographic Information Systems.

562. Environmental Economics, Policy, and Management. 3 credits. Prerequisite: Consent of instructor. Examines the principles of economics, natural resource limitations and management, and the role of science in public policy decision-making with the intent of preserving Earth’s vital life-support systems while meeting human needs and aspirations. Through case studies, guest speakers, and personal experiences, studies how science does or does not inform environmental policymaking. Students apply economic theories and analysis to evaluate environmental problems and policies and apply ecological principles to shape economic policy. Particular emphasis will be on wetland habitats and agroecosystems.

570. Communicating Environmental Information. 3 credits. Prerequisite: Consent of instructor. The focus of this class is on communication of scientific information to non-science audiences. Students will 1) probe the role of communication in the public perceptions of environmental issues, 2) examine the effectiveness of different tools in raising environmental awareness, 3) explore the barriers that hinder effective communication and subsequent motivation to action, and 4) profile a variety of environmental outreach activities. Ways to convert polarization among differing parties into consensus by communicating accurate, timely information will be explored.

590. Colloquium Series. 1 credit. Speaker series, approximately weekly, on timely topics and research. An emphasis will be to hear from outside speakers. Speakers may occasionally deliver presentations electronically. Graduate students in ESSP are expected to attend.

594. Directed Study. 1-15 credits. Prerequisite: Permission of an ESSP faculty member who agrees to serve as supervisor. Directed reading or investigations tailored to the needs of individual students for advanced knowledge in specific areas. Typically requires weekly meetings with the assigned faculty member. Usually culminates in a paper on the specific topical area. Doctoral candidates may repeat once.

596. Doctoral Research. 1-15 credits. Prerequisite: Graduate standing in ESSP; or consent of instructor. Arranged with student’s advisory committee. May be repeated for credit.

597. Internship. 3-9 credits. Prerequisite: Graduate standing in ESSP. Practical experience for ESSP students in a professional environment.

599. Special Topics. 1-6 credits. Prerequisite: Graduate standing in ESSP; or consent of instructor. Topics of current interest. May be provided by program or visiting ESSP faculty. May be repeated for credit.

Graduate programs in Education are housed in three departments of the College of Education and Human Development. Faculty in the Departments of Educational Foundations and Research, Educational Leadership, and Teaching and Learning work closely together in design and delivery of the graduate programs described in this section. The department chairs and program coordinators are listed below.

**Department Chairpersons**

**Educational Foundations and Research**
- K. Gershman
- M. Healy

**Program Coordinators**

**Early Childhood Education**
- G. Olsen
- M. Healy

**Elementary Education**
- B. Gourneau

**Special Education**
- S. Barrentine
- L. Chalmers

**Teaching and Learning Doctoral Program**
- C. Shabb

Graduate programs in education at UND are accredited by the National Council for the Accreditation of Teacher Education (NCATE).
Design of Graduate Programs: Critical Inquiry

The College of Education and Human Development admits to advanced programs for educators students who are self-directed learners with considerable experience in the practice of education. Viewing knowledge as holistic, interconnected, and never fully defined, we encourage students to define their own programs of study within the framework of critical inquiry.

Critical inquiry begins as students, individually or in groups, identify and seek resolution to problems in education. Students engaged in critical inquiry observe and try to understand differences in proposed resolutions to problems; explore problem situations and the consequences of various resolutions; seek further definition of issues through reading, interaction, research, and creative activity; and further professional abilities consistent with their own understandings of directions for policy and practice in education. Foundational studies in education and the study of research methodologies contribute to student’s ability to engage in critical inquiry.

For a complete picture of each degree program, the student is advised to read sections discussing the requirements of the Graduate School referenced in the paragraphs above, the requirements of the Education faculty in the following section, the pages devoted to discussion of each of the programs offered, and the graduate handbooks available from the dean of the College of Education and Human Development and/or the department.

Admissions Process

Success in the graduate study of education is related to qualities of mind, motivation, literacy, and experience. Among the qualities of mind sought in candidates for admission to Education programs are creativity, intelligence, independence of thought, willingness to take risks, openness to new ideas, openness to diversity, and flexibility of thought. Motivation is demonstrated by commitment to learners of all ages, professional growth, self-direction, and commitment to academic study leading to a graduate degree. Literacy is the ability to communicate effectively both orally and in writing. Experience may be demonstrated by diverse activities including work with children or adults in a variety of settings, foreign or domestic travel, and a liberal education. Each student brings a different mix of characteristics and strengths to graduate study.

Within the catalog, each graduate program lists specific admission requirements. Consult the website for up-to-date admissions processes for each program.

Scholarly Tools

The scholarly tool requirement for the M.S., Ed.D., and Ph.D. degrees is an integral part of the graduate degree program. Since the purpose of the scholarly tool requirement in graduate study is to enable the student to read, understand and conduct research, the tools are to be directly related to the research interests of each graduate student. Achievement levels will be demonstrated by satisfactory completion of coursework in the appropriate scholarly tool area(s) or by a proficiency examination. A minimum of five semester credits in appropriate coursework for the M.S. degree is required.

There is no scholarly tool requirement for the M.Ed. or Ed.S. degrees. For the Ph.D., the minimum scholarly tool requirements of 12 credits may be met by one of the following options:

Option 1: Qualitative emphasis option: EFR 510 Qualitative Research Methods (3 semester credits), EFR 520 Advanced Qualitative Research Methods (3 semester credits), and EFR 516 Statistics II (3 semester credits) or their equivalents, plus 3 credits of approved electives.

Option 2: Quantitative emphasis option: EFR 510 Qualitative Research Methods (3 semester credits), EFR 516 Statistics II (3 semester credits), and one of the following: EFR 517 Advanced Research Methodologies (3 semester credits), EFR 518 Multivariate Analysis (3 semester credits), EFR 519 Research Seminar-Experimental Design (3 semester credits) or their equivalents, plus 3 credits of approved electives.

Option 3: Qualitative emphasis option: EFR 511 Curriculum Evaluation (3 semester credits), EFR 512 Educational Tests & Measurements (3 semester credits), EFR 516 Statistics II (3 semester credits), and EFR 517 Advanced Research Methodologies (3 semester credits) or their equivalents.

The student’s advisory committee may approve an exception to these three specializations upon consultation with the research faculty. An appropriate exception would be a different sequence of studies that assures breadth and depth in the research process that is related to both the student’s career goals in research and in regard to the student’s research.

For the Ed.D., the minimum scholarly tool requirements of six credits may be met by one of the following options:
Option 1: Qualitative emphasis option: EFR 510 Qualitative Research methods (3 semester credits), EFR 520 Advanced Qualitative Research Methodologies (3 semester credits) or their equivalents.

Option 2: Quantitative emphasis option: EFR 516 Statistics II (3 semester credits), and one of the following: EFR 517 Advanced Research Methodologies (3 semester credits), EFR 518 Multivariate Analysis (3 semester credits), EFR 519 Research Seminar-Experimental Design (3 semester credits) or their equivalents.

Option 3: Tests and measurements option: EFR 511 Curriculum Evaluation (3 semester credits), EFR 512 Educational Tests & Measurements (3 semester credits) or their equivalents.

The student’s advisory committee may approve an exception to these three specializations upon consultation with the research faculty. An appropriate exception would be a different sequence of studies that assures breadth and depth in the research process that is related to both the student’s career goals in research and to the student’s research.

Thesis and Independent Study Reports
All master’s degrees and the Ed.S. culminate in a final paper or project. The thesis in the Master of Science degree earns four to six credits. Both the Master of Education and the Master of Science (non-thesis) degrees require a two-credit independent study or Final Project instead of a thesis. The independent study requirement may be met by completing a formal master’s paper. The Final Project requirement is met by completing a project that demonstrates critical analysis of a topic in a scholarly way and integrates information and experiences gained throughout the program of study. All theses, independent studies, or final projects must be based on an approved proposal. Note that the Department of Educational Leadership may have requirements that differ from those noted above.

Comprehensive Examinations
Master’s and Specialist Diploma students in the Department of Educational Leadership take comprehensive examinations in the semester during which graduation is expected. Candidates take comprehensive examinations after making formal application to receive the Master’s or Specialist’s degree and having been notified of eligibility in writing by the Graduate School. Students enrolled in the following master’s programs complete a Final Project in lieu of comprehensive exams: Early Childhood Education, Elementary Education, General Studies, Reading Education, and Special Education.

Courses (EFR)

500. Foundations of Educational Thought. 3 credits. A problem-centered class dialogue on those philosophical, social, political and historical concepts of educational thought that have shaped the development of the learning experience.

501. Psychological Foundations of Education. 3 credits. Prerequisite: EFR 500 or permission of the instructor. A study of the learning process with secondary emphasis on how the learning process is affected by individual differences, growth and development, and personality. A background in undergraduate Educational Psychology is assumed. Both theories of learning and theories of instruction are considered.

502. Issues and Trends in Education. 3 credits. Prerequisite: EFR 500 or permission of the instructor. Examination of contemporary issues of education and some of the political, social, and historical foundations which influence their development.

503. Historical Foundations of Education. 3 credits. Prerequisite: EFR 500 or permission of the instructor. An historical examination of the concepts of the meaning, nature, process, and purposes of education as evolved in different historical periods and social contexts with emphasis on the learners, ideas and changing institutions.

504. Philosophical Foundations of Education. 3 credits. Prerequisite: EFR 500 or permission of the instructor. A study of the representative schools of thought which have structured major philosophies of education.

505. Social Foundations of Education. 3 credits. Prerequisite: EFR 500 or permission of the instructor. The study of schools and education in social contexts such as community, polity, equity, race, class, gender, and social reproduction.

506. Multicultural Education. 3 credits. Prerequisite: EFR 500 or permission of the instructor. A review of the conceptual, historical and theoretical aspects of multicultural education. A major goal will be to provide educators with processes for incorporating multicultural education into educational environments; to meet the needs of culturally diverse students and to increase the cultural awareness and sensitivity of all students. North Dakota/Native American issues are primary elements of this course.

507. Gender and Education. 3 credits. Prerequisite: EFR 500 or permission of the instructor. A critical feminist analysis of the history, philosophy, theory, curriculum, and practice of education. The roles of educators, students, society, biology, and policy are considered in the schooling of females and males.

508. Anthropological Foundations of Education. 3 credits. Prerequisite: EFR 500 or permission of the instructor. Students will examine the convergence of anthropology and education through an analysis of education as cultural transmission and a review of enculturation and acculturation processes in traditional and modern societies.

509. Introduction to Educational Research. 3 credits. An introduction to the research methodologies used to study education. The course covers quantitative as well as qualitative types of research. The paradigms of both types of research will be contrasted and the application of the methodologies in actual research investigated.

510. Qualitative Research Methods. 3 credits. Qualitative research methods are naturalistic and contextual. The methodology derives from Anthropology and other social sciences, and seeks to understand human behavior from the actors’ perspective. Students are to learn the fundamental data collection methods: observation, participant observation, and interviewing, as well as data analysis through coding and categorizing.

511. Curriculum and Program Evaluation. 3 credits. A study of the theoretical models of curriculum and program evaluation theory. Emphasis on the analysis of models for implementation and application in various educational and professional settings.

512. Educational Tests and Measurements. 3 credits. Prerequisite: EFR 515 or consent of the instructor. Application and integration of measurement theory in a research framework; evaluation of cognitive and affective scales with emphasis on the statistical and psychometric properties of the scales.

513. Computer Applications in Educational Statistics. 3 credits. Prerequisites: EFR 515 (or concurrent) or consent of the instructor. A study of computer applications in educational statistics, usually involving relatively large data sets using SPSS and/or SAS.

515. Statistics I. 3 credits. An introduction to basic statistical methods, focusing primarily on descriptive statistics and inferential statistics up to and including two-way analysis of variance.

516. Statistics II. 3 credits. An in-depth study of inferential statistics with primary emphasis on analysis of variance models, multiple regression techniques, analysis of covariance and other higher-order statistical procedures.

517. Advanced Research Methodologies. 3 credits. Both quantitative and qualitative aspects of research are considered for a variety of topics, including ethics in research, use of data banks, Q-methodology, survey research, Bayesian concepts, critical theory, longitudinal research and research consultation. Comprehensive examinations in educational research are addressed. This is a capstone course in educational research. Previous or concurrent involvement in research is highly desirable. Available for doctoral level students only.

518. Multivariate Analysis. 3 credits. Multiple regression in generalized problem solving; discriminant analysis, factor analysis, multivariate analysis, canonical analysis, and multivariate analysis of covariance. Students are encouraged to analyze their own data including student-generated computer applications.

519. Research Seminar. 1 to 4 credits. Experimental Design—An in-depth treatment of analysis of variance designs including factorial designs, treatment by subjects designs, repeated measures within treatment designs, Latin squares, higher dimensional designs, mixed effect designs, analysis of covariance, and trend analysis. Emphasis is placed on underlying linear models. Other seminars are held on specific research topics, particularly research proposals. May be repeated.
520. Advanced Qualitative Research Methods. 3 credits. Prerequisite: EFR 510 or consent of instructor. Advanced Qualitative Research Methods will engage students in more in-depth and complex theoretical and practical issues associated with the methodology. Students will conduct mini-research studies and examine qualitative studies conducted by others. Knowledge about IRB requirements will also be addressed.

521. Seminar in Foundations of Education. 1 to 4 credits. Advanced consideration of selected topics in Foundations of Education. May be repeated for credit with change of topic.

584. Internship in Educational Research. 1 to 8 credits. Prerequisites: Appropriate coursework in educational research and consent of the adviser and department chair. Practical experience in the conduct of educational research, analyzing data, and writing reports. Available for doctoral level students only. May be repeated.

590. Special Topics in Education. 1 to 4 credits. Prerequisite: Consent of instructor or advisor. Exploration of special topics in the study of education not regularly included in available course offerings. May be repeated for different topics.

591. Readings in Education. 1 to 4 credits. Prerequisites: Consent of advisor and instructor. Designed primarily for advanced graduate students. May be repeated for different topics.

592. Individual Research in Education. 1 to 4 credits. Prerequisites: Consent of advisor and instructor. May be repeated.

997. Independent Study. 1 to 4 credits. Consent of instructor. May be repeated.

999. Dissertation.

Department of Educational Leadership
http://www.und.nodak.edu/dept/edl/degrees.html

FACULTY: Healy (Chair and Graduate Program Director), Hjelmstad, Houdek, Kallio, Rice, Schnellert and Sun

DEGREES GRANTED: Master of Science, Master of Education, Doctor of Education, Doctor of Philosophy and Specialist Diploma

PROGRAM DESCRIPTION

The Department of Educational Leadership prides itself on being a leader in the field with an internationally recognized academic program that combines theory and practice to provide a scholar-practitioner educational model. Our innovative and responsive curriculum fosters intellectual vitality and facilitates the development of our world-class students and faculty.

The academic experience is designed to provide our students with an understanding of basic concepts and advanced knowledge of educational leadership. The academic offerings apply to leadership positions in the elementary, middle, secondary, and higher education levels as well as for the non-profit sector.

The Department of Educational Leadership offers five degree options: M.Ed., M.S., Specialist Diploma, Ed.D., and Ph.D. Approximately 150 students are enrolled in the department with varied backgrounds and experiences to enhance the peer learning and engage forward thinking.

MASTER OF EDUCATION

The M.Ed. program in Educational Leadership is designed for students whose goals are to obtain positions as administrators in K-12 education.

Mission Statement and Program Goals

The M.Ed. program in Educational Leadership is designed to prepare students for administrative positions in either elementary, middle school or secondary schools. Upon completion of the M.Ed. degree, a student will have completed the academic requirements for the North Dakota principal credential at either the elementary or secondary level. Applicants for the M.Ed. must be licensed to teach and it is recommended they have a minimum of three years of teaching experience.

Goal 1: Candidates demonstrate an understanding of how students develop and learn with respect to individual, contextual and cultural differences, and an ability to take account of these differences in their practice.

Goal 2: Candidates demonstrate an ability to be effective communicators both orally and in writing.

Goal 3: Candidates demonstrate an understanding of the subjects they teach (content knowledge).

Goal 4: Candidates demonstrate ability to teach their subject areas (pedagogical knowledge) to students.

Goal 5: Candidates demonstrate an ability to create, enrich, maintain and alter instructional settings to capture and sustain the interest of their students and to make the most effective use of time.

Goal 6: Candidates demonstrate an ability to assess the progress of students through multiple methods, adjust practice to meet students’ assessed needs and clearly explain student performance to parents, appropriate school personnel and administrators.

Goal 7: Candidates research and reflect systematically about their practice and so deepen their knowledge and adapt and strengthen their practice.

Goal 8: Candidates demonstrate ability to collaborate with others as members of learning communities who can contribute to the effectiveness of the school.

Admission Requirements

1. A bachelor’s degree from an accredited college or university.

2. A cumulative undergraduate GPA of 2.75 or at least 3.00 for the last two years. Typically, teaching experience in schools is required.

3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

5. All applicants are required to respond to essay questions provided in the application.

6. All applicants are required to submit a resume and writing sample.

Degree Requirements

1. 34 semester credits, at or above the 500 level.

2. At least 12 credits, including 2 for the Independent Study (997), must be in a single field or an area of concentration.

3. At least 6 credits must be in an area or areas of concentration (major).

4. At least 6 credits must be in the Education Foundation and Research.

5. A maximum of one fourth of the credit hours required for the degree may be transferred from another institution.

6. Preparation of a written independent study approved by the faculty advisor.
M.Ed. Degree (P-12 emphasis)

Required Courses:

1. EDL 501 ... Leadership and Organizational Behavior ........................................ (3)
2. EDL 503 ... Seminar: Orientation ............................................................................ (1)
3. EDL 513 ... Effective Administrative Communications ........................................... (3)
4. EDL 513 ... Leading Curriculum and Learning ......................................................... (3)
5. EDL 514 ... Supervision and Staff Development ....................................................... (3)
6. EDL 515 ... Education Law and Ethics ...................................................................... (3)
7. EDL 516 ... Education Finance and Policy ................................................................. (2)
8. EDL 519 ... Principalship .......................................................................................... (3)

Take one of the following:

1. EDL 520 ... Middle School Principalship Field Study .............................................. (1)
2. EDL 521 ... Elementary School Principalship Field Study ........................................ (1)
3. EDL 522 ... Secondary School Principalship Field Study ......................................... (1)

Take one of the following:

1. EDL 535 ... Administration of Elementary Curriculum ............................................. (1)
2. EDL 536 ... Administration of Middle School Curriculum ........................................ (1)
3. EDL 537 ... Administration of Secondary Curriculum ............................................... (1)
4. EDL 997 ... Independent Study .................................................................................. (2)

Research and Foundations/Cognate:

1. EFR 500 ... Foundations of Educational Thought ....................................................... (3)
2. EFR 509 ... Introduction to Educational Research ........................................................ (3)
3. Electives ..................................................................................................................... (3)

Total for Degree 34 credits

MASTER OF SCIENCE

Mission Statement and Program Goals

The M.S. program in Educational Leadership is designed for students whose goals are to obtain positions as administrators in higher education. Students who are interested in a career in higher education administration or other education-related areas are encouraged to apply for the M.S. degree program. Upon completion of the M.S. degree, students are better prepared for entry level and mid-management positions in educational institutions and agencies. Students who are interested in a career at the K-12 level and do not meet the requirements for admission to the M.Ed. may elect to earn an M.S. degree (P-12 emphasis).

Goal 1: Candidates demonstrate an understanding of how students develop and learn with respect to individual, contextual and cultural differences, and an ability to take account of these differences in their practice.

Goal 2: Candidates demonstrate an ability to be effective communicators both orally and in writing.

Goal 3: Candidates demonstrate an ability to create, enrich, maintain and alter learning environments to capture and engage their students.

Goal 4: Candidates demonstrate an ability to assess the progress of students through multiple methods, adjust practice to meet students’ assessed needs and clearly explain student performance.

Goal 5: Candidates research and reflect systematically about their practice and so deepen their knowledge and adapt and strengthen their practice.

Goal 6: Candidates demonstrate ability to collaborate with others as members of learning communities who can contribute to the effectiveness of the college or university.

Admission Requirements

1. A bachelor’s degree from an accredited college or university.
2. A cumulative undergraduate GPA of 2.75 or at least 3.00 for the last two years. Typically, applicants with teaching experience in schools apply to the M.Ed. program, not to the M.S. program.
3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

5. All applicants are required to respond to essay questions provided in the application, submit a resume and a writing sample.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Educational Leadership Department.

1. Thirty-four (34) credits including credits required for the major.
2. A minimum of two credits of Independent Study
3. At least one-half of the credits must be at or above the 500-level.
4. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
5. Preparation of a written capstone project approved by the faculty advisor.
6. Comprehensive final examination.

M.S. Degree (Higher Education Emphasis)

Required Courses:

1. EDL 501 ... Leadership and Organizational Behavior ............................................ (3)
2. EDL 503 ... Seminar: Orientation ............................................................................. (1)
3. EDL 513 ... Effective Administrative Communications ........................................... (3)
4. EDL 513 ... Leading Curriculum and Learning ......................................................... (3)
5. EDL 514 ... Supervision and Staff Development ....................................................... (3)
6. EDL 515 ... Education Law and Ethics ...................................................................... (3)
7. EDL 516 ... Education Finance and Policy ................................................................. (2)
8. EDL 519 ... Principalship .......................................................................................... (3)
9. EDL 535 ... Administration of Elementary Curriculum ............................................. (1)
10. EDL 536 ... Administration of Middle School Curriculum ....................................... (1)
11. EDL 537 ... Administration of Secondary Curriculum ............................................... (1)
12. EDL 556 ... College Students and the Law ............................................................... (3)
13. EDL 559 ... Management of Higher Education ........................................................ (3)
14. EDL 566 ... College Students and the Law ............................................................... (3)
15. EDL 593 ... Internship .............................................................................................. (3)
16. EDL 997 ... Independent Study ................................................................................ (2)
17. T&L 541 ... History of Higher Education in the U.S. .................................................. (3)

Research and Foundations/Cognate:

1. EFR 500 ... Foundations of Educational Thought ....................................................... (3)
2. EFR 509 ... Introduction to Educational Research ........................................................ (3)
3. Electives ..................................................................................................................... (3)

Total for Degree 34 credits

M.S. Degree (P-12 Emphasis)

Required Courses:

1. EDL 501 ... Leadership and Organizational Behavior ............................................ (3)
2. EDL 503 ... Seminar: Orientation ............................................................................. (1)
3. EDL 513 ... Leading Curriculum and Learning ......................................................... (3)
4. EDL 514 ... Supervision and Staff Development ....................................................... (3)
5. EDL 515 ... Education Law and Ethics ...................................................................... (3)
6. EDL 516 ... Education Finance and Policy ................................................................. (2)
7. EDL 535 ... Administration of Elementary Curriculum ............................................. (1)
8. EDL 536 ... Administration of Middle School Curriculum ....................................... (1)
9. EDL 537 ... Administration of Secondary Curriculum ............................................... (1)
10. EDL 556 ... College Students and the Law ............................................................... (3)
11. EDL 593 ... Internship .............................................................................................. (3)
12. EDL 997 ... Independent Study ................................................................................ (2)

Research and Foundations/Cognate:

1. EFR 500 ... Foundations of Educational Thought ....................................................... (3)
2. EFR 509 ... Introduction to Educational Research ........................................................ (3)
3. Electives ..................................................................................................................... (3)

Total for Degree 34 credits
DOCTOR OF EDUCATION

Mission Statement and Program Goals

It is the mission of the Educational Leadership Doctoral Program to prepare persons for leadership and teaching positions in schools, colleges or universities, and public or private agencies. The following four goals apply to all areas of emphasis within the program K-12 education and higher education.

**Goal 1:** The student will demonstrate knowledge of how personal educational practice guides and supports the learning of others.

**Goal 2:** The student will demonstrate the ability to apply research and research methods relevant to the field of study.

**Goal 3:** The student will demonstrate knowledge and application of educational practices related to the foundations (personal, historical, philosophical, sociological, anthropological, psychological, and multicultural) for learning and teaching.

**Goal 4:** The student will demonstrate knowledge and skills in understanding ways of engaging learners in the active construction of knowledge relevant to the advanced discipline of study.

Admission Requirements

The following criteria will be used to assess a student’s application for admission into the doctoral programs in the Department of Educational Leadership. No single criterion can adequately predict a student’s probable success in graduate work; as such, candidates for admission to the masters programs are evaluated on the following criteria:

1. A bachelor’s degree from an accredited college or university.
2. Completion of a master’s degree from an accredited college or university.
3. Grade point average from all previous graduate work (minimum of 3.5 required).
4. Professional resume.
5. Educational leadership essay.
6. Statement of professional goals.
7. Writing sample.
8. Three (3) letters of recommendation.
9. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
10. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Degree Requirements

Students seeking the Doctor of Education degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Educational Leadership Department.

The Ed.D. program in Educational Leadership is designed primarily for practitioners preparing for school administration positions including elementary or secondary principalships, superintendencies, curriculum directorships, or other school district central office positions. Upon completion of the Ed.D. degree, a student generally will have completed the requirements for an administrative credential including those required for the position of school superintendent in North Dakota.

1. A minimum of 96 semester credit hours of course work beyond the bachelor’s degree.
2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.
3. Completion of a dissertation, which incorporates independent work that is an original contribution to knowledge.
4. With approval of a student’s Faculty Advisory Committee, 30 credits from a master’s degree may be transferred from another institution.
5. Successful completion of comprehensive examinations in Educational Leadership and Educational Foundations and Research.
6. Successful completion of a final examination.

Educational Administration Core Courses (14 credits):

- EDL 501: Leadership, Planning and Organizational Behavior (3 cr)
- EDL 513: Leading Curriculum and Learning Theory (4 cr)
- EDL 514: Personnel, Supervision & Staff Development (3 cr)
- EDL 515: Education Law and Ethics (3 cr)
- EDL 516: Education Finance and Policy (2 cr)

Doctoral Core Courses (17 credits):

- EDL 503: Seminar in Educational Leadership: Residency (2 cr)
- EDL 572: Educational Systems and Planning (2 cr)
- EDL 573: Administration & Organizational Behavior (3 cr)
- EDL 575: Education and Public Policy (3 cr)
- EDL 579: Special Topics

Educational Leadership K-12 (15 credits):

- EDL 523: The Educational Plant (2 cr)
- EDL 524: Educational and Personnel Administration (2 cr)
- EDL 526: Educational Finance (2 cr)
- EDL 527: Legal Issues in Education (3 cr)
- EDL 531: School District Leadership (2 cr)
- EDL 532: Staff and Program Evaluation (2 cr)
- EDL 571: School Community Relations (2 cr)

Higher Education (21 credits):

- EDL 532: Staff and Program Evaluation (2 cr)
- EDL 541: Intro. to Higher Ed. Admin. (3 cr)
- EDL 542: Higher Ed. Curriculum (2 cr)
- EDL 551: Academic Administration (3 cr)
- EDL 552: Higher Education Law (2 cr)
- EDL 553: Higher Education Policy and Finance (2 cr)
- EDL 554: Student and Support Services (2 cr)
- EDL 571: School Community Relations (2 cr)
- T&L 541: History of Higher Ed. in the U.S. (3 cr)

As appropriate, elective courses are selected from one of the following areas of emphasis to fulfill individual needs and goals in consultation with a student’s Advisory Committee. A minimum of 30 credits of Educational Leadership courses is required. A concentration of 48 credits in the major is required (including Educational Leadership courses, scholarly tools and dissertation).
- Curriculum and Instruction
- Leadership and General Administration
- Management of Resources

**Foundations of Education (12 credits):**
- EFR 500 Foundations of Educational Thought (3 cr) OR
- EFR 501-508 (8-9 cr)

**Cognate Area(s) (12-24 credits):**
One or two cognate areas outside Educational Administration and often outside the field of Education to support the area of emphasis.

**Scholarly Tools (6 credits):**
Six credits must be selected from approved courses that provide the scholarly tools to support educational research. EFR 515 Statistics I (or its equivalent) may not be used to fulfill Scholarly Tools.

**Internship (1-8 credits):**
EDL 593 (not required but often advisable, depending upon student experience and these credits are reported in your major.)

**Dissertation (10 credits):** EDL 999

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**DOCTOR OF PHILOSOPHY**

**Mission Statement and Program Goals**

It is the mission of the Educational Leadership Doctoral Program to prepare persons for leadership and teaching positions in schools, colleges or universities, and public or private agencies. The following four goals apply to all areas of emphasis within the program K-12 education or higher education.

**Goal 1:** The student will demonstrate knowledge of how personal educational practice guides and supports the learning of others.

**Goal 2:** The student will demonstrate the ability to apply research and research methods relevant to the field of study.

**Goal 3:** The student will demonstrate knowledge and application of educational practices related to the foundations (personal, historical, philosophical, sociological, anthropological, psychological, and multicultural) for learning and teaching.

**Goal 4:** The student will demonstrate knowledge and skills in understanding ways of engaging learners in the active construction of knowledge relevant to the advanced discipline of study.

**Admission Requirements**

The following criteria will be used to assess a student’s application for admission into the doctoral programs in the Department of Educational Leadership. No single criterion can adequately predict a student’s probable success in graduate work; as such, candidates for admission to the masters programs are evaluated on the following criteria:

1. Completion of a master’s degree from an accredited college or university
2. Grade point average from all previous graduate work (minimum of 3.5 required)
3. Professional resume
4. Educational leadership essay
5. Statement of professional goals
6. Writing sample
7. Three (3) letters of recommendation
8. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IETFs scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

9. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

**Degree Requirements**

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Educational Leadership Department.

The Ph.D. program in Educational Leadership is designed for students preparing for positions in which research and creative experience are predominant interests. Ph.D. candidates are expected to have undertaken and completed independent research leading to an original contribution of knowledge in the field. It is generally expected that the Ph.D. dissertation will be publishable. This degree option typically provides preparation for those who aspire to leadership positions in higher education, in government agencies, or in other educational policy organizations.

1. A minimum of 90 semester credit hours of course work beyond the bachelor’s degree.
2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.
3. Completion of a dissertation, which incorporates independent work that is an original contribution to knowledge.
4. With approval of a student’s Faculty Advisory Committee, 30 credits from a master’s degree may be transferred from another institution.
5. Successful completion of comprehensive examinations in Educational Leadership and Educational Foundations and Research.
6. Successful completion of a final examination.

**Educational Administration Core Courses (14 credits):**

If the Master’s degree or Specialist Diploma did not include the following courses or their equivalent, the following courses must be completed as soon as possible after admission to the Ph.D. program.

For K-12 emphasis:
- EDL 501: Leadership, Planning and Organizational Behavior (3 cr)
- EDL 513: Leading Curriculum and Learning (4 cr)
- EDL 514: Personnel, Supervision and Staff Development (4 cr)
- EDL 515: Ed. Law and the Org. Structure of Schools (3 cr)
- EDL 516: Policy and Educational Finance (2 cr)

**Doctoral Core Courses (17 credits):**
- EDL 503: Seminar in Educational Leadership: Residency (2 cr)
- EDL 572: Educational Systems and Planning (2 cr)
- EDL 573: Administrative & Organizational Behavior (3 cr)
- EDL 575: Education and Public policy (3 cr)
- EDL 571: School Community Relations (2 cr)
- EDL 572: Educational Systems and Planning (2 cr)
- EDL 579: Special Topics
FOR THE Ed.S. DIPLOMA. THE Ed.S. MUST INCLUDE WORK BEYOND THE BACHELOR’S DEGREE IS REQUIRED.

North Dakota.

Upon completion of the Specialist Diploma, a student generally will have completed the requirements for an administrative credential in administrative positions. This course of study is usually considered to be a terminal program of advanced preparation for professional practice. As appropriate, elective courses are selected from one of the following areas to fulfill individual needs and goals in consultation with the Advisory Committee.

- A minimum of 30 credits of Educational Leadership courses is required.
- A concentration of 48 credits in the major (including Foundations and Educational Leadership courses, scholarly tool courses, and a dissertation) is required.

EDUCATIONAL LEADERSHIP K-12 (15 credits):
- EDL 523: The Educational Plant (2 cr)
- EDL 524: Educational and Personnel Administration (2 cr)
- EDL 526: Educational Finance (2 cr)
- EDL 527: Legal Issues in Education (3 cr)
- EDL 531: School District Leadership (2 cr)
- EDL 532: Staff and Program Evaluation (2 cr)
- EDL 571: School Community Relations (2 cr)
- EDL 572: Educational Systems and Planning (2 cr)

HIGHER EDUCATION (19 credits):
- EDL 532: Staff and Program Evaluation (2 cr)
- EDL 541: Intro. to Higher Ed. Admin. (3 cr)
- EDL 542: Higher Ed. Curriculum (2 cr)
- EDL 551: Academic Administration (3 cr)
- EDL 552: Higher Education Law (2 cr)
- EDL 553: Higher Education Policy and Finance (2 cr)
- EDL 554: Student and Support Services (2 cr)
- T&L 541: History of Higher Ed. in the U.S. (3 cr)

As appropriate, elective courses are selected from one of the following areas to fulfill individual needs and goals in consultation with the Advisory Committee.

- Curriculum and Instruction
- Leadership and General Administration
- Management of Resources

EDUCATIONAL LEADERSHIP courses include practicum in each class. These required courses include practicum in each class.

EDUCATIONAL LEADERSHIP DIPLOMA:

A minimum of 54 semester hours of coursework beyond the bachelor’s degree is required for the Ed.S. diploma. The Ed.S. must include approximately 30 credits beyond the masters degree.

SPECIALIST DIPLOMA

The Specialist Diploma, available at UND only in Educational Leadership, is designed for students preparing for school administrative positions. This course of study is usually considered to be a terminal program of advanced preparation for professional practice. Upon completion of the Specialist Diploma, a student generally will have completed the requirements for an administrative credential including those required for the position of school superintendent in North Dakota.

A MINIMUM OF 64 SEMESTER HOURS OF COURSE WORK BEYOND THE BACHELOR’S DEGREE IS REQUIRED FOR THE Ed.S. DIPLOMA. THE Ed.S. MUST INCLUDE APPROXIMATELY 30 CREDITS BEYOND THE MASTERS DEGREE.

Required Courses in General and Building Level Administration (19 credits):
- EDL 501: Leadership, Planning and Organizational Behavior (3 cr)
- EDL 503: Seminar in Educational Administration: Current Issues (1 cr)
- EDL 512: Leading Curriculum and Learning (4 cr)
- EDL 514: Personnel, Supervision and Staff Development (4 cr)
- EDL 515: Education Law and the Organizational Structure of Schools (3 cr)
- EDL 516: Policy and Educational Finance (2 cr)
- EDL 519: Principalship (2 cr) and EDL 520, 521 or 522
- EDL 531: Administration of Elementary School Curriculum (3 cr)
- EDL 536: Administration of Middle School Curriculum (3 cr)
- EDL 537: Administration of Secondary School Curriculum (3 cr)
- EDL 997: Independent Study

Required Courses in District-Level Administration (8 credits) with a masters in administration:
- EDL 523: The Educational Plant (2 cr)
- EDL 524: Educational Personnel Administration (2 cr)
- EDL 526: Educational Finance (2 cr)
- EDL 527: Legal Issues in Education (3 cr)
- EDL 571: School Community Relations (2 cr)
- EDL 999A

As appropriate, elective courses are selected from one of the following areas to fulfill individual needs and goals in consultation with the Advisory Committee. A minimum of 20 credits of Educational Leadership courses is required. A concentration of 40 credits in the major (including Foundations and Educational Leadership courses and an Independent Study) is required.

- Curriculum and Instruction
- Leadership and General Administration
- Management of Resources

Required Courses in District-Level Administration (8 credits) with a masters in administration:
- EDL 523: The Educational Plant (2 cr)
- EDL 524: Educational Personnel Administration (2 cr)
- EDL 526: Educational Finance (2 cr)
- EDL 527: Legal Issues in Education (3 cr)
- EDL 571: School Community Relations (2 cr)
- EDL 997: Independent Study

Cognate Area(s) (12-24 credits):
- One or two cognate areas or one minor area outside Educational Administration and often outside the field of Education to support the area of emphasis.

Scholarly Tools (9 credits):
- Nine credits must be selected from approved courses that provide the scholarly tools to support educational research. EFR 515 Statistics I, may not be used to fulfill Scholarly Tools.

EDL 593 is not required but is often advisable, depending upon student experience and goals in your major.

EDL 597: Independent Study

These required courses include practicum in each class.

Required Courses in District-Level Administration (8 credits) with a masters in administration:
- EDL 523: The Educational Plant (2 cr)
- EDL 524: Educational Personnel Administration (2 cr)
- EDL 526: Educational Finance (2 cr)
- EDL 527: Legal Issues in Education (3 cr)
- EDL 571: School Community Relations (2 cr)
- EDL 997: Independent Study

Cognate Area(s) (12-24 credits):
- A minimum of 12 credits (to a maximum of 24 credits) of course work must be in one or two cognate areas outside Educational Leadership, and may be outside the field of education. The cognate area(s) serve to support the area of emphasis.

Research Methods (3 credits):
- Must be selected from approved courses that provide the scholarly tools to support research.

EDL 593 is not required but is often advisable, depending upon student experience and goals.

EDL 997: Independent Study

Courses (EdL)

- S 501, Leadership and Organizational Behavior. 3 credits. This course provides school leaders with preparation in skills for providing purpose and direction for individuals and groups, shaping school culture and value, facilitating the development of shared strategic vision for the school, formulating goals and planning change efforts with staff, and setting priorities for one’s school in the context of community and district priorities for student and staff needs.
502. Technology and Information Systems. 2 credits. This course provides an understanding of computer application to administration and management. Emphasis is on practical application, and the focus of instruction is to have educational leaders use the computer as a decision-making and planning tool for communicating information functions of administration at the building and district levels.

503. Seminar in Educational Leadership. 1 to 4 credits. S/U grading only.

510. Effective Administrative Communications. 3 credits. This course prepares aspiring school leaders to plan for their personal and professional development; understand and use the principles of interpersonal, oral, and written communication. Emphasis is on written expression; word processing, creating, using, and adapting forms; creating and managing a file system; and understanding writing research, preparation, and presentation.

511. Financial Management of the School. 3 credits. This course provides school leaders with an understanding of how to determine what diagnostic information is needed about students, staff, and the school environment; examine the extent to which outcomes meet or exceed defined standards, goals, or priorities for individual students or groups; interpret school financial statements; and calculate and interpret financial ratios.

512. Research, Evaluation, and Program Evaluation. 3 credits. This course provides students with the opportunity to study the evaluation of school programs and curricula from the perspectives of program implementation, interpretation, and analysis. It covers various methods of data collection, and analysis, and uses examples from the education field.

513. Leading Curriculum and Learning. 3 credits. Corequisite: EDL 535, 536 or 537. This course provides school leaders the ability to understand major curriculum design models, interpret school district curricula, initiate need analyses, plan and implement with staff a framework for instruction, align curriculum with anticipated outcomes, monitor social and technological developments as they affect curriculum, and adjust curriculum as needs and conditions change.

514. Supervision and Staff Development. 3 credits. This course provides school leaders with preparation in skills for instructional improvement, working with faculty and staff to identify professional needs. Classes are designed for in-depth study and practice planning, implementing, and evaluating programs of inservice education. It covers effective methods and strategies associated with evaluation and effectiveness and are consistent with institutional goals and needs; supervising individuals and groups; providing feedback on performance; arranging for remedial assistance; engaging faculty and others to plan and participate in recruitment and development activities; providing feedback on performance; arranging for remedial assistance; engaging individuals in planning for personal and professional development.

515. Education Law and Ethics. 3 credits. This course is designed as a beginning law course for school administrators. In addition to the acquisition of legal knowledge as it relates to P-12 education, students are introduced to ethical perspectives that frequently influence the legal decision-making process.

516. Education Finance and Policy. 3 credits. Includes such topics as the organization of and responsibility for education in the United States at the federal, state, and local levels; basic administrative theories, processes, and techniques; and major areas of concern over the operations of local schools. The course includes an experiential learning assignment in which students complete a budget project.

517. Social, Cultural, Political, and Community Dimensions of Schools. 4 credits. This course provides school leaders with an understanding of the historical, philosophical, ethical, social, and economic influences affecting education to the degree that they can apply their understandings to professional decisions. Students are expected to apply political concepts and strategies and approaches to collaboration in involving the community in decision making, building community support for integrating health and social services in support of students, and developing community support for school priorities. Throughout the course, students’ work will be expected to manifest a sensitivity to issues of diversity in a pluralistic society.

519. Principalship. 2 credits. This course provides school leaders with an understanding of the role of the building principal along with skills and techniques associated with the principalship. The topics include the principal’s role in community and family relationships and collaboration, using community resources to support the academic and social needs of students and families, the development and application of policies and procedures, and the preparation and supervision of staff, planning and implementing curricular programs within the school, and the principal’s role in working with staff. Students must also enroll in a one-credit field-based experience (EDL 520, 521 or 522) appropriate for their desired level of preparation for the principalship.

520. Middle School Principal Field Study. 1 credit. Corequisite: EDL 519. This course provides a field-based experience in the role of the middle school principal.

521. Elementary Principal Field Study. 1 credit. Corequisite: EDL 519. This course provides a field-based experience in the role of the elementary school principal.

522. Secondary Principal Field Study. 1 credit. Corequisite: EDL 519. This course provides a field-based experience in the role of the secondary school principal.

523. The Educational Plant. 3 credits. The purpose of this course is to provide a study of the planning, construction, modification, and maintenance of school buildings and complimentary facilities such as playgrounds, athletic fields and facilities, drop-off zones, and parking lots. This course will include appraisal of school facilities and techniques for developing and using input from the community and building and program audits.

524. Educational Personnel Administration. 2 credits. Study of selection, assignment, evaluation, development, and release practices for certified and non-certified school personnel; salary and contract administration in schools.

525. Business Administration in Education. 3 credits. Study of the business function in educational organizations with emphasis on budget development and administration, accounting, purchasing, risk management, support services, and capital outlay.

527. Legal Issues in Education. 3 credits. Study of the legal issues affecting educational organizations with emphasis on state and federal relations. Topics include institutions, school boards and other governing bodies, contracts, teachers’ and students’ rights, and tort liability of educational organizations and their officers. Consideration is given to legal research and policy analysis.

529. Special Education Law. 3 credits. A course designed to give participants a working knowledge of the legislation, judicial, and administrative changes which have revamped the areas of teaching and administering special education since 1974. It will provide an overview of educational administration, including laws, court decisions, and regulations that affect special education, and will focus on topics including: student records, discipline, related services, due process, least restrictive environment, and appropriate education.

531. School District Leadership. 2 credits. A study of concerns and issues related to education and administrative practice at the district level, including relationships between the superintendent and the school board, community and school district staff.

532. Staff and Program Evaluation. 2 credits. A study of the evaluation of staff, including teachers, administrators, support personnel, and boards; and for purposes of accrediting and funding, the evaluation of components that support the curriculum. Procedures, processes, and instruments will be identified and analyzed.

533. Collective Negotiations. 2 credits. A study of the collective bargaining process in the field of education. Includes topics such as contract language, planning for negotiations, bargaining strategies and techniques, mediation, arbitration, contract maintenance, grievance procedures, and results of the negotiations.

535. Administration of Elementary School Curriculum. 3 credits. Prerequisite: EDL 513. Designed primarily for graduate students seeking positions as curriculum coordinators or administrative positions. A study of leadership skills for developing the administrator’s understanding of knowledge construction, adult learning, planning and implementing a framework for curriculum design and instruction, and the professional responsibility for assessing and implementing of an elementary curriculum. The course examines the current issues, trends, subject areas, student achievement, and challenges for the future of elementary curriculum. The student will research the current best practices for application of administrative skills in relationship to supervision of a comprehensive K-5 grade level curriculum and its impact on learners.

536. Middle School Curriculum Management and Practice. 3 credits. Prerequisite: EDL 513. Designed primarily for graduate students seeking positions as curriculum coordinators or administrative positions. A study of leadership skills for developing the administrator’s understanding of knowledge construction, adult learning, planning and implementing a framework for curriculum design and instruction, and the professional responsibility for assessing and implementing of the middle school level curriculum. The course examines the current issues, trends, subject areas, student achievement, and challenges for the future of middle school level curriculum. The student will research the current best practices for application of administrative skills in relationship to supervision of a comprehensive 6-8 grade level curriculum and its impact on learners.

537. Administration of Secondary School Curriculum. 3 credits. Prerequisite: EDL 513. Designed primarily for graduate students seeking positions as curriculum coordinators or administrative positions. A study of leadership skills for developing the administrator’s understanding of knowledge construction, adult learning, planning and implementing a framework for curriculum design and instruction, and the professional responsibility for assessing and implementing of secondary school curriculum. The course examines the current issues, trends, subject areas, student achievement, and challenges for the future of middle school level curriculum. The student will research the current best practices for application of administrative skills in relationship to supervision of a comprehensive 9-12 grade level curriculum and its impact on learners.

538. Auxiliary School Functions. 3 credits. Overview of school business and facilities management for educational administrators. Topics include: introduction to special area budgeting and accounting; insurance and risk management; forecasting; vendor relations; supervision of classified and support staff; management of support services, e.g., transportation, food service; facility operations and maintenance; and space utilization analysis, allocation; and cooperative community use of facilities.

541. Introduction to Higher Education Administration. 3 credits. An overview of administration of America’s colleges and universities. Topics include roles of state and federal government, governance boards, institutional organization and culture, types of institutions, faculty, students, research about higher education, and the profession of administrator.

542. Curriculum in Higher Education. 2 credits. A study of processes for planning, implementing, and evaluating curriculum within institutions of higher education. Topics will include historical perspectives on curriculum in higher education, governance systems related to curriculum development and adoption, and issues of current interest and concern.

546. The College Student. 3 credits. This course will examine the theoretical perspectives that describe students’ growth throughout the late adolescent and adult life span. The course will look at theory in the areas of intellectual, moral, ego, psycho-social, career, and spiritual development. Further, the course will examine sources of identity including gender, race, culture, ethnicity, and sexual identity.

547. Collegiate Environments. 3 credits. The course will discuss how student characteristics influence student educational and development needs, and the effects of the campus and student environment on the college experience. Further, the course will examine collegiate environments and how students’ person-environment interactions affect their development.

548. Program Development. 3 credits. This course will examine the learning theories that have undergirded the design and delivery of educational programs. Students will acquire the knowledge and skills needed to conduct needs assessments and outcomes assessments in-person and mediated environments. They will also develop facilitation skills essential to the delivery of educational programs.

551. Academic Administration in Higher Education. 3 credits. The roles and responsibilities of academic administration in higher education. Topics include the
major academic roles (chairperson, dean, chief academic officer), curriculum and instruc-
tion, program evaluation, assessment, planning, faculty workload and evaluation, and
the profession of administrator.

552. Higher Education Law. 2 credits. An overview of the legal issues that con-
front college and university personnel. Pertinent federal and state statutes as well as
case law will be used to instruct about legal rights and responsibilities of university
and college administrators. The legal relationships between the institution and the
faculty, the student, the state government, and the federal government will be explored.

553. Higher Education Policy and Finance. 2 credits. An overview of the rela-
tionship between fiscal policy and decision making in institutions of higher education.
The sources of revenue for higher education will be studied as well as the budgeting,
accounting, and auditing procedures applicable to nonprofit institutions. The college
administrator’s role in guiding the fiscal welfare of an institution of higher education
will be explored.

554. Higher Education Student and Support Services. 2 credits. An overview of
the organization and functions of student and support services within institutions of
higher education. Students will gain an understanding of the administrative issues
related to career services, student counseling, enrollment services, student activities,
health services, student organization, and other institutional units, which serve the
needs of students at a college or university.

556. College Students and the Law. 3 credits. This course provides an overview
of key legal issues that pertain to college students. Using a legal frame and analysis,
the focus of the course surrounds administrative decision making, effective practices,
and organizational policy design and implementation.

559. Seminar in Higher Education Leadership. 1 to 4 credits. S/U grading only.

571. School Community Relations. 2 credits. Study of the responsibility of
classroom, attendance unit, and district personnel in public information efforts; design,
use, and analysis of surveys; study of involvement of parents and other community
members in resource, advisory, and decision-making activities; preparation of news
releases and public information materials; study of relationships to media personnel.

572. Educational Systems and Planning. 2 credits. A study of the planning
process including topics such as establishing goals; assessing needs; identifying re-
sources; and generating, analyzing, and selecting alternatives. Processes and techniques
in planning will be emphasized.

573. Administration and Organizational Behavior I. 3 credits. A study and
critique of selected theories and research in administration and organizational behavior
including topics such as leadership; formal and informal structure; communication;
change and intervention; motivation and morale; interpersonal relations and conflict
management; small-group processes; and personality, values, and ethics.

574. Administration and Organizational Behavior II. 3 credits. A continua-
tion of Administration and Organizational Behavior I. Provides the student with the
opportunity to design and carry out an original field study project in organizational
behavior, participate in critiquing studies designed and completed by fellow students,
and engage in individualized study in a topic area related to behavior in organizations.

575. Education and Public Policy. 3 credits. A study of the development of policy
issues, analysis of policy formation, implementation analysis, and structures and actors
in policy activity.

579. Special Topics in Educational Leadership. 1 to 4 credits. Prerequisite:
Consent of instructor or advisor. Exploration of special topics in the study of educa-
tional leadership not regularly included in available course offerings. May be repeated
for different topics.

593. Internship in Educational Leadership. 1 to 8 credits. Prerequisites: Ap-
propriate foundational, cognate, and major area coursework and consent of the advisor
and instructor. This is a culminating experience primarily for Specialist Diploma and
doctoral students. May be repeated.

597. Readings in Educational Leadership. 1 to 4 credits. Prerequisites: Con-
sent of advisor and instructor. Designed primarily for advanced graduate students. May
be repeated for different topics.

599. Individual Research in Educational Leadership. 1 to 4 credits. Prerequi-
sites: Consent of advisor and instructor. May be repeated.

Programs Offered

<table>
<thead>
<tr>
<th>Program</th>
<th>Degrees Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Childhood Education</td>
<td>M.S.</td>
</tr>
<tr>
<td>Education: General Studies</td>
<td>M.S.</td>
</tr>
<tr>
<td>Elementary Education</td>
<td>M.Ed., M.S.</td>
</tr>
<tr>
<td>Instructional Design &amp; Technology</td>
<td>M.Ed., M.S., Ph.D.</td>
</tr>
<tr>
<td>Reading Education</td>
<td>M.Ed., M.S.</td>
</tr>
<tr>
<td>Special Education</td>
<td>M.Ed., M.S.</td>
</tr>
<tr>
<td>Teaching and Learning</td>
<td>Ed.D., Ph.D.</td>
</tr>
</tbody>
</table>

See the Education departmental section for information regarding admissions, review processes, scholarly tools, thesis and inde-
pendent study reports, comprehensive examinations, and study of higher education.

Early Childhood Education

http://www.und.edu/dept/tl/eece/

FACULTY: Gallo, Offutt, Olsen, Onchwari,
J. Yearwood (Director)

DEGREES GRANTED: Master of Science

PROGRAM DESCRIPTION

The focus of the M.S. program in Early Childhood Education is on
the advanced preparation of teachers and leaders in the field of
Early Childhood Education. The program addresses the education of
children age 3 through grade 3 by concentrating on the study of
children ages 3-8 and the implications such study holds for educa-
tional practice. Those pursuing this program will be prepared as
professional teachers/leaders in a variety of early childhood settings,
including and public and private schools (Pre-K-grade 3), Head Start pro-
cgrams, child development and childcare centers, and college and Uni-
versity settings.

The Early Childhood education program is administered through the
Department of Teaching & Learning in the College of Education and
Human Development (EHD) and the UND Graduate School.
The programs follow the policies of Early Childhood Education, the
Department of Teaching & Learning, EHD, UND, UND Graduate
School and NDUS.

Mission Statement and Program Goals

The philosophy of the Early Childhood Education program is one
that emphasizes the child in his/her context of the family, culture,
and community. Because we believe the child is a born learner, teach-
ers must be educated as careful and open-minded observers who
develop curriculum with the child in mind. Thus, the child is at
the center of our program and the source of study. The focus in this M.S.
program is the study of young children ages 3-8. Theory and research
are combined with practical experiences.

Our program serves to prepare professional teachers or leaders who will:

1. Encourage the child’s natural curiosity and exploration of
   the environment.
2. Develop an understanding of human diversity and recog-
   nize its value in a community of learners.
3. Become reflective in their approach to teaching and leader-
   ship.
4. Develop supportive and productive learning environments
   for children, teachers, parents, and support staff.
5. Integrate knowledge of children with special needs into
   curriculum and program development.

Department of Teaching and Learning

http://www.und.edu/dept/tl/
Admission Requirements

1. An undergraduate degree in early childhood education, child development, elementary education, or a related field.
2. A cumulative Grade Point Average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on a = 4.00).
3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5. * Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
4. Transcripts, recommendations for admission, and a personal statement (i.e. a response to three essay prompts) are part of the Graduate School and Early Childhood Education application procedure. The personal statement essay should be 2-3 pages in length and the prompts are:
   a. What have you already done professionally or personally of which you are proud? Please include a chronological history of all professional teaching and administration experience, as well as academic honors or achievements you earned.
   b. What are the characteristics, attitudes, values, and/or skills that you think will make you a good candidate for your professional role?
   c. Describe several personal and professional goals you would like to achieve in the next five years. Include in your description reasons why these goals are important to you.

Degree Requirements

The M.S. degree in Early Childhood Education is available in two options: non-thesis option and the thesis option. The program of study is developed together with the student’s advisor (non-thesis option, 32 credits) or with a student’s thesis committee (thesis option, 30 credits).

Non-Thesis Option:
1. Thirty-two credits including credits required for the major.
3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
4. At least one-half of the credits must be above the 500 level.
5. The program may include just the major, the major and a minor, or the major and a cognate area. The major must include 20 credits from the major department and the minor or cognate must include nine credits.
6. Completion of a three-credit practicum (90 hours) in an early childhood setting.
7. Preparation of a written independent study approved by the faculty advisor.

Thesis Option:
1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to a 4-6-credit 998, Thesis.
2. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
3. At least one-half of the credits must be above the 500 level.
4. The program may include just the major, the major and a minor, or the major and a cognate area. The major must include 20 credits from the major department and the minor or cognate must include nine credits.
5. Preparation and successful defense of a thesis.

This program of graduate study can be completed in 18 months going full-time or 24 months going part-time (two courses per semester). Courses are offered on campus, online and a combination of the two.

Required Courses:

<table>
<thead>
<tr>
<th>Major</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>T&amp;L 510 ...... Early Intervention for Children with Special Needs ...............2</td>
<td></td>
</tr>
<tr>
<td>T&amp;L 526 ...... Play in Development and Early Childhood Education .......... 2</td>
<td></td>
</tr>
<tr>
<td>T&amp;L 527 ...... Curricular Foundations in Early Childhood Education .......... 3</td>
<td></td>
</tr>
<tr>
<td>T&amp;L 529 ...... Language Development in Children .................................... 3</td>
<td></td>
</tr>
<tr>
<td>T&amp;L 530 ...... Foundations of Reading Instruction ..................................... 3</td>
<td></td>
</tr>
<tr>
<td>T&amp;L 553 ...... Collaborative Relationships: Home School, Community ......... 3</td>
<td></td>
</tr>
<tr>
<td>T&amp;L 997 ...... Independent Study (non-thesis option) .................................. 2</td>
<td></td>
</tr>
<tr>
<td>T&amp;L 580 ...... Practicum: Early Childhood Education .................................. 3</td>
<td></td>
</tr>
</tbody>
</table>

Scholarly Tools

EFR 509 ...... Introduction to Educational Research ..................................... 3
T&L 569 ...... Action Research ......................................................................... 3

Electives

The student will choose 5 credits of electives in consultation with his/her adviser.

Students are required to take T&L 580 Practicum: Early Childhood Education. This practicum requires 90 hours in an early childhood setting, which could be the candidate’s work setting if it meets required accreditation standards.

If students do not have a teaching certificate, they are required to take EFR 500, Foundations of Educational Thought.

Elementary Education

http://www.und.edu/dept/tl/elemed/index.htm

FACULTY: Baker, Barrentine, Beck, Gourneau, Guy (Director), Hanley, Keengwe, Olson (Chair) and Walker

DEGREES GRANTED: Master of Science and Master of Education

PROGRAM DESCRIPTION

The Master of Education (M.Ed) and the Master of Science (MS) degrees are offered by the Department of Teaching and Learning in the College of Education and Human Development. These two Elementary Education Master Programs strive for excellence in education for all learners. The Programs are dedicated to the professional development of responsive teachers as learners, active agents of learning, and articulate visionaries. We provide high quality educational experiences that emphasize inquiry, reflection, and collaboration. In order to be accessible to our graduate students we offer Programs in a variety of formats including campus based and distance degrees.

MASTER OF SCIENCE

Mission Statement and Program Goals

The Master of Science: Elementary Education is committed to preparing knowledgeable and responsive educators through the advanced study of research, creative scholarship, and educational theory. Students in the program will:

- Commit to the continuing process of learning with an emphasis on learning to teach.
Non-Thesis Option:
coursework in Foundations of Education.
at the graduate level. Track II requires a minimum of six credits of
opportunity for non-licensed persons to study Elementary Education
readings.
of scholarly tool coursework and allows a maximum two credits of
oriented program of study. Track I requires a minimum of five credits
licensed or non-licensed persons who wish to follow a research-
scribed in the Education departmental section.
Degree Requirements section. Scholarly tool requirements are de-
mentary Education include:

Admission Requirements
1. Teacher Licensure or a baccalaureate degree
2. A cumulative Grade Point Average (GPA) of at least 2.75
for all undergraduate work or a GPA of at least 3.0 for the
junior and senior years of undergraduate work (based on
A= 4.00).
3. A minimum TOEFL Score of 550 on the paper-based test
or 213 on the computer-based test, or for the Internet-
based TOEFL, a composite score of 79, with minimum
scores of 21/30 (Speaking*); 19/30 (Listening); 19/30
(Reading); and 17/30 (Writing) for applicants whose na-
tive language is not English. Applicants may also meet
language requirements by presenting IELTS scores of 6.5.
*Applicants being considered for Graduate Teaching As-
sistantships must achieve these minimum TOEFL scores,
but have a minimum score of 26/30 on the Speaking subtest.
4. Students who have received a bachelor’s degree or higher
from the United States or English-speaking Canada are not
required to submit the TOEFL.
Refer to the Admissions section of the Graduate catalog for
additional information on admission requirements and application
procedures.

Degree Requirements
Degree requirements for the Master of Science Degree in El-
lementary Education include:

A detailed description of the M.S. degree may be found in the
Degree Requirements section. Scholarly tool requirements are de-
scribed in the Education departmental section.

The Master of Science Degree in Elementary Education is avail-
able in two tracks. Track I, either thesis or non-thesis, is open to
licensed or non-licensed persons who wish to follow a research-
oriented program of study. Track I requires a minimum of five credits
of scholarly tool coursework and allows a maximum two credits of
readings.

Track II, available only in the non-thesis option, provides op-
portunity for non-licensed persons to study Elementary Education
at the graduate level. Track II requires a minimum of six credits of
workshop in Foundations of Education.

Non-Thesis Option:
1. Thirty-two (32) credits including credits required for the
major.
2. A minimum of two credits of Independent Study
3. At least one-half of the credits must be at or above the 500-
level.
4. A maximum of one-fourth of the credit hours required for
the degree may be transferred from another institution.
5. Preparation of a written independent study approved by the
faculty advisor.

Thesis Option:
1. A minimum of 30 semester credits in a major field, includ-
ing the credits granted for the thesis and the research lead-
ing to the thesis.
2. At least one-half of the credits must be at or above the 500-
level.
3. A maximum of one-fourth of the credit hours required for
the degree may be transferred from another institution.

Required Courses for the Master of Science

Major: Elementary Education (Track I)

<table>
<thead>
<tr>
<th>Required Core Courses (15 credits)</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>T&amp;L 518</td>
<td>Science in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>T&amp;L 519</td>
<td>Social Studies in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>T&amp;L 522</td>
<td>Mathematics in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>T&amp;L 530</td>
<td>Foundations of Reading</td>
<td>3</td>
</tr>
<tr>
<td>T&amp;L 580</td>
<td>Practicum</td>
<td>1-4</td>
</tr>
</tbody>
</table>

Other Required Coursework:

| T&L 995/997 | Action Research                           | 3       |
| Or
| T&L 998     | Introduction to Educational Research      | 3       |

Electives (depends on thesis or non-thesis option) | 3-9

Scholarly Tools (5-6):

| T&L 569 | Action Research                           | 3       |
| Or
| T&L 998 | Introduction to Educational Research      | 3       |

Major: Elementary Education (Track II)

<table>
<thead>
<tr>
<th>Required Core Courses (15 credits)</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>T&amp;L 518</td>
<td>Science in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>T&amp;L 519</td>
<td>Social Studies in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>T&amp;L 522</td>
<td>Mathematics in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>T&amp;L 530</td>
<td>Foundations of Reading</td>
<td>3</td>
</tr>
<tr>
<td>T&amp;L 580</td>
<td>Practicum</td>
<td>1-4</td>
</tr>
</tbody>
</table>

Electives (3-9):

| T&L 995/997 | Action Research                           | 3       |
| Or
| T&L 998     | Introduction to Educational Research      | 3       |

Foundations:

| EFR 500 | Foundations of Educational Thought        | 3       |
| Elective |                                                | 3       |

MASTER OF EDUCATION

Mission Statement and Program Goals
The Masters in Education: Elementary Education is committed
to preparing knowledgeable and responsive educators through the
advanced study of professional practice, theory, and foundations of
education. Students in the program will:

- Commit to the continuing process of learning with an em-
phasis on learning to teach.
- Examine best practices, skills, and values to effectively
  teach all students.
- Become more confident, responsive, and reflective as deci-
sion-makers in their educational learning communities.
- Learn to adapt curricular experiences that provide atten-
tion to individual needs, backgrounds, interests, and learn-
ing standards.
- Embrace inclusive diversity by meeting the varied needs of
  students and communities.

Admission Requirements
1. Teacher Licensure
2. A cumulative Grade Point Average (GPA) of at least 2.75
for all undergraduate work or a GPA of at least 3.0 for the
junior and senior years of undergraduate work (based on
A= 4.00).
3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

**Degree Requirements**

Licensed persons are eligible for the Master of Education degree. The major portion of the program includes coursework that addresses practical aspects of teaching at the elementary school level—literacy development, mathematics, science, social studies, curriculum development, and working with families. Available courses focus on the relationship between theories of child development and educational practices designed to foster that development. Practicum experiences can be arranged for those students desiring direct involvement with children. The program culminates in a final paper, project, or thesis.

**Non-Thesis Option:**
1. Thirty-two (32) credits including credits required for the major.
2. A minimum of two credits of Independent Study
3. At least one-half of the credits must be at or above the 500-level.
4. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
5. Preparation of a written independent study approved by the faculty advisor.

**Thesis Option:**
1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.

**Required Courses for the Master of Education**

**Major: Elementary Education**

<table>
<thead>
<tr>
<th>Required Core Courses (15 credits):</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>T&amp;L 518 ................................ Science in the Elementary School .......................... 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T&amp;L 519 ................................ Social Studies in the Elementary School ........................ 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T&amp;L 522 ................................ Mathematics in the Elementary School .......................... 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T&amp;L 530 ................................ Foundations of Reading Instruction ............................ 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T&amp;L 580 ................................ Practicum ......................................................... 1-4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other Required Coursework:**

| T&L 995 Scholarly Project/997 Independent Study .......................................................... 2 |
| T&L 998 Thesis ................................................................. 4-6 |

2. Electives ......................................................................................................... 3

<table>
<thead>
<tr>
<th>Cognate (6 credits):</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>T&amp;L 569 ...................... Action Research (Recommended) .......................... 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Elective .................................................. 3

<table>
<thead>
<tr>
<th>Foundations (6 credits):</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFR 500 ...................... Foundations of Educational Thought ...................... 3</td>
</tr>
<tr>
<td>EFR Elective .................. 3</td>
</tr>
</tbody>
</table>

**General Studies**

http://www.und.edu/dept/efr/generalstudies.html

**PROGRAM DESCRIPTION**

This M.S. degree program (thesis or non-thesis) is designed for both the licensed secondary teacher who seeks a major in education and a minor in another field, and those who wish to pursue a graduate degree in education that will inform broadly their own professional practice. This degree does not require, nor lead to, teacher licensure.

For licensed teachers the major portion of the program of study must include six credits in foundations, six credits in curriculum and six credits in scholarly tools. For those who are not licensed teachers, the major portion of the program of study must include nine credits in foundations, three credits in curriculum and six credits in scholarly tools. The program culminates in a final project/independent study or thesis.

The cognate for this degree should include academic coursework which provides broad support for the major. The minor must be obtained in a department that offers a graduate degree.

**Admission Requirements**

1. Teacher Licensure or
2. Minimum of 8 credit hours of social sciences/humanities

**Degree Requirements (for licensed teachers)**

1. Six (6) credits in foundations.
2. Six (6) credits in curriculum.
3. Six (6) credits in scholarly tools.
4. Nine (9) credits of cognate or minor

**Degree Requirements (for those not licensed)**

1. Nine (9) credits in foundations.
2. Three (3) credits in curriculum.
3. Six (6) credits in scholarly tools.

**Reading Education**


**FACULTY:** Barrentine, Beck, Combs and Walker

**DEGREES GRANTED:** Master of Science and Master of Education

**PROGRAM DESCRIPTION**

The Reading Education programs are designed for educators or other professionals interested in the study of individual readers and writers, reading/language arts instruction in the classroom and/or in the reading specialist setting, reading/language arts curriculum and assessment. A unique feature of these programs is that students become engaged in teaching literacy in a supervised practicum experience. With careful planning, licensed teachers can take course work that meets the requirements for obtaining the North Dakota Reading Credential.

Certified teachers with a bachelor’s degree in education may pursue either the Master of Education or the Master of Science. Non-certified individuals who have earned a bachelor’s degree in a field of study other than education may only pursue the Master of Science.

The Reading Education programs are administered through the Department of Teaching & Learning in the College of Education and Human Development (EHD) and the UND Graduate School. The programs follow the policies of Reading Education, the Department
of Teaching & Learning, EHD, UND, UND Graduate School, and NDUS. The Reading programs are approved by the North Dakota Education Standards and Practices Board.

MASTER OF EDUCATION
Mission Statement and Program Goals
The Masters in Education, Reading Education program prepares teachers to develop expertise in reading/language arts. Graduates are equipped to become life-long learners in the field of literacy education, understand and respect diverse readers, promote the learning of all students, use effective instructional practice and assessment, and systematically reflect on their practice to advance literacy achievement for their students. Students in the program will:

- Learn to use the foundations of literacy to create a literate environment for literacy learning by diverse learners in the classroom.
- Gain knowledge of literacy curriculum that is learner and literature based.
- Learn to use constructivist assessment and instructional practices in the classroom.
- View professional development in literacy education as a career-long responsibility of the classroom teacher.

MASTER OF SCIENCE
Mission Statement and Program Goals
The Master of Science, Reading Education prepares literacy specialists and classroom teachers in reading/language arts and leadership. Graduates possess specialized knowledge about how to work with readers who have diverse needs. Systematic reflection on instruction and assessment practice that aim to promote reading development for all learners is emphasized. Students in the program will:

- Learn to use the foundations of literacy to create a literate environment for literacy learning by diverse learners in a variety of literacy learning settings.
- Gain knowledge of literacy curriculum that is learner and literature based.
- Learn to use constructivist assessments and instructional practices in a variety of literacy settings (e.g., Title I classroom).
- Understand methods to assess, diagnose, and evaluate readers and writers.
- Use systematic study of practice to lead positive changes in literacy teaching and learning.

Admission Requirements
1. For the M.Ed., teacher licensure at one of the following levels: early childhood, elementary, middle or secondary education.
2. For the M.S., licensure (early childhood, elementary, middle or secondary), or a baccalaureate degree in another field of study.

The Reading Education program follows the Graduate School requirements for a cumulative undergraduate minimum grade point average of 2.75 or a junior/senior year minimum grade point average of 3.00. All non-native speakers of English are required to submit scores of the Test of English as a Foreign Language (TOEFL). Please see the Graduate School Admission Requirements for acceptable scores. Transcripts, recommendations, and a personal statement (i.e., a response to three essay prompts) are part of the Graduate School and Reading Education application procedure. The personal statement essay should be 2-3 pages in length and the prompts are:

1. Describe your professional background, especially as it relates to teaching reading, writing and other areas of reading/language arts.
2. What characteristics and strengths do you possess that make you a good candidate for this degree program?
3. Discuss your professional goals.

Refer to the Graduate School Admissions and the Education Admissions Process sections of the Graduate Catalog for additional information on degree and application requirements and procedures.

Degree Requirements
The M.Ed. and M.S. (Tracks I and II) are based on the following components:

1. Core Requirements for the Reading Education major and literacy education electives: The courses in the major engage students in learning content about diverse readers, writers, and speakers; curriculum, methods of teaching and assessing; literacy theory and foundations; and professional perspective. T&L 583 Reading Clinic, one of the Core Requirements, involves students in a practicum experience in which they work with readers to apply their core knowledge about teaching literacy to diverse readers.
2. Research: This component of the program supports development of skills for scholarly inquiry and systematic study of one’s own practice; learning about scholarly inquiry is integrated throughout the coursework.

The Core Requirements for the Reading Education major, for both degree programs are:

- T&L 524 Reading in the Content Areas .................. 2 credits
- T&L 525 Writing in the Classroom ...................... 3 credits
- T&L 530 Foundations of Reading Instruction ........... 3 credits
- T&L 534 Basic Reading Diagnosis/Remediation .......... 2 credits
- T&L 583 Reading Clinic (co-requisite with T&L 534) ... 2 credits

Note: All students also complete various requirements specified for their degree program, i.e., for either the M.Ed. or the M.S. Please see below.

The M.Ed., Reading Education degree program requires coursework in three areas: The major (reading education), cognate, i.e., coursework that complements the major, and foundations of education, i.e., courses taken from the Department of Educational Foundation and Research. The program culminates in the scholarly project (T&L 995) or independent study (T&L 997). With careful planning, most students can meet the course requirements for the North Dakota Reading Credential.

MASTER OF EDUCATION
The credit hours for the M.Ed., Reading Education consist of:

- T&L 524 Reading in the Content Areas .................. 2 credits
- T&L 525 Writing in the Classroom ...................... 3 credits
- T&L 530 Foundations of Reading Instruction ........... 3 credits
- T&L 534 Basic Reading Diagnosis/Remediation .......... 2 credits
- T&L 583 Reading Clinic ........................................... 2 credits

Electives (up to 6 credits):
- T&L 523 Literacy Instruction for English Lang. Learners ... 3 credits
- T&L 528 Children’s Literature in the Classroom .......... 3 credits
- T&L 531 Teaching Reading in the Primary Grades ........ 2 credits
- T&L 533 Reading in the Secondary School ............... 2 credits
- T&L 536 Teaching & Supervision of Language Arts ...... 3 credits
- T&L 995 Scholarly Project ........................................... 2 credits
- T&L 997 Independent Study ........................................... 2 credits

OR

University of North Dakota
Cognate (minimum of 6 credits):

Sample choices:
- T&L 569 ....... Action Research ................................................. 3 credits
- SPED 552 ....... Inclusive Methods .................................................. 3 credits
- T&L 590 ....... ST: Differentiated Instruction ...................................... 3 credits
- T&L 540 ....... Theories and Philosophies of Curriculum
  in Schools .................................................................................. credits

Elementary Education Courses (T&L 518, 519, or 522)
Early Childhood Education Courses (T&L 526, 529, 546, 553)
Other courses are suited to the cognate to this area, e.g., English Language Learner
courses; courses outside of the department and college may also be acceptable; consult
with your adviser.

Educational Foundations (Minimum of 6 credits):
- EFR 500 ...... Foundations of Educational Thought (required) ........ 3 credits
- EFR 506 ...... Multicultural Education
  (or 501, 502, 503, 504, 505, 507, 508) ............................................. 3 credits

The M.S. Reading Education degree program is available in two tracks. Track I, either thesis or non-thesis, is open to licensed persons who wish to follow a research-oriented program of study. Track II, available only in the non-thesis options, provides opportunity for non-licensed persons to study Reading Education at the graduate level. Track II requires a minimum of six credits of coursework in Foundations of Education. With careful planning, most M.S. Track I students can meet the course requirements of the North Dakota Reading Credential.

**MASTER OF SCIENCE**

The credit hours for the M.S., Reading Education consist of:

- T&L 524 ...... Reading in the Content Area ........................................ 2 credits
- T&L 525 ...... Writing Instruction ..................................................... 3 credits
- T&L 530 ...... Foundations of Reading Instruction ........................... 3 credits
- T&L 534 ...... Basic Reading Diagnosis & Remediation ..................... 2 credits
- T&L 583 ...... Reading Clinic ............................................................. 2 credits
- T&L 523 ...... Literacy Instruction for English Language Learners ....... 3 credits
- T&L 528 ...... Children’s Literature in the Classroom ......................... 3 credits
- T&L 531 ...... Teaching Reading in Primary Grades ......................... 2 credits
- T&L 533 ...... Reading in the Secondary School ................................. 2 credits
- T&L 536 ...... Teaching & Supervision of Language Arts .................. 3 credits
- T&L 995 ...... Scholarly Project ....................................................... 2 credits
- OR
- T&L 997 ...... Independent Study (Track I or II) ............................... 2 credits
- OR
- T&L 998 ...... Thesis (Track I, only) ................................................... 4-6 credits

Scholarly Tools (minimum of 5 credits required for Track I, only):

Sample choices:
- T&L 569 ....... Action Research ....................................................... 3 credits
- SPED 551 ....... Advanced Assessment/Special Needs Students ........ 3 credits
- SPED 557 ....... Progress Monitoring/Special Needs Students ........... 2 credits
- EFR 509 ....... Introduction to Educational Research ....................... 3 credits
- EFR 515 ....... Statistics I ................................................................. 3 credits

Educational Foundations (6 credits required for Track II only):

- EFR 500 ...... Foundations of Educational Thought ......................... 3 credits
- EFR 506 ...... Multicultural Education
  (or 501, 502, 503, 504, 505, 507, 508) ............................................. 3 credits

**Special Education**

http://www.und.nodak.edu/dept/tl/specialed/

**FACULTY:** Chalmers, Chiasson, Lee, Mahar and Terras

**DEGREES GRANTED:** Master of Science

**PROGRAM DESCRIPTION**

The focus of the Special Education program is the further prepa-
raration and certification of specialists in an area of special education.
This involves the ability to diagnose children and young adult’s diffi-
culties, plan curricular approaches, and develop and deliver instruc-
tional programs with the help of other pertinent professionals. The
master’s program in Special Education is designed for students who
are not seeking teacher certification. Options for completing the
master’s program include on-campus, online, or a combination of on-
campus and online courses.

**Mission Statement and Program Goals**

The Special Education faculty at the University of North Da-
kota believe that all children can learn. Thus, our mission is to
provide the best preparation for students who aim to become special edu-
cators in schools, hospitals, state and private institutions, and other
human service agencies.

Through this program, you will:

- Learn concepts, practices, and approaches that benefit chil-
dren/young adults with disabilities.
- Become familiar with issues, trends, and research in the field of special education.
- Be encouraged to have an inquiring and questioning attitude toward your profession.
- Become conversant with the literature of the field and be encouraged to be a lifelong learner.

**Admission Requirements**

1. A bachelor’s degree in education or a related field.
2. A cumulative grade point average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A = 4.00).
3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
   *Applicants being considered for Graduate Teaching As-
sistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

**Degree Requirements**

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Special Education program.

1. A minimum of 32-34 credits including credits required for the major.
2. Two credits of Scholarly Project, Independent Study, or four credits of Thesis.
3. At least one-half of the credits must be at or above the 500 level.
4. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
5. Required Courses:
- Major Coursework (choose 25 credits from the following):
  - SPED 500 ...... Education of the Visually Impaired .................... 3 cr.
  - SPED 501 ...... Diseases and Functions of the Eye ....................... 2 cr.
  - SPED 502 ...... Braille Reading and Writing ............................. 2 cr.
  - SPED 503 ...... Orientation and Mobility ................................. 2 cr.
  - SPED 504 ...... Communication Media/Visually Impaired .......... 3 cr.
  - SPED 505 ...... Low Vision Assessment and Remediation .......... 2 cr.
Special Education Cognitive/Developmental Disabilities

http://www.und.nodak.edu/dept/tl/specialed/

FACULTY: Chalmers, Chiasson, Lee, Mahar and Terras

DEGREES GRANTED: Master of Science and Master of Education

PROGRAM DESCRIPTION

The focus of the Special Education program is the further preparation and certification of specialists in an area of special education. This involves the ability to diagnose children and young adults’ difficulties, plan curricular approaches, and develop and deliver instructional programs with the help of other pertinent professionals. The master’s program in Special Education/Cognitive/Developmental Disabilities is designed for students seeking certification in the area of cognitive/developmental disabilities in the state of North Dakota or through “interstate reciprocity” in states other than North Dakota. Options for completing the master’s program include on-campus, online, or a combination of on-campus and online courses.

Mission Statement and Program Goals

The Special Education faculty at the University of North Dakota believe that all children can learn. Thus, our mission is to provide the best preparation for students who aim to become special educators in schools, hospitals, state and private institutions, and other human service agencies.

Through this program, you will:

• Learn concepts, practices, and approaches that benefit children/young adults with cognitive/developmental disabilities.
• Become familiar with issues, trends, and research in the field of special education.
• Be encouraged to have an inquiring and questioning attitude toward your profession.
• Become conversant with the literature of the field and be encouraged to be a lifelong learner.

Admission Requirements

1. A bachelor’s degree in education or a related field.
2. A cumulative grade point average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A = 4.0).
3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5. * Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

MASTER OF SCIENCE

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Special Education program. Students seeking teacher certification in the area of cognitive/developmental disabilities in states other than North Dakota should check with their state’s licensing office to determine the teacher certification requirements for their particular state.

1. A minimum of 32-34 credits including credits required for the major.
2. Two credits of Scholarly Project, Independent Study, or research methods and a course in elementary math methods.
3. Two credits of transition to adult life.
4. For students with undergraduate degrees in early childhood or secondary education, a course in elementary reading methods and a course in elementary math methods.
5. At least one-half of the credits must be at or above the 500 level.
6. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
7. Required Courses:

   Major Coursework (29-31 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPED 506</td>
<td>Introduction to Emotional Disturbance</td>
<td>2 cr.</td>
</tr>
<tr>
<td>SPED 507</td>
<td>Introduction to Dev/Cognitive Disabilities</td>
<td>2 cr.</td>
</tr>
<tr>
<td>SPED 508</td>
<td>Introduction to Special education strategist</td>
<td>2 cr.</td>
</tr>
<tr>
<td>SPED 509</td>
<td>IEP Writing</td>
<td>1 cr.</td>
</tr>
<tr>
<td>SPED 510</td>
<td>Early Intervention for Children w/Special Needs</td>
<td>2 cr.</td>
</tr>
<tr>
<td>SPED 511</td>
<td>Identification &amp; Assessment of Young Children</td>
<td>3 cr.</td>
</tr>
<tr>
<td>SPED 512</td>
<td>Methods &amp; Materials for Preschool Children</td>
<td>3 cr.</td>
</tr>
<tr>
<td>SPED 514</td>
<td>Intervention Strategies for Infants &amp; Toddlers</td>
<td>2 cr.</td>
</tr>
<tr>
<td>SPED 521</td>
<td>Transition to Adult Life</td>
<td>3 cr.</td>
</tr>
<tr>
<td>SPED 528</td>
<td>Advanced Assistive Technology</td>
<td>1 cr.</td>
</tr>
<tr>
<td>SPED 551</td>
<td>Advanced Assessment/Special Needs Students</td>
<td>3 cr.</td>
</tr>
<tr>
<td>SPED 552</td>
<td>Inclusive Methods</td>
<td>3 cr.</td>
</tr>
<tr>
<td>T&amp;L 553</td>
<td>Collaborative Relationships: Home, School, and Community</td>
<td>3 cr.</td>
</tr>
<tr>
<td>SPED 554</td>
<td>Advanced Methods: Learning Disabilities</td>
<td>3 cr.</td>
</tr>
<tr>
<td>SPED 555</td>
<td>Advanced Methods: Emotional Disturbance</td>
<td>3 cr.</td>
</tr>
<tr>
<td>SPED 556</td>
<td>Advanced Methods: Dev/Cognitive Disabilities</td>
<td>3 cr.</td>
</tr>
<tr>
<td>SPED 560</td>
<td>Introduction to Autistic Spectrum Disorder</td>
<td>2 cr.</td>
</tr>
<tr>
<td>SPED 561</td>
<td>Methods for Autism Spectrum Disorder</td>
<td>2 cr.</td>
</tr>
<tr>
<td>SPED 562</td>
<td>ASD: Supports Across the Lifespan</td>
<td>2 cr.</td>
</tr>
<tr>
<td>SPED 563</td>
<td>ASD: Medical Issues and Trends</td>
<td>2 cr.</td>
</tr>
<tr>
<td>SPED 564</td>
<td>Structured Teaching (ASD)</td>
<td>2 cr.</td>
</tr>
<tr>
<td>SPED 565</td>
<td>Methods for Sts with Asperger Syndrome</td>
<td>2 cr.</td>
</tr>
<tr>
<td>SPED 566</td>
<td>ASD: Intensive Early Intervention</td>
<td>2 cr.</td>
</tr>
<tr>
<td>SPED 578</td>
<td>Behavior Management/Sp/Needs Sts</td>
<td>3 cr.</td>
</tr>
<tr>
<td>EDL 529</td>
<td>Special Education Law</td>
<td>3 cr.</td>
</tr>
</tbody>
</table>

   Scholarly Tools (5 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPED 557</td>
<td>Progress Monitoring/Sp/Needs Sts</td>
<td>2 cr.</td>
</tr>
<tr>
<td>EFR 509</td>
<td>Intro to Educational Research</td>
<td>3 cr.</td>
</tr>
<tr>
<td>EFR 515</td>
<td>Statistics I</td>
<td>3 cr.</td>
</tr>
<tr>
<td>T&amp;L 569</td>
<td>Action Research</td>
<td>3 cr.</td>
</tr>
</tbody>
</table>

TOTAL CREDITS: 32-34 cr.
### Degree Requirements

Students seeking the Master of Education degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Special Education program. Students seeking teacher certification in the area of cognitive/developmental disabilities in states other than North Dakota should check with their state’s licensing office to determine the teacher certification requirements for their particular state.

1. A minimum of 35 credits including credits required for the major.
2. Two credits of Scholarly Project or Independent Study.
3. T&L 315 Education of the Exceptional Student or its equivalent as a pre-requisite or co-requisite.
4. For students with undergraduate degrees in early childhood or secondary education, a course in elementary reading methods and a course in elementary math methods.
5. At least one-half of the credits must be at or above the 500 level.
6. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
7. **Required Courses:**

   **Major Coursework (23 credits):**
   - SPED 507 Introduction to Cognitive/Developmental Disabilities 2 cr.
   - SPED 509 IEP Writing 1 cr.
   - SPED 521 Transition to Adult Life 3 cr.
   - SPED 528 Advanced Assistive Technology 1 cr.
   - SPED 551 Advanced Assessment/Special Needs Students 3 cr.
   - SPED 556 Advanced Methods: Cognitive/Developmental Disabilities 3 cr.
   - SPED 578 Behavior Management/Special Needs Students 3 cr.
   - EDL 529 Special Education Law 3 cr.
   - SPED 587 Internship: Cognitive/Developmental Disabilities 2-8 cr.
   - T&L 995 Scholarly Project 2 cr.
   or T&L 997 Independent Study 2 cr.
   or T&L 998 Thesis 4 cr.

   **Scholarly Tools (5 credits):**
   - SPED 557 Progress Monitoring/Special Needs Students 2 cr.
   - EFR 500 Introduction to Educational Research 3 cr.
   or EFR 515 Statistics I 3 cr.
   or T&L 569 Action Research 3 cr.

   **Total Credits: 34-36 cr.**

### Program Description

The focus of the Special Education program is the further preparation and certification of specialists in an area of special education. This involves the ability to diagnose children and young adult’s difficulties, plan curricular approaches, and develop and deliver instructional programs with the help of other pertinent professionals. The master’s program in Special Education/Early childhood is designed for students seeking certification in the area of early childhood special education in the state of North Dakota or through “interstate reciprocity” in states other than North Dakota. Options for completing the master’s program include on-campus, online, or a combination of on-campus and online courses.

### Mission Statement and Program Goals

The Special Education faculty at the University of North Dakota believe that all children can learn. Thus, our mission is to provide the best preparation for students who aim to become special educators in schools, hospitals, state and private institutions, and other human service agencies.

Through this program, you will:

- Learn concepts, practices, and approaches that benefit young children with disabilities.
- Become familiar with issues, trends, and research in the field of special education.
- Be encouraged to have an inquiring and questioning attitude toward your profession.
- Become conversant with the literature of the field and be encouraged to be a lifelong learner.

### Admission Requirements

1. A bachelor’s degree in education or a related field.
2. A cumulative grade point average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A = 4.00).
3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.*
4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

MASTER OF SCIENCE
Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Special Education program. Students seeking teacher certification in the area of early childhood special education in states other than North Dakota should check with their state’s licensing office to determine the teacher certification requirements for their particular state.

1. A minimum of 35-37 credits including credits required for the major.
2. Two credits of Scholarly Project, Independent Study, or four credits of Thesis.
3. T&L 315, Education of the Exceptional Student, or its equivalent as a pre- or corequisite.
4. At least one-half of the credits must be at or above the 500 level.
5. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.

6. Required Courses:
   Major Coursework (30-32 credits):
   - T&L 315, Education of the Exceptional Student, or its equivalent as a pre- or corequisite.
   - EDL 529, Special Education Law.
   - SPED 511, Identification/Assessment of Young Children with Special Needs.
   - SPED 512, Methods/Materials for Preschool Children with Special Needs.
   - SPED 514, Intervention Strategies for Infants & Toddlers.
   - SPED 528, Advanced Assistive Technology.
   - T&L 527, Curricular Foundations in ECE.
   - T&L 529, Language Development in Children.
   - T&L 533, Collaborative Relationships: Home, School and Community.
   - EFR 509, Foundations of Educational Thought.
   - T&L 520, Special Education Law.
   - SPED 578, Behavior Management for Special Needs Students.

Cognate (6 credits):

- EDL 529, Special Education Law.
- T&L 553, Collaborative Relationships: Home, School and Community.

Foundations (6 credits):

- T&L 529, Language Development in Children.
- T&L 533, Collaborative Relationships: Home, School and Community.
- T&L 997, Independent Study.

TOTAL CREDITS 38 cr.

MASTER OF EDUCATION
Degree Requirements

Students seeking the Master of Education degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Special Education program. Students seeking teacher certification in the area of early childhood special education in states other than North Dakota should check with their state’s licensing office to determine the teacher certification requirements for their particular state.

1. A minimum of 38 credits including credits required for the major.
2. Two credits of Scholarly Project or Independent Study.
3. T&L 315, Education of the Exceptional Student, or its equivalent as a pre- or corequisite.
4. At least one-half of the credits must be at or above the 500 level.
5. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.

6. Required Courses:
   - Major Coursework (26 credits):
     - SPED 509, IEP Writing.
     - SPED 510, Early Intervention for Children with Special Needs.
     - SPED 511, Identification/Assessment of Young Children with Special Needs.
     - SPED 512, Methods/Materials for Preschool Children with Special Needs.
     - SPED 514, Intervention Strategies for Infants & Toddlers.
     - SPED 528, Advanced Assistive Technology.
     - T&L 527, Curricular Foundations in ECE.
     - T&L 529, Language Development in Children.
     - SPED 557, Progress Monitoring/Special Needs Students.
     - T&L 997, Independent Study.

Cognate (6 credits):

- EDL 529, Special Education Law.
- T&L 553, Collaborative Relationships: Home, School and Community.

Foundations (6 credits):

- EFR 500, Foundations of Educational Thought.
- EFR 501, EFR 502, EFR 503, EFR 504, EFR 506, EFR 507.

TOTAL CREDITS 38 cr.

Special Education
Emotional Disturbance

http://www.und.nodak.edu/dept/tl/specialed/

FACULTY: Chalmers, Chiasson, Lee, Mahar and Terras

DEGREES GRANTED: Master of Science and Master of Education

PROGRAM DESCRIPTION

The focus of the Special Education program is the further preparation and certification of specialists in an area of special education. This involves the ability to diagnose children and young adult’s difficulties, plan curricular approaches, and develop and deliver instructional programs with the help of other pertinent professionals. The master’s program in Special Education/Emotional Disturbance is designed for students seeking certification in the area of emotional disturbance in the state of North Dakota or through “interstate reciprocity” in states other than North Dakota. Options for completing the master’s program include on-campus, online, or a combination of on-campus and online courses.

Mission Statement and Program Goals

The Special Education faculty at the University of North Dakota believe that all children can learn. Thus, our mission is to provide the best preparation for students who aim to become special educators in schools, hospitals, state and private institutions, and other human service agencies.
Through this program, you will:

- Learn concepts, practices, and approaches that benefit children/young adults with emotional disturbance.
- Become familiar with issues, trends, and research in the field of special education.
- Be encouraged to have an inquiring and questioning attitude toward your profession.
- Become conversant with the literature of the field and be encouraged to be a lifelong learner.

**Admission Requirements**

1. A bachelor’s degree in education or a related field.
2. A cumulative grade point average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A = 4.00).
3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

* Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

**MASTER OF SCIENCE**

**Degree Requirements**

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Special Education program. Students seeking teacher certification in the area of emotional disturbance in states other than North Dakota should check with their state’s licensing office to determine the teacher certification requirements for their particular state.

1. A minimum of 34-36 credits including credits required for the major.
2. Two credits of Scholarly Project, Independent Study, or four credits of Thesis.
3. T&L 315 Education of the Exceptional Student or its equivalent as a pre-requisite or co-requisite.
4. For students with undergraduate degrees in early childhood or secondary education, a course in elementary reading methods and a course in elementary math methods.
5. At least one-half of the credits must be at or above the 500 level.
6. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
7. Required Courses:

   - Major Coursework (29-31 credits):
     - SPED 552 ... Inclusive Methods .............................................. 3 cr.
     - T&L 553 ... Collaborative Relationships: Home, School and Community .............................................. 3 cr.
     - SPED 555 ... Advanced Methods: Emotional Disturbance .......... 3 cr.
     - SPED 578 ... Behavior Management/Special Needs Students ......... 3 cr.
     - EDL 529 ... Special Education Law .............................................. 3 cr.
     - SPED 586 ... Internship: Emotional Disturbance ....................... 2-8 cr.
     - T&L 995 ... Scholarly Project ...................................................... 2 cr.
     - T&L 997 ... Independent Study ...................................................... 2 cr.
     - T&L 998 ... Thesis ................................................................. 4 cr.

   - Scholarly Tools (5 credits):
     - SPED 557 ... Progress Monitoring/Special Needs Students ........ 2 cr.
     - EFR 509 ... Introduction to Educational Research ...................... 3 cr.
     - EFR 515 ... Statistics 1 ............................................................... 3 cr.
     - T&L 569 ... Action Research ...................................................... 3 cr.

   TOTAL CREDITS 34-36 cr.

**MASTER OF EDUCATION**

**Degree Requirements**

Students seeking the Master of Education degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Special Education program. Students seeking teacher certification in the area of emotional disturbance in states other than North Dakota should check with their state’s licensing office to determine the teacher certification requirements for their particular state.

1. A minimum of 35 credits including credits required for the major.
2. Two credits of Scholarly Project or Independent Study.
3. T&L 315 Education of the Exceptional Student or its equivalent as a pre-requisite or co-requisite.
4. For students with undergraduate degrees in early childhood or secondary education, a course in elementary reading methods and a course in elementary math methods.
5. At least one-half of the credits must be at or above the 500 level.
6. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
7. Required Courses:

   - Major Coursework (23 credits):
     - SPED 506 ... Introduction to Emotional Disturbance ................... 2 cr.
     - SPED 509 ... IEP Writing .................................................. 1 cr.
     - SPED 521 ... Transition to Adult Life ....................................... 3 cr.
     - SPED 528 ... Advanced Assistive Technology ......................... 1 cr.
     - SPED 551 ... Advanced Assessment/Special Needs Students ........ 3 cr.
     - SPED 555 ... Advanced Methods: Emotional Disturbance ........... 3 cr.
     - SPED 578 ... Behavior Management/Special Needs Students .......... 3 cr.
     - EDL 529 ... Special Education Law ........................................... 3 cr.
     - SPED 586 ... Internship: Emotional Disturbance ....................... 2-8 cr.
     - T&L 995 ... Scholarly Project ...................................................... 2 cr.
     - T&L 997 ... Independent Study ...................................................... 2 cr.

   - Cognate (6 credits):
     - SPED 552 ... Inclusive Methods .............................................. 3 cr.
     - T&L 553 ... Collaborative Relationships Home, School and Community .............................................. 3 cr.

   - Foundations (6 credits):
     - EFR 500 ... Foundations of Educational Thought ................. 3 cr.
     - EFR 501, EFR 502, EFR 503, EFR 504, EFR 506, EFR 507, .... 3 cr.
     - or EFR 508 ................................................................. 3 cr.

   TOTAL CREDITS 35 cr.
Special Education Strategist

http://www.und.nodak.edu/dept/tl/specialed/

FACULTY: Chalmers, Chiasson, Lee, Mahar and Terras

DEGREES GRANTED: Master of Science and Master of Education

PROGRAM DESCRIPTION

The focus of the Special Education program is the further preparation and certification of specialists in an area of special education. This involves the ability to diagnose children and young adult’s difficulties, plan curricular approaches, and develop and deliver instructional programs with the help of other pertinent professionals. The master’s program in Special Education Strategist is designed for students seeking certification in the area of special education strategist (i.e., emotional disturbance, learning disabilities, and mental retardation) in the state of North Dakota or through “interstate reciprocity” in states other than North Dakota. Options for completing the master’s program include on-campus, online, or a combination of on-campus and online courses.

Mission Statement and Program Goals

The Special Education faculty at the University of North Dakota believe that all children can learn. Thus, our mission is to provide the best preparation for students who aim to become special educators in schools, hospitals, state and private institutions, and other human service agencies.

Through this program, you will:

• Learn concepts, practices, and approaches that benefit children/youth adults with developmental/cognitive disabilities, emotional disturbance, and learning disabilities.
• Become familiar with issues, trends, and research in the field of special education.
• Be encouraged to have an inquiring and questioning attitude toward your profession.
• Become conversant with the literature of the field and be encouraged to be a lifelong learner.

Admission Requirements

1. A bachelor’s degree in education or a related field.
2. A cumulative grade point average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A = 4.00).
3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

MASTER OF SCIENCE

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Special Education program. Students seeking teacher certification in the area of special education strategist (i.e., emotional disturbance, learning disabilities, and mental retardation) in states other than North Dakota should check with their state’s licensing office to determine the teacher certification requirements for their particular state.

1. A minimum of 48-50 credits including credits required for the major.
2. Two credits of Scholarly Project, Independent Study, or four credits of Thesis.
3. T&L 315 Education of the Exceptional Student or its equivalent as a pre-requisite or co-requisite.
4. For students with undergraduate degrees in early childhood or secondary education, a course in elementary reading methods and a course in elementary math methods.
5. At least one-half of the credits must be at or above the 500 level.
6. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
7. Required Courses:
   Major Coursework (43-45 credits):
   SPED 506 .... Introduction to Emotional Disturbance .......... 2 cr.
   SPED 507 .... Introduction to Dev/Cognitive Disabilities ....... 2 cr.
   SPED 508 .... Introduction to Learning Disabilities ............ 2 cr.
   SPED 509 .... IEP Writing ................................................. 1 cr.
   SPED 521 .... Transition to Adult Life ................................ 3 cr.
   SPED 528 .... Advanced Assistive Technology .................... 1 cr.
   SPED 551 .... Advanced Assessment/Special Needs Students ..... 3 cr.
   SPED 552 .... Inclusive Methods ........................................... 3 cr.
   T&L 553 .... Collaborative Relationships: Home, School and Community .............................................. 3 cr.
   SPED 554 .... Advanced Methods: Learning Disabilities ....... 3 cr.
   SPED 555 .... Advanced Methods: Emotional Disturbance .... 3 cr.
   SPED 556 .... Advanced Methods: Dev/Cognitive Disabilities .. 3 cr.
   SPED 578 .... Behavior Management/Special Needs Students .. 3 cr.
   EDL 529 .... Special Education Law .................................... 3 cr.
   SPED 586 .... Internship: Emotional Disturbance ................. 2-8 cr.
   SPED 587 .... Internship: Dev/Cognitive Disabilities ............ 2-8 cr.
   SPED 588 .... Internship: Learning Disabilities ................. 2-8 cr.
   T&L 995 .... Scholarly Project ............................................. 2 cr.
   or T&L 997 .... Independent Study ....................................... 2 cr.
   or T&L 998 .... Thesis .......................................................... 4 cr.
   Scholarly Tools (5 credits):
   SPED 557 .... Progress Monitoring/Special Needs Students .... 2 cr.
   EFR 509 .... Introduction to Educational Research ................. 3 cr.
   or EFR 515 .... Statistics I ..................................................... 3 cr.
   or T&L 569 .... Action Research ............................................. 3 cr.

TOTAL CREDITS 48-50 cr.

MASTER OF EDUCATION

Degree Requirements

Students seeking the Master of Education degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Special Education program. Students seeking teacher certification in the area of special education strategist (i.e., emotional disturbance, learning disturbance, mental retardation) in states other than North Dakota should check with their state’s licensing office to determine the teacher certification requirements for their particular state.
1. A minimum of 49 credits including credits required for the major.
2. Two credits of Scholarly Project or Independent Study.
3. T&L 315 Education of the Exceptional Student or its equivalent as a pre-requisite or co-requisite.
4. For students with undergraduate degrees in early childhood or secondary education, a course in elementary reading methods and a course in elementary math methods.
5. At least one-half of the credits must be at or above the 500 level.
6. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
7. Required Courses:
   Major Coursework (37 credits):
   - SPED 506 .... Introduction to Emotional Disturbance ........................................... 2 cr.
   - SPED 507 .... Introduction to Dev/Cognitive Disabilities ........................................ 2 cr.
   - SPED 508 .... Introduction to Learning Disabilities ............................................. 2 cr.
   - SPED 509 .... IEP Writing ...................................................................................... 1 cr.
   - SPED 521 .... Transition to Adult Life ................................................................... 3 cr.
   - SPED 528 .... Advanced Assistive Technology .................................................... 1 cr.
   - SPED 551 .... Advanced Assessment/Special Needs Students ........................... 3 cr.
   - SPED 554 .... Advanced Methods: Learning Disabilities ...................................... 3 cr.
   - SPED 555 .... Advanced Methods: Emotional Disturbance .................................. 3 cr.
   - SPED 556 .... Advanced Methods: Dev/Cognitive Disabilities ......................... 3 cr.
   - SPED 578 .... Behavior Management/Special Needs Students .......................... 3 cr.
   - EDL 529 .... Special Education Law ..................................................................... 3 cr.
   - SPED 586 .... Internship: Emotional Disturbance .............................................. 2-8 cr.
   - SPED 587 .... Internship: Dev/Cognitive Disabilities ......................................... 2-8 cr.
   - SPED 588 .... Internship: Learning Disabilities .................................................. 2-8 cr.
   - T&L 995 .... Scholarly Project .............................................................................. 2 cr.
   or
   - T&L 997 .... Independent Study ........................................................................... 2 cr.

   Cognate (6 credits):
   - SPED 552 .... Inclusive Methods ......................................................................... 3 cr.
   - T&L 553 .... Collaborative Relationships: Home, School and Community ................. 3 cr.

   Foundations (6 credits):
   - EFR 500 .... Foundations of Educational Thought ............................................. 3 cr.
   or EFR 501, EFR 502, EFR 503, EFR 504, EFR 506, EFR 507, and EFR 508 .............. 3 cr.

   TOTAL CREDITS    49 cr.

Special Education Visual Impairment

http://www.und.nodak.edu/dept/tl/specialed/

FACULTY:  Chalmers, Chiasson, Lee, Mahar and Terras

DEGREES GRANTED: Master of Science and Master of Education

PROGRAM DESCRIPTION

The focus of the Special Education program is the further preparation and certification of specialists in an area of special education. This involves the ability to diagnose children and young adult’s difficulties, plan curricular approaches, and develop and deliver instructional programs with the help of other pertinent professionals. The master’s program in Special Education/Visual Impairment is designed for students seeking certification in the area of visual impairment in the state of North Dakota or through “interstate reciprocity” in states other than North Dakota. The only option for completing the master’s program in visual impairment is a combination of on-campus (during the summer session) and online courses.

Mission Statement and Program Goals

The Special Education faculty at the University of North Dakota believe that all children can learn. Thus, our mission is to provide the best preparation for students who aim to become special educators in schools, hospitals, state and private institutions, and other human service agencies.

Through this program, you will:

- Learn concepts, practices, and approaches that benefit children/young adults with visual impairment.
- Become familiar with issues, trends, and research in the field of special education.
- Be encouraged to have an inquiring and questioning attitude toward your profession.
- Become conversant with the literature of the field and be encouraged to be a lifelong learner.

Admission Requirements

1. A bachelor’s degree in education or a related field.
2. A cumulative grade point average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on a = 4.00).
3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
   *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

MASTER OF SCIENCE

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Special Education program. Students seeking teacher certification in the area of visual impairment in states other than North Dakota should check with their state’s licensing office to determine the teacher certification requirements for their particular state.

1. A minimum of thirty-two (32) credits including credits required for the major.
2. Two credits of Scholarly Project, Independent Study, or four credits of Thesis.
3. T&L 315, Education of the Exceptional Student, or its equivalent as a pre- or corequisite.
4. At least one-half of the credits must be at or above the 500 level.
5. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
6. Required Courses:
   Major Coursework (29-31 credits):
   - SPED 500 .... Education of the Visually Impaired ........................................ 3 cr.
   - SPED 501 .... Diseases and Functions of the Eye ........................................ 2 cr.
   - SPED 502 .... Braille Reading and Writing ............................................. 2 cr.
SPED 503 .... Orientation and Mobility ........................................... 2 cr.
SPED 504 .... Communication Media/Visually Impaired ............ 3 cr.
SPED 505 .... Low Vision Assessment and Remediation .......... 2 cr.
SPED 509 .... IEP Writing .......................................................... 1 cr.
T&L 593 ...... Ind. Project: Braille Code ................................. 1 cr.
T&L 553 ...... Collaborative Relationships: Home, School and Community .... 3 cr.
SPED 578 .... Behavior Management/Special Needs Students ........ 3 cr.
EDL 529 ...... Special Education Law ....................................... 3 cr.
SPED 585 ...... Internship: Visual impairment ...................... 2-8 cr.
T&L 995 ...... Scholarly Project ................................................ 2 cr.
or
T&L 997 ...... Independent Study .......................................... 2 cr.
or
T&L 998 ...... Thesis ................................................................. 4 cr.

Scholarly Tools (5 credits):

SPED 557 .... Progress Monitoring/Special Needs Students ........ 2 cr.
EFR 509 ...... Introduction to Educational Research .............. 3 cr.
or
EFR 515 ...... Statistics I ......................................................... 3 cr.
or
T&L 569 ...... Action Research ............................................... 3 cr.

TOTAL CREDITS 34-36 cr.

MASTER OF EDUCATION

Degree Requirements

Students seeking the Master of Education degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Special Education program. Students seeking teacher certification in the area of visual impairment in states other than North Dakota should check with their state’s licensing office to determine the teacher certification requirements for their particular state.

1. A minimum of 35 credits including credits required for the major.
2. Two credits of Scholarly Project or Independent Study.
3. T&L 315, Education of the Exceptional Student, or its equivalent as a pre- or corequisite.
4. At least one-half of the credits must be at or above the 500 level.
5. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
6. Required Courses:

   Major Coursework (23 credits):

   SPED 500 .... Education of the Visually Impaired ............... 3 cr.
   SPED 501 .... Diseases and Functions of the Eye .................. 2 cr.
   SPED 502 .... Braille Reading and Writing ...................... 2 cr.
   SPED 503 .... Orientation and Mobility ............................ 2 cr.
   SPED 504 .... Communication Media/Visually Impaired ....... 3 cr.
   SPED 505 .... Low Vision Assessment and Remediation ....... 2 cr.
   SPED 509 .... IEP Writing ................................................. 1 cr.
   T&L 593 ...... Ind. Project: Braille Code ................................. 1 cr.
   SPED 578 .... Behavior Management/Special Needs Students ........ 3 cr.
   SPED 585 .... Internship: Visual impairment ...................... 2-8 cr.
   T&L 995 ...... Scholarly Project ................................................ 2 cr.
or
   T&L 997 ...... Independent Study .......................................... 2 cr.

   Cognate (6 credits):

   EDL 529 ...... Special Education Law ....................................... 3 cr.
   T&L 553 ...... Collaborative Relationships: Home, School and Community .... 3 cr.

   Foundations (6 credits):

   EFR 500 .... Foundations of Educational Thought ............... 3 cr.
   EFR 501, EFR 502, EFR 503, EFR 504, EFR 506, EFR 507, or EFR 508 .......... 3 cr.

   TOTAL CREDITS 35 cr.

Courses (SPED)

500. Education of the Visually Impaired. 3 credits. A course which provides an overview of the field of visual impairment to include the following areas of emphases: History/Philosophy; Service-delivery models; medical, psychological and educational implications of partial vision or total blindness; curricula methods and materials; current issues/trends.

501. Diseases and Function of the Eye. 2 credits. A course which introduces students to: a) the structural parts of the eye and its functions; b) common ocular conditions and diseases and their implications for education; c) interpretation of medical eye examination reports; and d) special considerations for infant, school-age academic, multiply disabled and adult populations.

502. Braille Reading and Writing. 2 credits. In this course students learn: 1) to read and write the literary code of grade 2 braille and 2) to teach the literary code of grade 2 braille to students of all ages.

503. Orientation and Mobility/Visually Impaired. 2 credits. This course introduces students to basic orientation and mobility techniques used by specialists when working with individuals with low vision and blindness. Concept development, kinesiology, tactile map construction, dog guides, electronic mobility devices and parental involvement are topics covered with respect to various populations (i.e. infants, school-age academic children, multiply disabled children and adults).

504. Communication Media and Methods/Visually Impaired. 3 credits. Prerequisite: Consent of instructor. This course provides an overview of the communication devices and adaptive technology used by the visually disabled. Students learn to read and write the braille codes for mathematics and music, do basic calculations on the abacus, brailer and talking calculator and gain familiarity with computers and software currently used in the field.

505. Low Vision Assessment and Remediation. 2 credits. Prerequisite: T&L 315 or consent of instructor. A course which focuses on children who have severe visual deficits but with proper training are able to utilize their vision for learning. Effects of low vision are studied with respect to psychological/sociological development, academic learning, skills of independent living, and vocational choice. Methods of assessing visual function are examined with emphasis on adaptations needed in the educational settings. Optical and non-optical aids are compared and evaluated.

506. Introduction to Emotional Disorders. 2 credits. The historical perspective and the complexities of identification and characteristics of emotional disorders will be covered. Students will gain an understanding of service delivery models within a multi-systems approach.

507. Introduction to Developmental/Cognitive Disabilities. 2 credits. The historical perspective and the complexities of identification and characteristics of developmental/cognitive disabilities will be covered. Students will gain an understanding of service delivery models within a multi-systems approach.

508. Introduction to Learning Disabilities. 2 credits. The historical perspective and the complexities of identification and characteristics of learning disabilities will be covered. Students will gain an understanding of service delivery models within a multi-systems approach.

509. IEP Development. 1 credit. This course is an introduction to the individualized education plan (IEP) process, including an understanding of how to develop and write effective IEPs for students with disabilities.

510. Early Intervention for Children with Special Needs. 2 credits. An introduction to the field of Early Childhood Special Education, primarily for students interested in entering the field. Issues such as program design, parent involvement, identification, infant education, and effects of disabilities will be covered.

511. Identification and Assessment of Young Children with Special Needs. 3 credits. Prerequisite: Admission to one of the master’s programs in special education. A study of the principles and procedures for screening, identifying and evaluating young children with special needs. Emphasis will be placed on exposing students to available assessment instruments and providing opportunities for actual testing of preschoolers.

512. Methods and Materials for Preschool Children with Special Needs. 3 credits. Prerequisite: Admission to one of the master’s programs in special education. A comprehensive study of curricula, program development and intervention strategies for disabled children ages birth to 6.

514. Intervention Strategies with Infants and Toddlers. 2 credits. This course provides for study into the unique needs of infants and toddlers with disabilities as well as the delivery of intervention services to the very young child with disabilities and his/her family.

515. Professional Development. 1 credit. This course will provide an orientation to the roles and responsibilities of being a resident teacher in special education. Restricted to resident teachers in special education.

521. Transition to Adult Life. 3 credits. This course focuses on education, personal and vocational transition issues for students with disabilities across all grade levels into adult life. Assessment and transition program planning will be covered along with interagency collaboration skills and career awareness.

528. Advanced Assistive Technology. 1 credit. This course covers the types and functions of assistive technology for students with disabilities across a variety of settings, e.g., home, schools and community. Assistive technology assessment and a working knowledge of best practices of assistive technology in the lives of students will be addressed. Identification of funding sources and assistive technology resources will also be covered.
551. Advanced Assessment/Special Needs Students. 3 credits. Prerequisite T&L 421, 552, 579 and admission to one of the master’s programs in special education. The study of theory and practice of assessment, including formal and informal procedures for screening, identification and assessment of learning disabled, emotionally disturbed and educable mentally retarded students. Practical assignment included.

554. Inclusive Methods. 3 credits. The study of a variety of methods and materials for teaching and assessing children and youth with learning and behavior problems in the general education classroom.

555. Advanced Methods: L.D. 3 credits. Prerequisite: Admission to one of the master’s programs in special education. The study of specific strategies, methods, and materials for working with students with learning disabilities.

556. Advanced Methods: Developmental/Cognitive Disabilities. 3 credits. Prerequisite: graduate status and admission to one of the master’s programs in special education. This course is a masters level methods course designed for professionals seeking to extend their skills in the areas of instruction, functional (life skills) curricu- lum, program and curriculum development, and functional behavioral analysis for work- ing with students with moderate to severe cognitive disabilities.

557. Progress Monitoring/Special Needs Students. 2 credits. Prerequisite: Admission to one of the master’s programs in special education. This course covers all aspects of progress monitoring including what it is, how it works, the benefits of progress monitoring, and various ways and strategies for conducting progress monitoring. Students will learn how to track students in reading, math, and written language by collect- ing data and then using that data to measure student progress and in instructional decision-making. The strongest research-based strategy for progress monitoring, cur- riculum-based measurement, will be covered in depth.

560. Introduction to Autistic Spectrum Disorder. 2 credits. Prerequisite: Completed two years of a related field of study, e.g., education, speech and language pathology, occupational therapy, physical therapy, social work, nursing, medi- cine, or seniors who have completed T&L 315, Education of the Exceptional Student, and are completing an undergraduate degree from a related field of study. This is the introductory course in a sequence of interdisciplinary courses focusing on autistic spectrum disorder. Its central purpose is to encourage parents and caregivers of indi- viduals with autistic spectrum disorder to engage in reflective thinking about and criti- cal analysis of the many and varied issues, e.g., identification, educational placement, effective strategies and techniques for working with children with autism spectrum disorder, and future of medicine and medically oriented interventions for persons with ASD. This course is designed for students to synthesize previously learned information from coursework as they apply and implement their knowledge and skills through written products and classroom performance.

562. ASD: Supports Across the Lifespan. 2 credits. Pre- and corequisites: T&L 560 and 561. This is the third required course in a sequence of interdisciplinary courses focusing on autistic spectrum disorder (ASD). Its central purpose is to encourage parents and caregivers of individuals with ASD to engage in reflective thinking about and critical analysis of the many and varied issues, e.g., identification, educational placement, effective strategies and techniques for working with children with autism spectrum disorder (ASD). This course focuses specifically on the students who function at the high end of the spectrum. The purpose of this course is to provide parents, teachers, and caregivers of individuals with Asperger Syndrome (AS) with knowledge, and experience with the diagnosis and charac- teristics, assessments, functional analysis, various methods and practices, transition planning, and support for families related to the provision of quality lifelong supports for these individuals.

563. ASD: Medical Issues and Trends. 2 credits. Pre- and corequisites: T&L 560 and 561. This is the final required course in a sequence of interdisciplinary courses focusing on autistic spectrum disorder (ASD). Its central purpose is to encourage parents and caregivers of individuals with ASD to engage in reflective thinking about and critical analysis of this educational approach for these persons.

564. Structured Teaching. 2 credits. Pre- and corequisites: T&L 560 and 561. This is an elective course in the sequence of interdisciplinary courses focusing on autistic spectrum disorder (ASD). This course focuses specifically on the students who function at the high end of the spectrum. The purpose of this course is to provide parents, teachers, and caregivers of individuals with Asperger Syndrome (AS) with knowledge, and experience with the diagnosis and charac- teristics, assessments, functional analysis, various methods and practices, transition planning, and support for families related to the provision of quality lifelong supports for these individuals.

565. Methods for Students with Asperger Syndrome. 2 credits. Pre- and corequisites: T&L 560 and 561. This is an elective course in the sequence of interdisciplinary courses focusing on autistic spectrum disorder (ASD). This course focuses specifically on the students who function at the high end of the spectrum. The purpose of this course is to provide parents, teachers, and caregivers of individuals with Asperger Syndrome (AS) with knowledge, and experience with the diagnosis and charac- teristics, assessments, functional analysis, various methods and practices, transition planning, and support for families related to the provision of quality lifelong supports for these individuals.

566. ASD Intensive Early Intervention. 2 credits. This is an elective course in the sequence of interdisciplinary courses focusing on children with autistic spectrum disorder (ASD) birth to age six. Topics addressed will include basic characteristics of children with ASD birth to age six, the developmental implications for these children and their families, and research-supported early interventions utilizing a family-centered approach with an emphasis on natural learning opportunities.

578. Behavior Management for Special Needs Students. 3 credits. Prerequisite: Admission to one of the master’s programs in special education. The study of a variety of effective behavior management and assessment techniques appropriate to the needs of children and youth with special needs. Topics include procedures to increase self-aware- ness, self-management, self-control, self-reliance, self-esteem, and assessment procedures and techniques for determining behavior.

583. Internship: Autism Spectrum Disorders. 2 credits. Prerequisites: SPED 560, 561 and consent of the instructor. This is a culminating experience for students in the area of autism spectrum disorders. This course is designed for students to synthesize previously learned information from coursework as they apply and implement their knowledge and skills through written products and classroom performance.

585. Internship: Visual Impairment. 1-4 credits. Prerequisites: SPED 500, 501, 502 and consent of the instructor. This is a culminating experience for students who are seeking licensure or an endorsement in the area of visual impairment. This course is designed for students to synthesize previously learned information from coursework as they apply and implement their knowledge and skills through written products and classroom performance.

586. Internship: Emotional Disturbance. 2 credits. Prerequisite: consent of the instructor. This is a culminating experience for students in the area of emotional disturbance. This course is designed for students to synthesize previously learned information from coursework as they apply and implement their knowledge and skills through written products and classroom performance.

587. Internship: Developmental/Cognitive Disabilities. 2 credits. Prerequisite: consent of the instructor. This is a culminating experience for students in the area of developmental/cognitive disabilities. This course is designed for students to synthe- size previously learned information from coursework as they apply and implement their knowledge and skills through written products and classroom performance.

588. Internship: Learning Disabilities. 2 credits. Prerequisite: consent of the instructor. This is a culminating experience for students who are seeking licensure or an endorsement in the area of early childhood special education. This course is designed for students to synthesize previously learned information from coursework as they apply and implement their knowledge and skills through written products and classroom performance.

589. Internship: ECSE. 1-4 credits. Prerequisites: SPED 510, 511, 512 and consent of the instructor. This is a culminating experience for students who are seeking licensure or an endorsement in the area of early childhood special education. This course is designed for students to synthesize previously learned information from coursework as they apply and implement their knowledge and skills through written products and classroom performance.

DEGREES GRANTED: Doctor of Philosophy and Doctor of Education

PROGRAM DESCRIPTION

The Doctor of Philosophy (Ph.D.) and Doctor of Education (Ed.D.) programs in Teaching and Learning are designed to prepare individuals for leadership and teaching positions in schools, colleges and universities, and public or private agencies. The doctoral program in Teaching and Learning offers four areas of emphasis:

• Higher Education (preparation to be a college or university professor of an academic discipline and all of its re- sponsibilities).
• Teacher Education (preparation to be an educator of teachers in a college or university setting and/or as a person providing consultation and in-service to teachers in pr-K-12 schools).
• Research Methodologies (preparation of those who edu- cate researchers in a college or university setting or who work as research consultants for agencies or schools).
• Instructional Design and Technology (preparation to be researchers and scholars). The focus is on understanding
various areas in instructional design, human learning, and the integration of technology).

Coursework for all areas of emphasis is offered by faculty from the departments of Teaching and Learning and Educational Foundations and Research. Faculty members in both departments are able to serve as advisors to doctoral students. Students interested in Music Education should consult the Music section of this catalog.

Students are specifically admitted to the Ed.D. or the Ph.D. program.
- The Ed.D. degree emphasizes professional practice and educational foundations and theory.
- The Ph.D. degree emphasizes research, creative scholarship, and educational theory.

The doctoral student and advisory committee design the doctoral program of study to meet individual needs within the framework of guidelines set by the Graduate School and by the program faculty. Graduate School requirements for the Ph.D. and the Ed.D. are stated in the Degree Requirements section.

**DOCTOR OF PHILOSOPHY/ DOCTOR OF EDUCATION**

**Mission Statement and Program Goals**

It is the mission of the Teaching and Learning Doctoral Program to prepare persons for leadership and teaching positions in schools, colleges or universities, and public or private agencies.

**Goal 1:** The student will demonstrate knowledge of how personal educational practice guides and supports the learning of others.

**Goal 2:** The student will demonstrate the ability to apply research and research methods relevant to the field of study.

**Goal 3:** The student will demonstrate knowledge and application of educational practices related to the foundations (personal, historical, philosophical, sociological, anthropological, psychological, and/or multicultural) for learning and teaching.

**Goal 4:** The student will demonstrate knowledge and skills in understanding ways of engaging learners in the active construction of knowledge relevant to the advanced discipline of study.

**Admission Requirements**

Applicants should anticipate that the materials they submit will be held to high standards with the following basic expectations:

1. Graduate grade point averages above 3.5
2. Excellent writing skills
3. Three references that speak to academic ability, professional accomplishments related to your field of study, and positive character traits
4. A statement of clear professional/educational goals that can be met by our program as specified in the Graduate Catalog

Your application must also include the following:

1. Transcripts
2. Professional resume
3. Essay on a current issue in education
4. Statement of professional/educational goals

In addition to the above, a student may wish to submit the following evidence:

1. The Advanced Graduate Record Examination
2. Miller Analogies Test
3. Graduate Record General Examination (verbal, quantitative, analytical)

Admission to the Ph.D. program in Teaching and Learning-Research Methodologies may occur after receipt of the bachelor’s degree.

Students with a master’s degree in the content field and without previous background in the study of education are eligible for admission to the Ph.D. program with a higher education area of emphasis option.

**Degree Requirements**

Students seeking the Doctor of Philosophy or the Doctor of Education degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Teaching and Learning Department.

**Doctor of Philosophy**

The program of study shall include the following:

1. Completion of 90 semester credits beyond the baccalaureate degree.
2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.
3. With approval of a student’s Faculty Advisory Committee, up to one-half of the work beyond a master’s degree (maximum of 30 semester credit hours) may be transferred from another institution that offers post-master’s degrees in the discipline.
4. At least one-half of the work must be in the major field, including:
   - at least 10 credits of dissertation – which incorporates independent work that is an original contribution to knowledge in the field
   - a minimum of six credits in the Foundations of Education
   - a minimum of 12 credits of scholarly tools.*
5. At least 12 credit hours of a minor or cognate in a supporting area.
6. Meet one of the three residency options described in this departmental section

**Doctor of Education**

1. Completion of 96 semester credits beyond the baccalaureate degree
2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.
3. With approval of a student’s Faculty Advisory Committee, up to one-half of the work beyond a master’s degree (maximum of 30 semester credit hours) may be transferred from another institution that offers post-master’s degrees in the discipline.
4. At least one-half of the work must be in the major field.
5. Major coursework includes:
   - A dissertation of 10 credits
   - A minimum of 12 credits in the Foundations of Education
   - A minimum of 6 credits of scholarly tools*
   - At least 12 credits of a minor or cognate in a supporting area
6. One of the three following residency options.

*Scholarly tool options for the doctoral students in education are described in the Education departmental requirements section of this catalog.
Residency Requirements for Doctoral Programs

The purpose of residency is to provide an opportunity for sustained and concentrated intellectual effort, to provide for immersion in a research environment, and to permit extensive interaction with fellow students and faculty of the major department.

The residency for programs in education is designed to provide the student with the experiences outlined by the Graduate School. It is expected that students will engage in serious scholarship and will reflect on their learning and experiences. The expectation is that the students will integrate their doctoral study in order that the program of study they pursue will become a holistic and unified experience. (The residency option is normally declared on the student’s program of study.) The education faculty has outlined some of the conditions required for these goals to be realized. A doctoral student in Teaching and Learning can meet the residency requirement in any one of these ways:

- Students will complete a residency while enrolled in a minimum of 9 semester hours of credit during each of two consecutive semesters (Fall, Spring or Spring, Fall). Students in this option are encouraged, but are not required, to enroll in a Doctoral Seminar during their residency or at another time in the program. If a student is a GRA, GSA, or GTA, the number of credits that the student may take for this option is less and specified in the catalog.

- Students will complete a residency while enrolled in a minimum of eight semester hours of credit during each of three consecutive summer sessions and in a minimum of two Doctoral Seminars following their first and second or third summers in residence.

- Students will complete a residency over a period of three consecutive years of continuous enrollment in a minimum of 36 semester hours of credit (12 credits per year for 3 years) to include a minimum of two Doctoral Seminars during the period of residency.

Courses (T&L)

515. Middle School Curriculum. 3 credits. This course examines the middle school curriculum and instructional strategies as well as the needs of early adolescents. The course focuses on the roles teachers play in incorporating a guided, interdisciplinary, collaborative team approach. The studies include the components of curriculum (learning, advising, exploration, learning communities) and instruction (differentiation, cooperative learning, learning styles, instructional strategies) incorporated in middle schools.

516. Philosophy and Foundations of Middle School Education. 3 credits. This course examines the historical and philosophical background of middle level education. The focus is on the roles teachers/administrators play in incorporating this guided, interdisciplinary, collaborative team approach that assists students during these fundamentally formative years. The course looks at the philosophical aspect of the curriculum and instructional component. The studies explore contemporary issues associated with the middle school as well as the adaptations necessary for special circumstances affiliated with middle schools.


520. Curriculum and Instruction in Elementary Schools. 4 credits. A study of processes for planning, implementing, and evaluating curriculum and improving instruction in elementary schools.

521. Differentiated Instruction. 3 credits. An introduction to the principles of differentiated instruction. Topics of study include: brain-based learning, responsive instructional and assessment strategies, linking curriculum standards to learner needs, organizing and managing a differentiated classroom, and relevant resources for implementation.


523. Literacy Instruction for English Language Learners. 3 credits. This course addresses the foundations of teaching English language and literacy to English Language Learners (ELLs) and includes study of various approaches to ELL/bilingual education, methods of instruction, assessment of English language proficiency, and strategies to make content learning comprehensible for ELLs. Emphasis will be placed on praxis and current research in the field.

524. Reading in the Content Areas. 2 credits. How and why reading should be taught in the content areas (i.e. Social Studies, Science, Mathematics, etc.). Research studies in the field of content reading and a variety of instructional practices are reviewed.

525. Writing in the Classroom. 3 credits. This course examines writing as a process, the role of developmental, cultural, social, and individual. Emphasis is on effective implementation of the essential structures of writing workshop and on monitoring and assessing writers’ growth.

526. Play in Development and Early Childhood Education. 2 credits. The play of children has long been viewed as essential to developmental processes. In addition, education has recognized the need to incorporate play into programs. This course explores the relationship of play to development (cognitive, physical and emotional), and the way in which play has been incorporated in programmatic settings.

527. Curricular Foundations in Early Childhood Education. 3 credits. This course examines the historical, philosophical, cultural, race, class, and gender influences on curriculum in early childhood, including the philosophy and mission of the Department of Teaching and Learning.

528. Children’s Literature in the Classroom. 3 credits. This course is a study of children’s literature and literary criticism which serves as the foundation for examining teaching methods that develop children’s engagement with literature and promote reading achievement.

529. Language Development in Children. 3 credits. This course provides foundational information and a sense of appreciation for language, and information necessary for the development of language rich interactions with young children.

530. Foundations of Reading Instruction. 3 credits. This course focuses on the relationships between reading theory, research, contemporary issues and instructional practice. Emphasis is placed on strategic systems related to effective reading, instructional approaches that support the development of these strategic systems and assessment as collecting evidence of effective reading behaviors.

531. Teaching Reading in the Primary Grades. 2 credits. A study of the reading process in the primary grades including essential factors of readiness for learning to read, teaching techniques, and approaches to beginning reading instruction.

533. Reading in the Secondary School. 2 credits. Development of reading-teaching skills in the content subject areas and reading strategy development.

534. Basic Reading Diagnosis and Remediation. 2 credits. Co-requisite: T&L 583. Focuses on common causes of reading disability, methods of diagnosis, and corrective reading programs in the classroom.

535. Advanced Reading/Language Arts Diagnosis and Remediation. 2 credits. Prerequisite: T&L 530 and 534. Analysis of interrelationships of learning difficulties in language arts areas and procedures for remediation.

536. Teaching and Supervision of Elementary Language Arts. 3 credits. Considers the objectives of the elementary language arts program, methods of instruction, and recent curricular trends. Recent research is read and critiqued.

538. Supervision of Student Teaching. 2 credits. For supervisors and directors of student teaching in colleges and cooperating schools. Principles and practices on how to provide the most beneficial experiences for student teachers.

539. College Teaching. 3 credits. Explores learning styles and teaching styles, the components and responsibilities involved in college teaching, methods of teaching and motivating students, and current issues related to instruction in the college classroom.

540. Theories and Philosophies of Curriculum in Schools. 3 credits. This course explores the historical development of the K-12 curriculum, the philosophical and theoretical aspects applied to curriculum, and the social conditions that impact curriculum.

541. History of Higher Education in the U.S. 3 credits. Study of major events and people shaping higher education in the U.S. Role, philosophy, and organization of institutions of higher education discussed.

542. Models of Teaching. 3 credits. This course focuses on various models of teaching: social interaction, information-processing, inquiry and behavioral. The purpose of the course is to provide teachers with a variety of instructional models related to meaningful learning experiences for students.

543. Scholarly Writing. 3 credits. Designed to assist students with learning the art of scholarly writing, this course will aid students in designing, formatting, and completing research-based and other scholarly writing projects, as well as understanding the rules and norms of academic publishing.

544. Assessment in Higher Education. 3 credits. A wide range of assessment issues in higher education will be explored. This includes course, program, and institutional assessment as well as classroom assessment techniques. Students will examine and understand the assessment process.

545. Adult Learners. 3 credits. This course will cover theories of adult development, current research on adult learners, ways of assessing the needs and interests of adult learners, and ways of creating environments in which adult learners can thrive.

546. Young Children’s Thinking. 2 credits. Students in this course will study the thinking of young children, ages 4-8, through the lenses of a number of theoretical perspectives and through case studies of children. Developmental, cultural, personal, and gender similarities/differences in thinking will be examined.

547. Technology in Higher Education. 3 credits. Students will examine the various uses and integration of technology and media in higher education by faculty in their attempts to engage learners with each other, in the course content, and with instructors.
548. The Professoriate. 3 credits. This course is a study of the development of the American professoriate by way of historical, scholarly, popular, and contemporary perspectives. It also examines the transition of new faculty members to their initial academic appointment.

549. Seminar. 1 to 4 credits. The seminar will focus on a specific topic relating to teaching and learning. The specific content will vary depending upon student needs and faculty resources. May be repeated. S/U grading only.

553. Collaborative Relationships: Home, School and Community. 3 credits. A course appropriate for anyone working with families, early childhood educators, general educators, special educators, related service personnel, administrators and outside agency personnel. Topics covered include: (1) the various models of collaboration and consultation and the stages of each; (2) communication skills; (3) problem-solving; (4) conflict management; (5) diverse perspectives; (6) information collection procedures; (7) supervisory skills; (8) family characteristics and structure across the lifespan; (9) family focused intervention; (10) school choices; and (11) school issues such as poverty, domestic violence, teasing, bullying, and school violence.

560. Action Research. 3 credits. Prerequisite: graduate status. The study of the philosophy and methods of action research. Emphasis is focused on analysis and reflection on one’s teaching for the purpose of improvements in student learning. S

571. Teacher Education: Focus on the Teacher. 3 credits. Practices, issues, and trends in the design and implementation and assessment of programs for the preparation and development of K-12 teachers.

580. Practicum in Schools. 1 to 4 credits. Prerequisites: Appropriate foundational and major area courses, and consent of the instructor and advisor. Practicum in study of desirable school practices, observations in nearby schools, and application of research findings in solving practical problems. May be repeated.

581, 582. Resident Internship. 4 credits each. Prerequisites: participation in the summer program prior to the internship and elementary teacher certification. A full-time, year-long internship experience conducted in a cooperating school district. Interns are assigned as members of instructional teams with full responsibility for a portion of the cooperating school’s institutional program.


584. Internship in Education. 1 to 8 credits. Prerequisites: Appropriate foundational, cognate, and major area coursework and consent of the advisor and instructor. This is a culminating experience primarily for Sixth year and Doctoral students. The internships will be identified in one of the following sub-areas: (A) Educational Administration, (B) Special Education, (C) Curriculum, (D) Educational Research, or (E) Teacher Education. May be repeated.

590. Special Topics in Education. 1 to 4 credits. Prerequisite: Consent of instructor or advisor. Exploration of special topics in the study of education not regularly included in available course offerings. May be repeated for different topics.

591. Readings in Education. 1 to 4 credits. Prerequisites: Consent of advisor and instructor. Designed primarily for advanced graduate students. May be repeated for different topics.

593. Independent Projects. 1-4 credits.

596. Individual Research in Education. 1 to 4 credits. Prerequisites: Consent of advisor and instructor may be repeated.

600. Scholarly Project. 2 credits. The scholarly project demonstrates critical analysis and application of information and experiences gained throughout the program of study. The project allows students to demonstrate scholarly skills in an integrated manner that is directly related to their roles as teachers, program evaluators, and action researchers. The scholarly project must be approved by the student’s advisor.

421. Transition to Adult Life. 3 credits.

422. Education of Gifted and Talented. 2 credits.

423. Assessment Program Planning/Special Needs Students. 3 credits.

454. Organization, Administration, and Supervision in Early Childhood Education. 2 credits.

493. Problems in Special Education. 2 to 5 credits.

Electrical Engineering

http://www.ee.und.edu/

FACULTY: Faruque, Fazel-Rezai, Kaabouch, Miles, Noghanian, Salehfar and Schultz (Chair)

DEGREES GRANTED: Master of Science and Master of Engineering

PROGRAM DESCRIPTION

The Department of Electrical Engineering offers graduate programs leading to either a Master of Science (M.S.) or a Master of Engineering (M.Eng.) degree. The M.S. degree is offered under both the thesis and non-thesis options. The non-thesis M.S. degree requires completion of an independent study. The M.Eng. degree is an engineering practice-oriented degree that requires the completion of an engineering design project.

The Department also offers programs, including a Bachelor of Science in Electrical Engineering (BSEE)/Master of Science in Electrical Engineering (M.S.E.E.) and a B.S.E.E./M. Engr. The intent of the combined programs is to allow qualified students to complete requirements for both degrees in one year beyond that required to receive the baccalaureate degree. Students may apply for this program upon completion of 95 credits toward the Bachelor’s degree.

The Department of Electrical Engineering maintains strong research emphases in aerospace payload and sensor development, applied electromagnetics, biomedical signal and image processing, control systems and robotics, embedded systems, renewable energy systems, systems engineering, and wireless communications. Additionally, the department participates in the school-wide Ph.D. in Engineering program. The research programs, laboratory facilities, close student-faculty interaction, and strong mentoring and academic advising facilitate an environment of scholarly activity and prepare students for corporate and government positions in research and development.

MASTER OF SCIENCE

Mission Statement and Program Goals

The mission of the Department of Electrical Engineering Master of Science program is to promote critical thinking and creative skills based on the theory, principles, and techniques of electrical engineering. Graduates will be prepared for careers in private industry, government, and/or doctoral studies in electrical engineering or related fields.

Goal 1: Students will develop a comprehensive and in-depth understanding of electrical engineering through graduate-level coursework.

Goal 2: Students will develop critical thinking skills through research activities or focused project activities.

Goal 3: Students will develop skills to communicate the results of their research in an effective and professional manner.

Admission Requirements

1. Bachelor of Science degree in Electrical Engineering or closely related field. Students holding B.S. degrees in other fields, e.g., physics, mathematics, and computer science, may be admitted to the Provisional or Qualified status until selected undergraduate requirements in electrical engineering have been satisfied.

2. An overall undergraduate GPA of at least 2.75 or a GPA of at least 3.00 for the last two years.

3. Applicants holding degrees from non-ABET accredited programs/universities must submit scores from the General Test of the Graduate Record Examination.

4. Most International students will be required to achieve a minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

5. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
Degree Requirements

Thesis Option:
1. A minimum of 30 semester credits, including credits granted for the thesis.
2. A minimum of 21 semester credits, including 6 thesis credits, must be in the major field of electrical engineering.
3. A minor field of study can be obtained by completing 9 semester credits from another department that offers a graduate program. A graduate faculty member from that department must serve on the thesis committee.
4. A cognate can be obtained by completing 9 semester credits from more than one department outside of electrical engineering, or from a single department that does not offer a graduate program.
5. At least one-half of the credits must be at or above the 500-level.
6. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
7. Completion of a research project and its presentation in a thesis.

Non-Thesis Option:
1. Completion of at least 32 semester credits, including credits required for the major.
2. A minimum of 2 credits of Independent Study
3. At least one-half of the credits must be at or above the 500-level.
4. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
5. Preparation of a written Independent Study report approved by the faculty advisor.
6. Comprehensive final examination.

MASTER OF ENGINEERING

Mission Statement and Program Goals

The mission of the Department of Electrical Engineering Master of Engineering program is to promote critical thinking and creative skills based on the theory, principles, and techniques of electrical engineering. Graduates will be prepared for careers in private industry, government, and/or doctoral studies in electrical engineering or related fields.

Goal 1: Students will develop a comprehensive and in-depth understanding of electrical engineering through graduate-level coursework.

Goal 2: Students will develop critical thinking skills through research activities or focused project activities.

Goal 3: Students will develop skills to communicate the results of their research in an effective and professional manner.

Admission Requirements

1. Bachelor of Science degree in Electrical Engineering or closely related field. Students holding B.S. degrees in other fields, e.g., physics, mathematics, and computer science, may be admitted to Provisional or Qualified status until undergraduate requirements in electrical engineering have been satisfied.
2. An overall undergraduate GPA of at least 2.5 or a GPA of at least 2.75 for the last two years.
3. Applicants holding degrees from non-ABET accredited programs/universities must submit scores from the General Test of the Graduate Record Examination.
4. Most international students will be required to achieve a minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

Degree Requirements

1. Course necessary for basic-level ABET accreditation. Normally, graduation from an ABET-accredited institution will satisfy this requirement.
2. A program of study must include the following:
   a. A minimum of 30 semester credit hours.
   b. Three to Six (3-6) semester credit hours of an approved design project (EE 595).
   c. Fifteen (15) semester credit ours of coursework at the 500 level or above (including the design project).
   d. All major courses must be at the 400-level or above and approved for graduate credit.
3. An overall GPA of 2.75 or better for all coursework.
4. Complete the approved design project.
5. Pass a comprehensive written examination.

COMBINED PROGRAM

The Department of Electrical Engineering offers two combined programs, a B.S.E.E./M.S. E. E. and a B.S.E.E./M.Eng. The intent of the combined programs is to allow qualified students to complete the requirements for both degrees in one year beyond that required to receive the baccalaureate degree. Students may apply for this program upon completion of 95 credits toward the Bachelor’s degree. All requirements for both degrees must be met, and up to six credits of prior-approved coursework may be double-counted toward each of the two degrees. Double-counted credits may not include required courses for the B.S.E.E. degree, but may include technical or electrical engineering elective coursework, preferably at the 500-level or above. Admission to one of the Combined Programs, either B.S.E.E./M.S.E.E. or B.S.E.E./M.Eng., requires an overall undergraduate GPA of at least 3.0 at the time of admission.

Courses

(EE)

503. Statistical Communications Theory and Signal Processing I. 3 credits. Prerequisite: EE 411 or consent of instructor. Theory of time series analysis of random signals as applied to signal processing is emphasized.

504. Statistical Communications Theory and Signal Processing II. 3 credits. Advanced methods of signal detection including parameter estimation and nonlinear estimation of parameters. Detection of signals and estimation of signal parameters from a probability point of view will be emphasized.

505. Control Systems II. 3 credits. Prerequisite: EE 405. Advanced topics in control systems including nonlinear systems, robust control, optimal control, and pole placement techniques; selective topics from the state of the art.

506. Digital Control Systems. 3 credits. Prerequisite: Electrical Engineering 405. Digital systems representation, analysis and simulation; Z-transform; digital controllers design and realization; microprocessor based controllers.
507. Spacecraft Systems Engineering. 3 credits. Space environment, dynamics of spacecraft, celestial mechanics, mission planning, and systems engineering methodology.

508. Decision Systems. 3 credits. Prerequisite: EE 314. Systems and networks will be designed to work in an uncertain environment. Systems will be optimized using Neural Networks and Fuzzy Logic concepts.

509. Signal Integrity. 3 credits. Prerequisite: EE 409 or consent of instructor. Fundamental concepts of signal integrity are presented. Topics include propagation of digital signals, electrical noise, and system timing.

511. Industrial Electronics. 3 credits. Prerequisite: EE 321. Application methods and problems of electronic circuits in the manufacturing and power industries.

519. Digital Computer Logic. 3 credits. Prerequisite: EE 451 or consent of instructor. Logic design analysis of digital computers with some applications.

520. Electronic Computing Systems. 3 credits. Prerequisites: EE 201 and EE 421. Design of bit slice computers; simulation of computers' special purpose controller design; advanced microprocessor design and use.

521. Discrete Real Time Filtering. 3 credits. Prerequisite: EE 314. Modern methods of high-speed digital signal processing will be studied. Techniques that will be used include the recursive and nonrecursive discrete-time filters and the Fast Fourier Transform. The digital computer will be used to implement these filters.

522. Renewable Energy Systems. 3 credits. Prerequisite: Graduate and Senior Engineering students. This course will provide engineering students with an understanding of the principles of renewable energy conversion systems. Emphasis is on wind, photo-voltaic, hydrogen fuel, and fuel cell energy conversion and storage systems, along with their associated design and control issues.

523. Power Systems II. 3 credits. Prerequisite: EE 423. Electric power systems analysis and control. Power flow; system response and stability; voltage and frequency control; computer methods in system analysis.

525. Electromagnetic Fields. 3 credits. Prerequisite: EE 316. Static electric and magnetic fields, field mapping, and applications to transmission lines, wave-guides, and antennas.

532. Antenna Theory. 3 credits. Prerequisite: EE 316 or consent of instructor. Physical principles underlying antenna behavior and design as applied to antennas.

536. Optical Fiber Communications. 3 credits. Prerequisite: EE 434 or consent of instructor. Propagation in optical fibers, optical receivers, amplifiers, detectors, sources, transmission links, noise consideration, optical fiber communication systems, applications and future developments.

537. Graduate Cooperative Education. 3 credits. Prerequisites: Approved status, 3.00 GPA, completed a minimum of 9 credits of the program of study, and approval of the department. A practical research experience with an employer closely associated with the student’s academic area. A written report which includes a literature survey and research findings and an oral presentation are required.

570. Seminar. 1 credit. Open to qualified advanced undergraduate students and graduates.

590. Advanced Electrical Engineering Problems. Credit to be arranged. Open by permission to graduate students and qualified seniors. Students work under the supervision of a member of the staff. A written report is required.

595. Design Project. 3 to 6 credits. Prerequisite: Restricted to the Master of Engineering student candidate and subject to approval by the student’s advisor. A three to six credit course of engineering design experience involving individual effort and a formal written report. S/U grading only.

997. Independent Study or Final Project. 2 credits.

998. Thesis. 4-6 credits.

411. Communications Engineering. 3 credits.

423. Power Systems I. 3 credits.

428. Robotics Fundamentals. 3 credits.

430. Radiating Systems. 3 credits.

434. Microwave Engineering. 3 credits.

451. Computer Hardware Organization. 3 credits.

456. Digital Image Processing. 3 Credits.

Elementary Education
(See Education: Elementary Education)

Engineering

http://www.und.edu/dept/sem/

FACULTY: Ames, Benson, Bible, Bowman, Cavalli, Faruque, Fazel-Rezaei, Grewal, Gullicks, Jerath, Kaabouch, Kolodka, Korom, Kulkarni, Lim, Mamaghani, Mann, Miles, Moretti, Muggli, Neubert, Nghanian, Salehfar (Program Director), Schultz, Seames, Semke, Suleiman, Tande, Zahui and Zeng

DEGREES GRANTED: Doctor of Philosophy

PROGRAM DESCRIPTION

The Doctor of Philosophy in Engineering program provides a student with specialized training customized to meet his or her specific interests and goals. Faculty advisors work with each student to structure a graduate program consisting of traditional engineering study, complementary multidisciplinary studies, strong interaction between fellow engineering students, and high quality research. The program is based upon the research strengths of faculty, and includes studies in the major engineering disciplines. Students receive a Ph.D. of Engineering with a specified track of: Chemical Engineering, Civil Engineering, Electrical Engineering, Energy Engineering, Environmental Engineering, Geological Engineering, or Mechanical Engineering.

The program includes a significant research component characterized by substantial interaction between the student and their advisor. Research topics are determined based upon the mutual interest of the student and research advisor. Students develop a strong research methodology and apply this research method to a specific engineering problem as directed by their advisor. Student’s attendance is required at a weekly seminar. This seminar is used to enhance the research methodology, by allowing students to present their research during various stages of development. The seminar also serves the important role of providing exposure of all students to a diverse range of multidisciplinary work.

Track Coordinators

Chemical Engineering: Chemical Engineering Graduate Director
Civil Engineering: Civil Engineering Graduate Director
Electrical Engineering: Electrical Engineering Graduate Director
Energy Engineering: Engineering Ph.D. Program Director
Environmental Engineering: Environmental Engineering Graduate Director

Geological Engineering: Geological Engineering Graduate Director
Mechanical Engineering: Mechanical Engineering Graduate Director

Mission Statement and Program Goals

The program recognizes that effective researchers should have extensive expertise in a specialization (track) coupled with a familiarity and awareness of related research needs and the context for applying that expertise. Students enrolled in the Engineering Ph.D. program will develop a broad and inclusive background in the chosen track while also working with faculty from related disciplines to create the interdisciplinary and integrative research paradigms necessary for comprehensive research. A principal goal of the program is to produce Ph.D. research engineers for careers that focus on the invention and development of new technologies and advances for the 21st Century and beyond. Activities to develop professional and personal skills are intended through a multidisciplinary emphasis to enable participants to: 1) understand the ethical, political, and economic impacts of their research developments and policies; and 2) improve their ability to communicate about complex technical subjects in both professional and general settings.

Goal 1: Graduates will have a depth of knowledge in their chosen engineering emphasis area accompanied by a breadth of knowledge in related areas to achieve their specific goals and objectives.

Goal 2: Graduates will be proficient researchers, i.e. they will have the skills required to formulate, assess and document a hypothesis.

Goal 3: Graduates will be well prepared for advanced professional practice, for teaching, and for careers in research and creative activity in engineering or a related field.
Admission Requirements

1. A baccalaureate degree in an engineering discipline with a GPA of 3.3 or higher or a Master of Science degree in an engineering discipline with a GPA of 3.0.

2. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

3. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

4. In addition to meeting the general provisions in the UND graduate catalog and the minimum requirements in items 1-2 above, candidates are assessed using a holistic process that considers GRE test scores (students with a B.S. engineering degree from an ABET accredited program are not required to submit GRE scores), transcripts of previous college work, relevant research and work experience, letters of recommendation, research interests, and English language skills. Students must specify a track on their admission form to facilitate this evaluation.

5. A student holding a non-engineering degree or who does not meet the minimum requirements in items 1-2 above may apply to one of the Master of Science degree programs in the School of Engineering and Mines. Students successfully completing a UND M.S. engineering degree will be considered to satisfy the requirements of items 1-2 above; however, these students shall still be subject to the holistic evaluation process described in item 3 with the exception that new GRE test scores will not be required.

Students admitted to an engineering M.S. program but meeting the minimum requirements in items 1-2 above may apply for one calendar year, and upon the recommendation of his/her advisory committee, request by-pass the master’s degree and work directly toward the Ph.D. degree. The recommendation of the advisory committee shall be brought to a vote by the program graduate committee relevant to the degree track requested by the student. A minimum of one week before such a meeting, the program graduate committee shall be notified and provided with the student’s updated file which shall consist of the materials used for application into the M.S. program, a transcript of all academic work completed at UND, and any additional materials the student wishes to have considered. If the recommendation is approved by the relevant graduate committee, the student will be given the qualifying exam for the specific track the student wishes to enter. Passing this exam will advance the student to Approved Status in the Doctoral Program in Engineering.

Financial Assistance

Financial aid in the form of teaching assistantships, research assistantships, fellowship, and internships are available on a competitive basis. Students seeking financial aid should complete their applications by February 15 for Fall admission and September 15 for Spring admission to be given full consideration for financial aid. Assistantships are renewable if progress toward the degree and instructional/research service are satisfactory.

Degree Requirements

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Engineering Doctoral Program.

The following requirements are in addition to the UND graduate school general requirements for the Ph.D.:

1. Completion of 90 semester credits beyond the baccalaureate degree

2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.

3. Scholarly Tools: Proficiency in mathematics demonstrated by completing nine approved credits of mathematics intensive coursework (equivalent to UND 400-level or higher courses) with a grade of B or better which must include at least one course in numerical analysis. Scholarly tools courses taken for graduate credit after a student has enrolled in a graduate program at UND may be counted to fulfill requirements listed in Item 5 below.

4. A maximum of 30 credit hours can be transferred from a master’s program.

5. A minimum of 30 credit hours must be doctoral research and dissertation.

6. Exactly 3 credit hours must be Engr 562: Engineering Seminar.

7. A minimum of 39 credit hours of coursework are required (up to 21 credit hours of coursework may be transferred from a master’s program in fulfilling this requirement subject to the credit transfer limits described in the general section of this graduate catalog). The coursework shall include the following:

   a. A minimum of 27 credit hours of track specific coursework selected from the approved list of courses. Equivalent graduate level coursework may be transferred from a master’s program.

   b. Multidisciplinary emphasis: A minimum of 12 credit hours of 300, 400, or 500 level coursework taken for graduate credit from any department within the University, subject to the approval of the student’s adviser. The student is encouraged to structure these courses as a minor. Equivalent coursework may be transferred from a master’s program.

8. Successful completion of a qualifying examination, taken no earlier than the end of their first year in residence and no later than the end of their second year of residence. This examination will cover four general areas of their selected engineering track. Selection of the four general areas for this examination shall require the approval of the candidate’s faculty adviser and the track-specific Ph.D. Graduate Director. Three results for each of the four sections of the examination can be obtained: 1) pass; 2) provisional pass; and 3) fail. Candidates obtaining a result of “provisional pass” for any section of the exam will be required to remEDIATE the topical area in which the provisional pass was received in accordance to stipulations specified by the examiner, with approval of the track-specific Graduate Director. Candidates who fail one or more sections of the exam will be allowed one opportunity to repeat that section of the exam. The reexamination must take place no later than 13 months after the initial examination attempt. A direct admit student who fails an exam a second time may request to be reclassified as a master’s student and complete a track-appropriate Master of Science degree and then reapply to the Doctoral program.

9. An oral comprehensive examination is completed when at least 30 credits of post baccalaureate coursework has been
completed. This examination will be based significantly on the core of the individual’s program of study including work in the minor field of study, but may also include questions related to other track-specific Engineering fundamentals. The examination will be administered by three faculty members from the program of the student’s track.

Three results of the examination can be obtained: 1) pass; 2) provisional pass; and 3) fail. Candidates obtaining a result of "provisional pass" will be allowed to advance to candidacy status after completion of stipulations specified by the examining committee plus obtaining a passing result on a retest for the portion of the exam covered by the stipulations. Candidates, who fail the exam, will be allowed one opportunity to repeat the exam. The reexamination must take place no later than 13 months after the initial examination attempt.

10. Students must present to their advisory committee an annual oral progress report describing research progress. One of these presentations will include a detailed presentation of the dissertation research plan. This presentation must be completed at least one year prior to the expected completion of the Ph.D. requirements. These presentations may be made as a partial fulfillment of the students Engineering Seminar (Engr 562) requirements with approval of the student’s advisory committee.

11. A candidate for the degree must complete an original basic research investigation. Each candidate will complete the research investigation to the satisfaction of the research adviser and the advisory committee and will prepare a dissertation covering the research. The project must represent an original and independent investigation by the student. It is normally expected that the results of the research will be submitted for publication in refereed research journals. The candidate will present and successfully defend the dissertation at the final examination (see graduate school requirements).

Residence Requirements

The purpose of residence requirements is to provide an opportunity for a sustained and concentrated intellectual effort, to provide for immersion in an academic research environment, and to permit extensive interaction with fellow students and faculty of the major department. Within the first two years of graduate work at UND, at least two consecutive semesters must be completed in residence. During residency, a student must be registered for at least nine credits in a semester, or be a graduate research or teaching assistant taking the appropriate credits to qualify as a full-time student. The remainder of the credits required for a degree can be completed in a manner to accommodate the student’s fiscal, family, job related, and other constraints with the consent of the student’s adviser. The program of study must be completed within the seven-year period normally allowed for graduate programs.

Under special circumstances, the student in conjunction with his/her advisory committee and the Director of the Engineering Program can petition the Dean of the Graduate School for variances in this policy.

Courses (Engr)

Courses accepted for this degree are listed under each individual track. Please refer to the home departments for a course description. The courses listed below are administered by the Director of the Engineering Program.

501. Energy, Resource and Policy. 3 Credits. Prerequisite: Consent of instructor. Structured discussions of energy, resources and policy issues, related to energy security and national and global well-being, based on selected readings.

502. Alternative Energy Systems. 3 credits. Prerequisite: Consent of instructor. Provides an interdisciplinary background in alternative energy systems. Any form of energy production different from traditional fossil fuel combustion falls in this category. Such alternate systems include energy production from biomass, gasification of wood and coal, geothermal energy, solar energy (wind energy, fuel cells, and photovoltaics), etc.


590. Special Topics in Engineering. 1 to 6 credits. Prerequisites: consent of instructor. Investigations of special topics in energy engineering dictated by students and faculty interests.

999. Dissertation. 1 to 18 credits.

Course List for Chemical Engineering Track

Chemical Engineering Department Graduate Courses:

Chemical Engineering Department Graduate Courses:

- CHE 501. Advanced Transport Phenomena. 3 credits.
- CHE 503. Fuels Technology. 3 credits.
- CHE 504. Air Pollution Control. 3 credits.
- CHE 509. Advanced Chemical Engineering Thermodynamics. 3 credits
- CHE 510. Advanced Process Control. 3 credits.
- CHE 511. Advanced Chemical Engineering Kinetics. 3 credits.
- CHE 512. Advanced Separation. 3 credits.
- CHE 515. Design of Experiments. 3 credits
- CHE 535. Metallic Corrosion and Polymer Degradation. 3 credits.
- CHE 593A. Polymer Science and Engineering. 3 credits.
- Student must take these four core courses
  All Chemistry Graduate Courses
  All Mathematics Graduate Courses
  All Mechanical Engineering Graduate Courses
  All Physics Graduate Courses
  All Computer Science Graduate Courses

Other Acceptable Departmental Courses:

Environmental & Ecology Related Courses:

- AtSc 505. Advanced Atmospheric Dynamics. 3 credits.
- AtSc 510. General Circulation. 3 credits.
- AtSc 515. Advanced Climatology. 3 credits.
- AtSc 520. Atmospheric Chemistry. 3 credits.
- AtSc 525. Atmospheric Radiation. 3 credits.
- AtSc 528. Atmospheric Data Analysis. 3 credits.
- AtSc 530. Numerical Weather Prediction. 3 credits.
- AtSc 535. Measurement Systems. 3 credits.
- AtSc 540. Statistical Methods in Atmospheric Science. 3 credits.
- AtSc 545. Hydrometeorology. 3 credits.
- Avit 512. Aviation Environmental Concerns. 3 credits.
- Biol 533. Grassland Ecology. 2 credits.
- Biol 540. Waterfowl Biology and Management. 2 credits.
- CIEN 531. Environmental Engineering III. 3 credits.
- CIEN 532. Environmental Engineering IV. 3 credits.
- CIEN 533. Industrial Wastes. 3 credits.
- CIEN 535. Hazardous Waste Management. 3 credits.
- Engr 501. Energy, Resources and Policy. 3 credits.
- ESSP 506. Ecosystems Services. 3 credits.
- ESSP 520. Earth Systems Modeling. 3 credits.
- ESSP 540. Advanced Topics in Geospatial Technology. 3 credits.
- ESSP 552. Environmental Economics. 3 credits.
- Geoe 417. Hydrogeology. 3 credits.
- Geoe 419. Groundwater Monitoring. 3 credits.
- Geoe 427. Groundwater Modeling. 3 credits.
- Geoe 500. Sedimentary Geology. 1-4 credits.
- Geoe 505. Isotopic Geology. 3 credits.
- Geoe 509. Advanced Mineralogy. 1-4 credits.
- Geoe 530. Advanced Hydrogeochemistry. 3 credits.
- Geoe 531. Hydrogeochemistry. 3 credits.
- Geoe 532. Contaminant Hydrogeology. 3 credits.
- Geoe 540. Water Sampling & Analysis. 3 credits.
- SpH 501. Survey of Space Studies. 3 credits.
- SpH 520. Asteroids. 3 credits.

Biochemical Related Courses:

- BIMD 500. Cell Molecular Foundations of Biomedical Science. 7 credits.
- BIMD 512. Biomedical Statistics. 2 credits.
- BIMD 531. Advanced Molecular Biology I. 3 credits.
- BIMD 532. Advanced Molecular Biology II. 3 credits.
- Biol 542. Comparative Endocrinology. 3 credits.
- Biol 551. Biochemical Genetics. 3 credits.
- Biol 554. Cytogenetics. 2 credits.
- Biol 564. Developmental Morphology of Plants. 2 credits.
Business/Management/Economics Related Courses:
- Econ 505. Advanced Macroeconomic Theory. 3 credits.
- Econ 509. Macroeconomic Decision-Making. 3 credits.
- Econ 514. Advanced Managerial Economics. 3 credits.

Automation and Process Control Related Courses:
- Acet 510. Industrial Quantitative Controls. 3 credits.
- Mgmt 501. Quantitative Analysis for Management Decisions. 3 credits.
- EE 503. Statistical Communications and Signal Processing I. 3 credits.
- EE 504. Statistical Communications and Signal Processing II. 3 credits.
- EE 505. Control Systems II. 3 credits.
- EE 506. Digital Control Systems. 3 credits.
- EE 508. Decision Systems. 3 credits.

Geo 507. Advanced Techniques in Geographical Info. Systems. 3 credits.
Geo 575. Seminar in Remote Sensing. 3 credits.
Geo 574. Advanced Techniques in Geographic Info. Systems. 3 credits.

Miscellaneous Courses:
- Comm 512. Law and Ethics in Communications. 3 credits.
- Comm 530. Gender, Culture, and Communications. 3 credits.
- SpSt 525. Technical Issues in Space. 3 credits.
- IT 560. Qualitative Planning and Analysis. 3 credits.
- IT 565. Product Safety and Liability. 3 credits.

Course List for Civil Engineering Track

Civil Engineering Department Graduate Courses:
- CIEN 502. Structural Stability. 3 credits.
- CIEN 503. Structural Dynamics. 3 credits.
- CIEN 523. Applied Hydraulics. 3 credits.
- CIEN 524. Open Channel Hydraulics. 3 credits.
- CIEN 531. Environmental Engineering III. 3 credits.
- CIEN 532. Environmental Engineering IV. 3 credits.
- CIEN 533. Industrial Wastes. 3 credits.
- CIEN 535. Hazardous Waste Management. 3 credits.
- CIEN 551. Plate and Slab Structures. 3 credits.
- CIEN 552. Thin Shell Structures. 3 credits.
- CIEN 555. Prestressed Concrete-Analyses and Design. 3 credits.
- CIEN 556. Numerical and Matrix Methods of Structural Analysis. 3 credits.
- CIEN 590. Special Topics. Credit arranged.
- CIEN 591. Civil Engineering Research. credit arranged.
- ** Structural students must take 4 core courses from this group.
- ** Water Resources/Environmental students must take 4 courses from this group.

All Chemistry Graduate Courses
All Mathematics Graduate Courses
All Chemical Engineering Graduate Courses
All Mechanical Engineering Graduate Courses
All Physics Graduate Courses
All Computer Science Graduate Courses

Other Acceptable Departmental Courses:

Environmental & Ecology Related Courses:
- AtSc 505. Advanced Atmospheric Dynamics. 3 credits.
- AtSc 510. General Circulation. 3 credits.
- AtSc 515. Advanced Climatology. 3 credits.
- AtSc 520. Atmospheric Chemistry. 3 credits.
- AtSc 525. Atmospheric Radiation. 3 credits.
- AtSc 528. Atmospheric Data Analysis. 3 credits.
- AtSc 530. Numerical Weather Prediction. 3 credits.
- AtSc 535. Measurement Systems. 3 credits.
- AtSc 540. Statistical Methods in Atmospheric Science. 3 credits.
- AtSc 545. Hydrometeorology. 3 credits.
- Avit 512. Aviation Environmental Concerns. 3 credits.
- Biol 533. Grassland Ecology. 2 credits.
- Biol 540. Waterfowl Biology and Management. 2 credits.
- Engr 501. Energy, Resources and Policy. 3 credits.
- ESSP 506. Ecosystems Services. 3 credits.
- ESSP 520. Earth Systems Modeling. 5 credits.
- ESSP 540. Advanced Topics in Geospatial Technology. 3 credits.
- ESSP 562. Environmental Economics. 3 credits.
- Geog 574. Advanced Techniques in Geographic Info. Systems. 3 credits.
- Geog 575. Seminar in Remote Sensing. 3 credits.
- Geog 576. Field Methods and Analysis in Geography. 3 credits.
- Geol 417. Hydrogeology. 3 credits.
- Geol 419. Groundwater Monitoring. 3 credits.
- Geol 427. Groundwater Modeling. 3 credits.
- Geol 500. Sedimentary Geology. 1-4 credits.
- Geol 505. Isotopic Geology. 3 credits.
- Geol 506. Glacial Geology. 4 credits.

Geol 509. Advanced Mineralogy. 1-4 credits.
Geol 511. Advanced Structural Geology. 4 credits.
Geol 518. Topics in Advanced Stratigraphy. 2-4 credits.
Geol 525. Weathering and Soils. 3 credits.
Geol 530. Advanced Physical Hydrogeology. 3 credits.
Geol 531. Hydrogeochmistry. 3 credits.
Geol 532. Contaminant Hydrogeology. 3 credits.
Geol 540. Water Sampling & Analysis. 3 credits.
SpSt 435. Global Change. 3 credits.
SpSt 501. Survey of Space Studies I. 3 credits.
SpSt 520. Asteroids, Meteorites and Comets. 3 credits.

Biochemical Related Courses:
- BIMD 500. Cell Molecular Foundations of Biomedical Science. 7 credits.
- BIMD 512. Biomedical Statistics. 2 credits.
- BIMD 531. Advanced Molecular Biology I. 3 credits.
- BIMD 532. Advanced Molecular Biology II. 3 credits.
- Biol 542. Comparative Endocrinology. 3 credits.
- Biol 551. Biochemical Genetics. 3 credits.
- Biol 554. Cyogenetics. 2 credits.
- Biol 564. Developmental Morphology of Plants. 2 credits.

Business/Management/Economics Related Courses:
- Econ 505. Advanced Macroeconomic Theory. 3 credits.
- Econ 509. Macroeconomic Decision-Making. 3 credits.
- Econ 514. Advanced Managerial Economics. 3 credits.
- Acet 510. Industrial Quantitative Controls. 3 credits.
- Mgmt 501. Quantitative Analysis for Management Decisions. 3 credits.
- EE 503. Statistical Communications and Signal Processing I. 3 credits.
- EE 504. Statistical Communications and Signal Processing II. 3 credits.
- EE 505. Control Systems II. 3 credits.
- EE 506. Digital Control Systems. 3 credits.
- EE 508. Decision Systems. 3 credits.
- Comm 512. Law and Ethics in Communications. 3 credits.
- Comm 530. Gender, Culture, and Communications. 3 credits.
- SpSt 525. Technical Issues in Space. 3 credits.
- IT 560. Qualitative Planning and Analysis. 3 credits.
- IT 565. Product Safety and Liability. 3 credits.

Course List for Electrical Engineering Track

EE 503. Statistical Communications Theory & Signal Processing I. 3 credits.
EE 504. Statistical Communications Theory & Signal Processing II. 3 credits.
EE 505. Control Systems II. 3 credits.
EE 506. Digital Control Systems. 3 credits.
EE 507. Spacecraft Systems Engineering. 3 credits.
EE 508. Decision Systems. 3 credits.
EE 509. Signal Integrity. 3 credits.
EE 511. Industrial (Power) Electronics. 3 credits.
EE 519. Digital Computer Logic. 3 credits.
EE 520. Electronic Computing Systems. 3 credits.
EE 521. Discrete Real Time Filtering. 3 credits.
EE 522. Renewable Energy System. 3 credits.
EE 523. Power Systems II. 3 credits.
EE 525. Electromagnetic Fields. 3 credits.
EE 532. Antenna Theory. 3 credits.
EE 536. Optical Fiber Communications. 3 credits.
EE 590. Avionics. 3 credits.
EE 590. Biomedical Engineering. 3 credits.
EE 590. Advanced Electrical Engineering Problems. 3 credits.
EE 590. Electromechanical Devices and Systems. 3 credits.
EE 590. ASIC Design. 3 credits.
EE 590. Wireless Communication. 3 credits.

The following undergraduate courses also have graduate standing and may be used for graduate credit:

EE 411. Communications Engineering. 3 credits.
EE 423. Power Systems I. 3 credits.
EE 428. Robotics Fundamentals. 3 credits.
EE 430. Radiating Systems. 3 credits.
EE 434. Microwave Engineering. 3 credits.
EE 451. Computer Hardware Organization. 3 credits.
EE 456. Digital Image Processing. 3 credits.
EE 490. Avionics. 3 credits.
EE 490. Biomedical Engineering. 3 credits.
EE 490. Renewable Energy Systems. 3 credits.
EE 490. Wireless Communication. 3 credits.
EE 490. ASIC Design. 3 credits.

All Chemical Engineering Graduate Courses
All Chemistry Graduate Courses
All Civil Engineering Graduate Courses
Other Acceptable Departmental Courses:

- **AtSc 505. Advanced Atmospheric Dynamics.** 3 credits.
- **AtSc 510. General Circulation.** 3 credits.
- **AtSc 515. Advanced Climatology.** 3 credits.
- **AtSc 520. Atmospheric Chemistry.** 3 credits.
- **AtSc 525. Atmospheric Radiation.** 3 credits.
- **AtSc 528. Atmospheric Data Analysis.** 3 credits.
- **AtSc 530. Numerical Weather Prediction.** 3 credits.
- **AtSc 535. Measurement Systems.** 3 credits.
- **AtSc 540. Statistical Methods in Atmospheric Science.** 3 credits.
- **AtSc 545. Hydrometeorology.** 3 credits.
- **Avit 512. Aviation Environmental Concerns.** 3 credits.
- **Bird 533. Grassland Ecology.** 2 credits.
- **Bird 534. Quantitative Ecology.** 2 credits.
- **Bird 540. Waterfowl Biology and Management.** 2 credits.
- **CIEN 531. Environmental Engineering III.** 3 credits.
- **CIEN 532. Environmental Engineering IV.** 3 credits.
- **CIEN 533. Industrial Waste.** 3 credits.
- **CIEN 535. Hazardous Waste Management.** 3 credits.
- **ESSP 506. Ecosystem Services.** 3 credits.
- **ESSP 520. Earth Systems Modeling.** 3 credits.
- **ESSP 540. Advanced Topics in Geospatial Technology.** 3 credits.
- **ESSP 562. Environmental Economics.** 3 credits.
- **GeoE 417. Hydrogeology.** 3 credits.
- **GeoE 419. Groundwater Monitoring.** 3 credits.
- **GeoE 427. Groundwater Modeling.** 3 credits.
- **Geol 500. Sedimentary Geology.** 1-4 credits.
- **Geol 505. Isotopic Geology.** 3 credits.
- **Geol 509. Advanced Mineralogy.** 1-4 credits.
- **Geol 530. Advanced Hydrogeochemistry.** 3 credits.
- **Geol 531. Hydrogeochemistry.** 3 credits.
- **Geol 532. Contaminant Hydrogeology.** 3 credits.
- **Geol 540. Water Sampling & Analysis.** 3 credits.
- **Spit 501. Survey of Space Studies.** 3 credits.
- **Spit 502. Asteroids.** 3 credits.

**Biochemical Related Courses:**

- **BIMD 500. Cell Molecular Foundations of Biomedical Science.** 7 credits.
- **BIMD 512. Biomedical Statistics.** 2 credits.
- **BIMD 531. Advanced Molecular Biology I.** 3 credits.
- **BIMD 532. Advanced Molecular Biology II.** 3 credits.
- **Bird 542. Comparative Endocrinology.** 3 credits.
- **Bird 551. Biochemical Genetics.** 3 credits.
- **Bird 554. Cytogenetics.** 2 credits.
- **Bird 564. Developmental Morphology of Plants.** 2 credits.

**Business/Management/Economics Related Courses:**

- **Econ 505. Advanced Macroeconomic Theory.** 3 credits.
- **Econ 509. Macroeconomic Decision-Making.** 3 credits.
- **Econ 514. Advanced Managerial Economics.** 3 credits.

**Automation and Process Control Related Courses:**

- **Aetc 510. Industrial Quantitative Controls.** 3 credits.
- **Mgmt 501. Quantitative Analysis for Management Decisions.** 3 credits.
- **EE 503. Statistical Communications and Signal Processing I.** 3 credits.
- **EE 504. Statistical Communications and Signal Processing II.** 3 credits.
- **EE 508. Control Systems I.** 3 credits.
- **EE 506. Digital Control Systems.** 3 credits.
- **EE 508. Decision Systems.** 3 credits.
- **Geog 574. Advanced Techniques in Geographical Info. Systems.** 3 credits.
- **Geg 575. Seminar in Remote Sensing.** 3 credits.

**Miscellaneous Courses:**

- **Comm 512. Law and Ethics in Communications.** 3 credits.
- **Comm 530. Gender, Culture, and Communications.** 3 credits.
- **Spit 525. Technical Issues in Space.** 3 credits.
- **IT 560. Qualitative Planning and Analysis.** 3 credits.
- **IT 565. Product Safety and Liability.** 3 credits.

**Course List for Energy Engineering Track**

**Energy Related Engineering Courses:**

- **Chem 503. Fuels Technology.** 3 credits.
- **Chem 504. Air Pollution Control.** 3 credits.
- **Chem 535. Advanced Chemical Engineering Thermodynamics.** 3 credits.
- **Chem 551. Advanced Inorganic Chemistry.** 3 credits.
- **Chem 542. Electrochemical Methods.** 3 credits.
- **CIEN 531. Environmental Engineering III.** 3 credits.
- **CIEN 532. Environmental Engineering IV.** 3 credits.
- **CIEN 533. Industrial Waste.** 3 credits.
- **CIEN 535. Hazardous Waste Management.** 3 credits.
- **Engr 501. Energy, Resources and Policy.** 3 credits.
- **EE 423. Power Systems I.** 3 credits.
- **EE 523. Power Systems II.** 3 credits.
- **GeoEn 417. Hydrogeology.** 3 credits.
- **GeoEn 419. Groundwater Modeling.** 3 credits.
- **GeoEn 427. Groundwater Modeling.** 3 credits.
- **Geol 509. Advanced Mineralogy.** 3 credits.
- **Geol 530. Advanced Physical Hydrogeology.** 3 credits.
- **Geol 531. Hydrogeochemistry.** 3 credits.
- **Geol 532. Contaminant Hydrogeology.** 3 credits.
- **ME 446. Gas Turbines.** 3 credits.
- **ME 449. Internal Combustion Engines.** 3 credits.
- **ME 451. Heating and Air Conditioning.** 3 credits.
- **ME 464. Computational Fluid Dynamics.** 3 credits.
- **ME 476. Intermediate Fluid Dynamics.** 3 credits.
- **ME 477. Compressible Fluid Flow.** 3 credits.
- **ME 514. Processing of Advanced Materials.** 3 credits.
- **ME 545. Fluidized-Bed Combustion Engineering.** 3 credits.
- **ME 574. Advanced Heat Transfer.** 3 credits.

*All students must take Engr 501 and one of the above listed courses from each of the ChE, EE, and ME departments.

**Other Acceptable Departmental Courses:**

- All Other Chemical Engineering Graduate Courses
- All Other Civil Engineering Graduate Courses
- All Other Electrical Engineering Graduate Courses
- All Other Geology and Geological Engineering Graduate Courses
- All Other Mechanical Engineering Graduate Courses
- All Chemistry Graduate Courses
- All Mathematics Graduate Courses
- All Physics Graduate Courses
- All Computer Science Graduate Courses

**Environmental & Ecology Related Courses:**

- **AtSc 505. Advanced Atmospheric Dynamics.** 3 credits.
- **AtSc 510. General Circulation.** 3 credits.
- **AtSc 515. Advanced Climatology.** 3 credits.
- **AtSc 520. Atmospheric Chemistry.** 3 credits.
- **AtSc 525. Atmospheric Radiation.** 3 credits.
- **AtSc 528. Atmospheric Data Analysis.** 3 credits.
- **AtSc 530. Numerical Weather Prediction.** 3 credits.
- **AtSc 535. Measurement Systems.** 3 credits.
- **AtSc 540. Statistical Methods in Atmospheric Science.** 3 credits.
- **AtSc 545. Hydrometeorology.** 3 credits.
- **Avit 512. Aviation Environmental Concerns.** 3 credits.
- **Bird 533. Grassland Ecology.** 2 credits.
- **Bird 534. Quantitative Ecology.** 2 credits.
- **Bird 540. Waterfowl Biology and Management.** 2 credits.
- **CIEN 531. Environmental Engineering III.** 3 credits.
- **CIEN 532. Environmental Engineering IV.** 3 credits.
- **CIEN 533. Industrial Waste.** 3 credits.
- **CIEN 535. Hazardous Waste Management.** 3 credits.
- **Engr 501. Energy, Resources and Policy.** 3 credits.
- **EE 423. Power Systems I.** 3 credits.
- **EE 523. Power Systems II.** 3 credits.
- **GeoEn 417. Hydrogeology.** 3 credits.
- **GeoEn 419. Groundwater Modeling.** 3 credits.
- **GeoEn 427. Groundwater Modeling.** 3 credits.
- **Geol 509. Advanced Mineralogy.** 3 credits.
- **Geol 530. Advanced Physical Hydrogeology.** 3 credits.
- **Geol 531. Hydrogeochemistry.** 3 credits.
- **Geol 532. Contaminant Hydrogeology.** 3 credits.
- **ME 446. Gas Turbines.** 3 credits.
- **ME 449. Internal Combustion Engines.** 3 credits.
- **ME 451. Heating and Air Conditioning.** 3 credits.
- **ME 464. Computational Fluid Dynamics.** 3 credits.
- **ME 476. Intermediate Fluid Dynamics.** 3 credits.
- **ME 477. Compressible Fluid Flow.** 3 credits.
- **ME 514. Processing of Advanced Materials.** 3 credits.
- **ME 545. Fluidized-Bed Combustion Engineering.** 3 credits.
- **ME 574. Advanced Heat Transfer.** 3 credits.

*All students must take Engr 501 and one of the above listed courses from each of the ChE, EE, and ME departments.*
Course List for Environmental Engineering Track

Environmental Related Engineering Courses:
- ChE 501. Advanced Transport Phenomena. 3 credits.
- ChE 504. Air Pollution Control. 3 credits.
- ChE 507. Advanced Unit Operations. 3 credits.
- ChE 509. Advanced Chemical Engineering Thermodynamics. 3 credits.
- ChE 510. Advanced Chemical Process Control. 3 credits.
- ChE 511. Advanced Chemical Engineering Kinetics. 3 credits.
- ChE 512. Advanced Separation Processes. 3 credits.
- ChE 515. Design of Engineering Experiments. 3 credits.
- CIEN 531. Environmental Engineering III. 3 credits.
- CIEN 532. Environmental Engineering IV. 3 credits.
- CIEN 533. Industrial Wastes. 3 credits.
- CIEN 535. Hazardous Waste Management. 3 credits.
- Engr 501. Energy, Resources and Policy. 3 credits.
- GeoE 417. Hydrogeology. 3 credits.
- GeoE 419. Groundwater Monitoring. 3 credits.
- GeoE 427. Groundwater Modeling. 3 credits.
- Geol 500. Sedimentary Geology. 3 credits.
- Geol 505. Isotope Geology. 3 credits.
- Geol 509. Advanced Mineralogy. 3 credits.
- Geol 530. Advanced Physical Hydrogeology. 3 credits.
- Geol 531. Hydrochemistry. 3 credits.
- Geol 532. Contaminant Hydrogeology. 3 credits.
- Geol 540. Water Sampling & Analysis. 3 credits.

Other Acceptable Departmental Courses:
- All Other Chemical Engineering Graduate Courses
- All Other Civil Engineering Graduate Courses
- All Other Electrical Engineering Graduate Courses
- All Other Geology and Geophysical Engineering Graduate Courses
- All Other Mechanical Engineering Graduate Courses
- All Chemistry Graduate Courses
- All Mathematics Graduate Courses
- All Physics Graduate Courses
- All Computer Science Graduate Courses

Environmental & Ecology Related Courses:
- Aste 505. Advanced Atmospheric Dynamics. 3 credits.
- Aste 510. General Circulation. 3 credits.
- Aste 515. Advanced Climatology. 3 credits.
- Aste 520. Atmospheric Chemistry. 3 credits.
- Aste 525. Atmospheric Radiation. 3 credits.
- Aste 528. Atmospheric Data Analysis. 3 credits.
- Aste 530. Numerical Weather Prediction. 3 credits.
- Aste 535. Measurement Systems. 3 credits.
- Aste 540. Statistical Methods in Atmospheric Science. 3 credits.
- Aste 545. Hydrometeorology. 3 credits.
- Avil 512. Aviation Environmental Concerns. 3 credits.
- Biol 533. Grassland Ecology. 2 credits.
- Biol 540. Waterfowl Biology and Management. 2 credits.
- ESSP 506. Ecosystems Services. 3 credits.
- ESSP 520. Earth Systems Modeling. 3 credits.
- ESSP 540. Advanced Topics in Geospatial Technology. 3 credits.
- ESSP 562. Environmental Economics. 3 credits.
- Spht 501. Survey of Space Studies. 3 credits.
- Spht 520. Asteroids. 3 credits.

Business/Management/Economics Related Courses:
- Econ 505. Advanced Macroeconomic Theory. 3 credits.
- Econ 509. Macroeconomic Decision-Making. 3 credits.
- Econ 511. Advanced Business and Economic Forecasting. 3 credits.
- Econ 516. Advanced Managerial Economics. 3 credits.
- Econ 524. Applied Economic Analysis I. 3 credits.
- Econ 530. Seminar in International Economics. 3 credits.
- Econ 534. Applied Economic Analysis II. 3 credits.
- Econ 550. Economics of Regulation. 3 credits.
- Econ 580. Economic Development. 3 credits.
- Fin 501. Managerial Finance. 3 credits.
- Mkg 510. Strategic Market Planning. 3 credits.
- Pol 501. Political and Public Policy Analysis. 3 credits.
- Pol 502. Seminar: Problems in State and Local Governments. 3 credits.
- Pol 531. Seminar: Public Administration. 3 credits.
- Pol 532. Public Policy. 3 credits.
- Pol 533. Administrative Ethics in the Public Sector. 3 credits.
- Soc 407. Political Sociology. 3 credits.

Course List for Geological Engineering Track

Geology/Geological Engineering Department Graduate Courses:
- Geol 500. Sedimentary Geology. 1-4 credits.
- Geol 505. Isotope Geochemistry. 3 credits.
- Geol 506. Glacial Geology. 4 credits.
- Geol 509. Advanced Mineralogy. 1-4 credits.
- Geol 511. Advanced Structural Geology. 4 credits.
- Geol 512. Advanced Petrology. 1-4 credits.
- Geol 518. Topics in Advanced Stratigraphy. 2-4 credits.
- Geol 520. Statistical Applications in Geology. 3 credits.
- Geol 522. History and Philosophy of Geology. 3 credits.
- Geol 523. Topics in Advanced Geomorphology. 1-4 credits.
- Geol 525. Weathering and Soils. 3 credits.
- Geol 530. Advanced Physical Hydrogeology. 3 credits.
- Geol 531. Hydrochemistry. 3 credits.
- Geol 532. Contaminant Hydrogeology. 3 credits.
- Geol 540. Water Sampling & Analysis. 3 credits.

Business/Management/Economics Related Courses:
- Econ 505. Advanced Macroeconomic Theory. 3 credits.
- Econ 509. Macroeconomic Decision-Making. 3 credits.
- Econ 511. Advanced Business and Economic Forecasting. 3 credits.
- Econ 516. Advanced Managerial Economics. 3 credits.
- Econ 524. Applied Economic Analysis I. 3 credits.
- Econ 530. Seminar in International Economics. 3 credits.
- Econ 534. Applied Economic Analysis II. 3 credits.
- Econ 550. Economics of Regulation. 3 credits.
- Econ 580. Economic Development. 3 credits.
- Fin 501. Managerial Finance. 3 credits.
- Mkg 510. Strategic Market Planning. 3 credits.
- Pol 501. Political and Public Policy Analysis. 3 credits.
- Pol 502. Seminar: Problems in State and Local Governments. 3 credits.
- Pol 531. Seminar: Public Administration. 3 credits.
- Pol 532. Public Policy. 3 credits.
- Pol 533. Administrative Ethics in the Public Sector. 3 credits.
- Soc 407. Political Sociology. 3 credits.
**Master of Arts Program**

The University of North Dakota Department of English offers a varied program of studies in English and American literature, writing, and the English language. The academic atmosphere is intimate, class size for graduate courses is small, and students are encouraged to work closely with members of the graduate faculty. The curriculum varies from year to year and includes courses in genres, periods, specific authors, critical theory, rhetoric/composition, interdisciplinary study, creative writing, cinema/film theory, linguistics, and research methods. Faculty in the Department also work in interdisciplinary areas such as American Studies, Peace Studies, Composition Studies, American Indian Studies, and Women Studies. The Department works closely with the University’s College of Education and Human Development in the area of English Education. In all areas of work, students are encouraged to utilize a variety of critical and theoretical approaches.

The Department sponsors an annual week-long writers conference that gives graduate students a chance to hear contemporary writers read their work and discuss the writing process. Visitors have included Salman Rushdie, Czeslaw Milosz, Louise Erdrich, Larry McMurtry, Leslie Silko, James Welch, August Wilson, Luisa Valenzuela, Peter Matthiessen, Tim O'Brien, Ursula Hegi, Barry Lopez, and Mary Gaitskill.

**Master of Arts Mission Statement and Program Goals**

The Department of English provides quality graduate instruction in literature in English, literary criticism and theory, the English language, literacy studies, creative writing, cultural studies, film studies, and related fields. Successful students will be prepared to seek careers as college and university teachers, writing teachers, creative writers, editors, or a variety of other professions that require highly developed verbal, analytical, and rhetorical skills.

**Goal 1** Students will be able to conduct significant, independent research in English studies or produce a significant, independent work of creative writing.

**Goal 2** Students will demonstrate a broad knowledge of disciplinary subfields, major works, and influential critical approaches within English studies.

**Goal 3** Graduate Teaching Assistants will demonstrate the ability to teach effectively within the field of English studies.

**Admission Requirements**

Applications for admission must be completed by March 1 for full consideration and Teaching Assistantships.

1. A four-year bachelor’s degree from a recognized college or university.
2. Twenty semester credits of English beyond the communication requirement with a 3.00 grade point average or better.
3. Undergraduate work in at least one language other than English equivalent to the first two college-level years or by demonstrating (by Educational Testing Service or by Language Department examination) a reading knowledge of one language other than English or the satisfactory completion of two semesters each of two languages other than English. In some cases, students may be admitted without the language requirement and may complete it as part of the M.A. program.
4. A writing sample of 10-15 pages on topics or in modes appropriate to the proposed program of study (submitted directly to the department). Applicants who plan to major in creative writing should also submit an analytical paper.
5. Graduate Record Examination General Test required. Literature in English Advanced Test is recommended.
6. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IETLS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, or present IETLS scores of 6.5.
7. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL. Applicants may also meet language requirements by presenting IETLS scores of 6.5.

**Degree Requirements**

Students seeking the Master of Arts degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the English Language and Literature Department.

1. Thirty credit hours are needed for the M.A., including the required courses listed below, the thesis (4 credits), and any Readings/Research courses (maximum 4 credits).
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
4. English 500; English 501 and 501L (for Graduate Teaching Assistants only); and either English 510 or 511. Courses must be completed with grades of A or B (S for 501L).
5. Up to 4 credits of Readings and Research courses (English 590 and 593) may be used to supplement the standard graduate offerings.
6. Four credits are allowed for the thesis.
7. Required courses:
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<th>Course Number</th>
<th>Course Title</th>
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<tr>
<td>ENGL 500</td>
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<td>History of Literary Criticism</td>
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<td>ENGL 511</td>
<td>Problems in Literary Criticism</td>
<td>1-4</td>
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<tr>
<td>ENGL 590</td>
<td>Readings</td>
<td>1-4</td>
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<td>ENGL 593</td>
<td>Research</td>
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<tr>
<td>Electives</td>
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<td>10-12</td>
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<tr>
<td>ENGL 998</td>
<td>Thesis</td>
<td>4</td>
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DOCTOR OF PHILOSOPHY

Mission Statement and Program Goals

The Department of English provides quality graduate instruction in literature in English, literary criticism and theory, the English language, literary studies, creative writing, cultural studies, film studies, and related fields. Successful students will be prepared to seek careers as college and university teachers, writing teachers, creative writers, editors, or a variety of other professions that require highly developed verbal, analytical, and rhetorical skills.

Goal 1: Students will be able to conduct significant, independent research in English studies or produce a significant, independent work of creative writing.

Goal 2: Students will demonstrate a broad knowledge of disciplinary subfields, major works, and influential critical approaches within English studies.

Goal 3: Graduate Teaching Assistants will demonstrate the ability to teach effectively within the field of English studies.

Admission Requirements

1. A four-year bachelor’s degree from a recognized college or university.
2. Twenty semester credits of English beyond the communication requirement with a 3.00 grade point average or better.
3. Undergraduate work in at least one language other than English equivalent to the first two college-level years or by demonstrating (by Educational Testing Service or by Languages Department examination) a reading knowledge of one language other than English or the satisfactory completion of two semesters each of two languages other than English. In some cases, students may be admitted without the language requirement and may complete it as part of the M.A. program.
4. A writing sample of 10-15 pages on topics or in modes appropriate to the proposed program of study (submitted directly to the department). Applicants who plan to major in creative writing should also submit an analytical paper.
5. Graduate Record Examination General Test required. Literature in English Advanced Test is recommended.
6. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5. *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
7. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
8. Ordinarily a master’s degree of at least 30 semester credits of courses in literature and English language or in an acceptable combination of these and related subjects. (Graduate courses taken elsewhere may, at the discretion of the Department, be accepted in lieu of courses that would otherwise be related at the University of North Dakota.)

Degree Requirements

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the English Language and Literature Department.

1. English 500; English 501 and 501L (for Graduate Teaching Assistants only); and either English 510 or 511. Courses must be completed with grades of A or B (S for 501L).
2. Up to ten credits in addition to the four credits allowed for the dissertation in areas or topics relevant to a student’s individual interests as recommended by the student’s Advisory Committee. These topics and areas will normally include a combination of at least four of the following: departmentally approved historical periods or movements; authors outside these periods or movements; critical, scholarly, or pedagogical theory and practice; literary genres, modes, or themes; studies in language; special topics in literature or language. These examinations will normally be taken after the coursework is completed.
3. Evidence of the mastery of scholarly tools appropriate to the proposed field of studies is required, including proficiency in one language other than English plus either another language or languages.
4. Completion of the scholarly tools and the comprehensive examinations, in areas or topics relevant to a student’s individual interests as recommended by the student’s Advisory Committee. These topics and areas will normally include a combination of at least four of the following: departmentally approved historical periods or movements; authors outside these periods or movements; critical, scholarly, or pedagogical theory and practice; literary genres, modes, or themes; studies in language; special topics in literature or language. These examinations will normally be taken after the coursework is completed.
5. Fifteen (15) hours of credit may be granted for the dissertation, which may take the form of either a closely focused scholarly-critical investigation of a single topic, a creative work or group of works, or a number of related, publishable essays (critical, scholarly, bibliographical, methodological, pedagogical) which may be developed in combination with a project or projects deemed appropriate and acceptable by the student’s Advisory Committee.

NOTE: Students may be recommended for advancement to candidacy for the doctoral degree only after they have satisfied the following requirements in addition to those required by the Graduate School: Completion of English 500 and either English 510 or 511 with grades of A or B; for Graduate Teaching Assistants, English 501 with a grade of A or B and 501L with a grade of S.

Courses

(Engl)

500. Introduction to Graduate Studies. 2 credits. Required of all candidates for advanced degrees in English. An introduction to graduate study and the profession.
501. Teaching College English. 3 credits. An introduction to theories and methods of teaching college English. Required of Graduate Teaching Assistants in English.
418. Second Language Acquisition. 3 credits.

417. Special Topics in Language. 1 to 4 credits.

415. Special Topics in Literature. 3 credits.

414. The Art of Writing: Fiction. 3 credits.

413. The Art of Writing: Poetry. 3 credits.

409. Art of the Cinematic Drama. 3 credits.

408. Advanced Composition II. 3 credits.

407. Studies in Twentieth Century Literature. 3 credits.

406. Studies in Nineteenth Century Literature. 3 credits.

405. Studies in Colonial American Literature. 3 credits.

404. Studies in Renaissance Literature. 3 credits.

403. Studies in Medieval Literature. 3 credits.

402. Seminar in English Language. 3 credits.

401. Studies in Medieval Literature. 3 credits.

398. Thesis. 1-4 credits.


The following undergraduate courses are eligible for inclusion on graduate programs of study with permission. Additional assignments are required of students taking these courses for graduate credit.

401. Studies in Medieval Literature. 3 credits.

403. Studies in Colonial American Literature. 3 credits.

404. Studies in Renaissance Literature. 3 credits.

405. Studies in Restoration and Eighteenth Century Literature. 3 credits.

406. Studies in Nineteenth Century Literature. 3 credits.

407. Studies in Twentieth Century Literature. 3 credits.

408. Advanced Composition II. 3 credits.

409. Art of the Cinematic Drama. 3 credits.

413. The Art of Writing: Poetry. 3 credits.

414. The Art of Writing: Fiction. 3 credits.

415. Special Topics in Literature. 1 to 4 credits.

417. Special Topics in Language. 1 to 4 credits.

418. Second Language Acquisition. 3 credits.

419. Teaching English as a Second Language. 3 credits.

422. History of the English Language. 3 credits.

The Environmental Engineering graduate program combines those aspects of Chemical, Civil, and Geological Engineering most applicable to environmentally related problems. This program is, to our best knowledge, unique in the combination of these three disciplines for the training of graduate students in environmental engineering. These interdisciplinary M.S., M.Engr., and Certificate programs provide high-quality education and skill development opportunities, prepare students to be professionally successful, to be life-long learners, and to be knowledgeable, contributing members of a multicultural, global society. The faculty of the three participating departments and participating UND Energy and Environmental Research Center (EERC) personnel represent a tremendous wealth of environmental expertise based on past and current field and laboratory research, consulting experience, professional organization involvement, and formal continuing education and technical training. They also have strong working relationships with personnel from a wide variety of industries, municipalities, consulting firms, governmental agencies, and research-funding organizations. These relationships will provide many opportunities for collaboration and research, which will be beneficial to all stakeholders of the programs.

The program is oriented primarily towards a Master of Science (M.S.) degree. A research project, culminating in a master’s thesis is a major part of this program. The program emphasizes a multidisciplinary approach to Environmental Engineering from Chemical, Civil, and Geological perspectives and includes the three major environmental areas relating to the mitigation of environmental impacts from gaseous, liquid, and solid-phase emission sources. Students benefit from the interactions between the proposed programs and the EERC. The EPA-certified laboratories, pilot processes, research specialists, and ongoing research opportunities at the EERC are phenomenal assets.

In addition, a number of on-campus laboratory facilities, including the multi-disciplinary Environmental Analytical Research Laboratory (Leonard Hall), Civil Engineering Environmental and Hydraulics Laboratories, and Chemical Engineering Laboratories are well equipped and fully available to the proposed programs. Enhanced research opportunities and additional analytical laboratory expertise will be available through established off-campus relationships with numerous state agencies, industries, consulting firms and communities.

A Master of Engineering degree is also available, especially for Civil Engineering-oriented students. For this degree, a design-oriented project is completed in lieu of the master’s thesis. An Environmental Engineering certificate program is also offered that consists of a group of three courses. The schedule of courses offered for the certificate, and the manner of delivery will be published on the program website.
**MASTER OF SCIENCE**

**Mission Statement and Program Goals**

The mission of the Environmental Engineering Master of Science program is to prepare environmental engineers and environmental engineering scientists for careers in 1) industry or government, and/or 2) doctoral studies in environmental engineering or related fields. This preparation will include advanced coursework in the three core disciplines supporting the field of environmental engineering, namely chemical, civil, and geological engineering, plus additional study and research in specific areas of interest to the student and for which the faculty is qualified to direct and instruct.

**Goal 1:** Students, with the advice of their research advisor and thesis committee, will construct a program of study that meets their individual learning goals and objectives, while fulfilling the qualifications for the M.S. Environmental Engineering degree.

**Goal 2:** Graduates will be proficient researchers, i.e. they will have the skills required to formulate, assess, and document a hypothesis.

**Goal 3:** Graduates will be well prepared for a career in industry and/or doctoral studies in environmental engineering or a related field.

**Admission Requirements**

1. Bachelor of Science degree from an ABET accredited engineering program in Environmental, Chemical, Civil, or Geological Engineering.
2. Students holding a B.S. degree in other engineering disciplines or in a science field may be admitted to Qualified Status with an obligation to acquire background undergraduate engineering knowledge. The exact requirements will be determined on a case-by-case basis.
3. An overall undergraduate GPA of at least 2.75, or 3.00 for the last two years.
4. Graduate Record Examination General Test for applicants from non-ABET accredited programs.
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

**Degree Requirements**

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Environmental Engineering Program.

1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of eight semester credits may be transferred from another institution.

**MASTER OF ENGINEERING**

**Mission Statement and Program Goals**

The mission of the Environmental Engineering Masters of Engineering program is to prepare environmental engineers for careers in industry or government. This preparation will include advanced coursework in the three core disciplines supporting the field of environmental engineering, namely chemical, civil, and geological engineering, with an emphasis on engineering design, plus work on an environmental engineering design project in specific areas of interest to the student and for which the faculty is qualified to direct and instruct.

**Goal 1:** Students, with the advice of their advisor will construct a program of study that meets their individual learning goals and objectives, while fulfilling the qualifications for the M.Engr. Environmental Engineering degree.

**Goal 2:** Graduates will have the skills required to solve complex environmental engineering problems.

**Goal 3:** Graduates will be well prepared for a career in industry or government in environmental engineering or a related field.

**Admission Requirements**

1. Bachelor of Science degree from an ABET accredited engineering program in Environmental, Chemical, Civil, or Geological Engineering.
2. Students holding a B.S. degree in other engineering disciplines or in a science field may be admitted to Qualified Status with an obligation to acquire background undergraduate engineering knowledge. The exact requirements will be determined on a case-by-case basis.
3. An overall undergraduate GPA of at least 2.50, or 3.00 for the last two years.
4. Graduate Record Examination General Test for applicants from non-ABET accredited programs.
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Degree Requirements

Students seeking the Master of Engineering degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Environmental Engineering Program.

1. A minimum of 30 semester credits in a major field, including the credits granted for the engineering design project.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of eight semester credits may be transferred from another institution.
4. Required Courses:
   - EnvE – 562 ................. 1 cr
   - EnvE – 595 ................. 3-6 cr
   A minimum of 3 credits from the following:
   - ChE 501 ....................... 3 cr
   - ChE 504 ....................... 3 cr
   - ChE 512 ....................... 3 cr
   A minimum of 3 credits from the following:
   - CIEN 531 ....................... 3 cr
   - CIEN 532 ....................... 3 cr
   - CIEN 535 ....................... 3 cr
   A minimum of 3 credits from the following:
   - Geol 417 ....................... 3 cr
   - Geol 540 ....................... 3 cr
   - Electives ....................... 14-17 cr
   Total 30 cr
5. A written report documenting work on a successfully completed environmental engineering design project.

CERTIFICATE PROGRAM

Admission Requirements

1. Bachelor of Science degree in an ABET accredited engineering program in Environmental, Chemical, Civil, or Geological Engineering.
2. Students holding a B.S. degree in other engineering disciplines or in a science field with an appropriate background in chemistry, fluid mechanics, and mathematics may also be admitted.
3. An overall undergraduate GPA of at least 2.50 or 3.00 for the last two years.

The courses taken in a previously completed Environmental Engineering Certificate Program may be applied to a Master’s degree in Engineering.

Certificate Requirements

1. A total of nine (9) credit hours must be completed in Graduate level courses listed as Environmental Engineering, Chemical Engineering, Civil Engineering, Geology, or Geological Engineering, and identified as qualified courses for the certificate.
2. A minimum GPA of 3.00 is required to earn the certificate. Courses shall only count as credit toward fulfilling the requirements listed above when a grade of C or greater has been awarded at the completion of the course.

Courses (EnvE)

562. Seminar in Environmental Engineering 1 credit, repeatable. Conferences, seminars, and reports on current developments in environmental engineering. Students will participate in professional presentations on topics relevant to environmental engineering. Students will also report the results of their graduate research or present information on other technically relevant topics approved by the course instructor.
590. Special Topics in Environmental Engineering 1 to 3 credits. Topics of current interest.
591. Environmental Engineering Research 1 to 6 credits, repeatable. Supervised research work in environmental engineering.
595. Design Project 3 to 6 credits. Engineering design experience involving individual effort and formal written report and presentation.
998. Thesis 1 to 9 credits. Development and documentation of scholarly activity demonstrating proficiency in Environmental Engineering at the master’s level. S/U grading only. F.S.SS

The following are approved engineering courses that may be used to fulfill requirements for a major or minor in Environmental Engineering:

ChE 501. Advanced Transport Phenomena
ChE 504. Air Pollution Control
ChE 507. Advanced Unit Operations
ChE 509. Advanced Thermodynamics
ChE 510. Advanced Chemical Process Control
ChE 511. Advanced Chemical Engineering Kinetics
ChE 512. Advanced Separation Processes
ChE 515. Design of Experiments
ChE 535. Metallic Corrosion and Polymer Degradation
CIEN 531. Environmental Engineering III
CIEN 532. Environmental Engineering IV
CIEN 533. Industrial Wastes
CIEN 535. Hazardous Waste Management
Geol 500. Sedimentary Geology
Geol 505. Isotope Geology
Geol 509. Advanced Mineralogy
Geol 525. Weathering and Soils
Geol 530. Advanced Hydrogeology
Geol 531. Hydrogeochemistry
Geol 532. Contaminant Hydrogeology
Geol 540. Water Sampling & Analysis

Forensic Psychology

http://www.conted.und.edu/ddp/mafp/index.html

FACULTY: Antes, Bradley*, Derenne, Ferraro, Grabe, Himle, Holm, King, McDonald, Miller, Muelenkamp, Peters* (Program Director), Petros, Ruthig, Terrance*, Weatherly (Chair) and Wise*

*Forensic core-program faculty

DEGREES GRANTED: Master of Arts and Master of Science

PROGRAM DESCRIPTION

MASTER OF ARTS

The Department of Psychology, in conjunction with the Division of Continuing Education, has designed an online forensic psychology program targeted for working professionals. The M.A. Forensic Psychology program is the first to be offered online by a nationally recognized, fully accredited university. Through the 34-credit M.A. program, students will learn how to provide the psychological expertise and knowledge needed by the legal community and agencies having a strong forensic focus. Students in the program will likely be in-service professionals, such as law enforcement personnel, who want to further their career, as well as those with a behavioral or social science background, such as counselors or social workers, who are interested in applying psychology to their work involving forensic issues.
UND’s high-quality forensic psychology program gives you: knowledge of advanced psychological concepts and theories related to contemporary forensic issues, outstanding analytical, statistical and evaluation skills, enhanced communication skills needed to function effectively in forensic settings, in-depth understanding of our legal system and the roles forensic psychologists play.

**MASTER OF SCIENCE**

In the U.S. forensic graduates obtain master’s-level psychology jobs in agencies and institutions such as prisons, juvenile facilities, social service agencies, police departments, child care agencies, probation, parole, family court, addiction services, hospitals, and community mental health centers. Some students get jobs as forensic researchers doing studies and evaluations of at-risk populations. A few graduates will be accepted in federal law enforcement agencies after earning the Master’s degree. You would expect to see forensic graduates working in the following areas: secure forensic units in state facilities, jails/prisons, probation services, court service units, community mental health centers, protective services, violence risk assessment, specialized agencies (i.e. child advocacy centers), law enforcement, and trial consulting. The M.S. degree in forensic psychology will also allow some students to advance to doctoral programs in forensic psychology, forensic science, and law school.

Students in the M.S. Forensic Psychology Program at UND are required to complete 44 credits. This includes 26 credits of required coursework, 12 credits of elective courses, and a minimum of 6 credit hours for thesis work. The Forensic Psychology Program does not have a comprehensive examination.

**MASTER OF ARTS**

**Mission Statement and Program Goals**

The MA program is committed to providing equality instruction and training in the field of modern forensic psychology in order to serve the educational and professional needs of those working or living at distance from UND.

1. Establish a solid foundational background in psychological concepts and skills similar to those offered in many graduate programs in psychology, particularly those with an applied emphasis.
2. Provide students with specific forensic-relevant coursework and experiences.
3. Allow students an opportunity to receive supervised fieldwork and/or to do a research project as independent study.

**Admission Requirements**

1. A baccalaureate degree from an accredited college or university with a behavioral or social science major allied with psychology, i.e., psychology, criminal justice, sociology, counseling or social work.
2. A cumulative undergraduate grade point average (GPA) of 3.0 or above, or a graduate graduating GPA of at least 3.50.
3. Submission of a 250-300-word essay describing professional background and reasons for pursuing a graduate degree in forensic psychology.
4. Submission of three letters of recommendation from those who can comment on your academic abilities or ability to understand complex issues and think critically (e.g. former faculty member or work supervisor).
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IETLS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL. Applicants may also meet language requirements by presenting IETLS scores of 6.5.

**Degree Requirements**

Students seeking the Master of Science or Master of Arts degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Forensic Psychology Department.

The general degree requirements for the Master of Arts degree in the Forensic Psychology include a minimum of 34 credits of coursework:

- **Required Core Courses (25 credits):**
  - PSYC 520 Foundations of Forensic Psychology 3 cr
  - PSYC 521 Diversity Psychology 3 cr
  - PSYC 524 Psychology and Law 3 cr
  - PSYC 528 Forensic Psychology Capstone (summer, 2 weeks on campus immediately prior to graduation) 2 cr
  - PSYC 541 Advanced Univariate Statistics 3 cr
  - PSYC 560 Advanced Social Psychology 3 cr
  - PSYC 575 Behavior Pathology 3 cr
  - PSYC 593 Readings in Psychology 3 cr
  - PSYC 997 Independent Study (research and practicum experience possible) 2 cr

- **Elective Courses (9 credits):**
  - PSYC 501 Psychological Foundations of Education 3 cr
  - PSYC 526 Psychological Profiling & Criminal Behavior 3 cr
  - PSYC 539 Cognitive Psychology 3 cr
  - PSYC 572 Community Psychology 3 cr
  - PSYC 576 Child Psychology & Treatment 3 cr
  - PSYC 587 Supervised Field Work 1-3 cr
  - PSYC 594 ST: Conflict Management 3 cr
  - PSYC 594 ST: Neuropsychology 3 cr
  - PSYC 594 ST: Psychopharmacology 3 cr

Note: The student’s Advisory Committee will also consider other graduate classes as appropriate electives on a case-by-case basis. Students who have a strong psychology undergraduate background may, after review by the Committee, be permitted to substitute an appropriate forensic psychology elective for a required course. A maximum of 8 credits may be transferred from another institution.

**MASTER OF SCIENCE**

**Mission Statement and Program Goals**

The M.S. program is committed to providing quality instruction and training in the field of modern forensic psychology in order to serve those interested in careers in forensic psychology or wanting preparation for doctoral programs in psychology or other professional programs like law school or criminal justice.

1. Establish a solid foundational background in psychological concepts and skills similar to those offered in many graduate programs in psychology, particularly those with an applied emphasis.
2. Provide students with specific forensic-relevant coursework and experiences.
3. Provide students an opportunity to receive supervised fieldwork in forensic settings.
4. Give students an opportunity to participate in faculty-directed research and conduct their own independent research with a thesis.
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University of North Dakota

Admission Requirements
1.

2.
3.

4.

5.

6.

7.

Applicants must have a baccalaureate degree from an accredited college or university with a behavioral or social
science major allied with psychology, e.g., psychology,
criminal justice, sociology, counseling, and social work.
Applicants must have a cumulative undergraduate GPA of
3.2 or above or a graduating GPA 3.5.
Applicant must also submit GRE scores, with Analytic
GRE writing test score >2.5; and Verbal and Quantitative
GRE scores must both equal or exceed the 30th percentile.
The Psychology subject GRE test is also required. Applicants not meeting these standards may be admitted on a
provisional basis with continued enrollment contingent on
successful performance in the program.
A 250-300 word essay discussing reasons for pursuing a
graduate degree in forensic psychology and research interests.
Three letters of recommendation from those who can comment on the applicant’s academic abilities are also required.
Consideration will be given for experience working in forensic areas or participating in research as an assistant prior
to the program application.
A minimum TOEFL Score of 550 on the paper-based test
or 213 on the computer-based test, or for the Internetbased TOEFL, a composite score of 79, with minimum
scores of 21/30 (Speaking*); 19/30 (Listening); 19/30
(Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet
language requirements by presenting IETLS scores of 6.5.
*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores,
but have a minimum score of 26/30 on the Speaking subtest.
Students who have received a bachelor’s degree or higher
from the United States or English-speaking Canada are not
required to submit the TOEFL. Applicants may also meet
language requirements by presenting IETLS scores of 6.5.

Degree Requirements
Students seeking the Master of Science degree at the University
of North Dakota must satisfy all general requirements set forth by
the Graduate School as well as particular requirements set forth by
the Forensic Psychology Department.
Students in the M.S. Forensic Psychology Program at UND are
required to complete 44 credits. This includes 26 credits of required
coursework, 12 credits of elective courses, and a minimum of 6 credit
hours for thesis work. The Forensic Psychology Program does not
have a comprehensive examination.
Required Core Courses (26 credits):
PSYC
PSYC
PSYC
PSYC
PSYC
PSYC
PSYC
PSYC
PSYC
PSYC

520 ........... Foundations of Forensic Psychology ............................. 3 cr
521 ........... Diversity Psychology ..................................................... 3 cr
524 ........... Psychology and Law ....................................................... 3 cr
541 ........... Advanced Univariate Statistics ....................................... 3 cr
542 ........... Multivariate Analysis ...................................................... 3 cr
543 ........... Experimental Design ........................................................ 3 cr
575 ........... Behavior Pathology ......................................................... 3 cr
587 ........... Supervised Field Work .................................................... 2 cr
593 ........... Readings in Psychology ................................................. 3 cr
998 ........... Thesis ........................................................................... 6-9 cr

Elective Courses (12 credits):
PSYC
PSYC
PSYC
PSYC
PSYC

501 ........... Psychological Foundations of Education ...................... 3 cr
526 ........... Psychological Profiling and Criminal Behavior ............ 3 cr
539 ........... Cognitive Psychology .................................................... 3 cr
560 ........... Advanced Social Psychology ......................................... 3 cr
572 ........... Community Psychology .................................................. 3 cr

PSYC 576 ........... Child Psychopathology and Treatment .......................... 3 cr
PSYC 594 ........... ST: Conflict Management ................................................. 3 cr
PSYC 594 ........... ST: Neuropsychology ..................................................... 3 cr
PSYC 594 ........... ST: Psychopharmacology ................................................ 3 cr
CJ 515 ................. Human Nature and Crime ................................................. 3 cr
CJ 535 ................. Seminar in Juvenile Justice .............................................. 3 cr
CJ 565 ................. Victimology ...................................................................... 3 cr

Note: The student’s Advisory Committee will also consider
other graduate classes as appropriate electives on a case-by-case
basis. Students who have a strong psychology undergraduate background may, after review by the Committee, be permitted to substitute an appropriate forensic psychology class.

Courses
Please see the Psychology and Criminal Justice sections for
course descriptions.

Geography
http://www.und.edu/dept/Geog/mainpage.htm

FACULTY: Hansen, Jung, Munski (Graduate
Director), Rundquist (Chair), Todhunter,
Vandeberg and Wang
DEGREES GRANTED: Master of Arts, Master of
Science and Certificate in
Geographic Information Science
PROGRAM DESCRIPTION
The Geography Department graduate program includes both
thesis and non-thesis options leading to the M.A. and M.S. degrees.
The principle areas of concentration are community and urban development, environmental geography, geographic education, and
geospatial techniques (cartography, GIS, and remote sensing of the
environment). The graduate programs provide close student-faculty
interaction, easy access to current computer technology and field
equipment, a broad liberal arts academic setting, and an abundant
number of research topics within the American Great Plains and
Canadian Prairie Provinces. In addition, the department offers an
array of courses in geospatial technologies to allow students to build
expertise in GIS, remote sensing, cartography and spatial analysis.
Prospective graduate students are encouraged to apply by February1
(for Fall enrollment) and October 15 (for Spring enrollment) of each
year to receive fullest consideration for acceptance and funding.
The M.A. option in community and urban development emphasizes the background education students need to enter careers in
community development, local economic development, land use planning, federal government service, historic preservation, and travel and
tourism. This option also provides the background for those students
wishing to pursue a doctoral degree in human geography. Students in
the M.A. option take a selection of courses in population, economic,
social, urban, cultural, historical, and regional geography. They also
can take minor or cognate courses in business and public administration, international relations, anthropology and archaeology, sociology, languages, and other fields appropriate to their goals.
The M.S. option in environmental geography reflects a geographic focus on land use, and land-use change, climatology, water
resources, human impact, biogeography, geomorphology, and landscape ecology. Students follow a sequence of required and elective
courses that reflect an environmental emphasis. The M.S. program
prepares students for doctoral study or a professional career in government, industry, or education in a wide variety of environmentally
related fields. Students also must take cognate or minor courses in
biology, geology, atmospheric sciences, or other related fields.


MISSION STATEMENT AND PROGRAM GOALS

The mission of the Department of Geography is to provide a solid foundation in the concepts and theories of human geography, and to develop community and local economic development, land use planning, federal government service, historic preservation, geographic information science, and travel and tourism, or for doctoral work in human geography.

Goal 1: Students will be able to create new knowledge and apply geographic techniques to solve geographic problems related to community and local economic development and land use planning.

Goal 2: Students will exhibit a fundamental understanding of the breadth, depth, and integration of geography.

Goal 3: Students will be able to integrate their learning in geography to the broader world.

ADMISSION REQUIREMENTS

1. A four-year bachelor’s degree from a recognized college or university.
2. A GPA of at least 3.00 in all undergraduate work.
3. A minimum of 9 semester credits of undergraduate coursework in geography, preferably in human geography.
4. Meet all graduate school requirements for admission.
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
6. International applicants who have received their bachelor’s or master’s degree in the United States or English speaking Canada are not required to submit the TOEFL or IELTS.

OUTSTANDING APPLICANTS Are evaluated on an individual basis and those with limited backgrounds in geography but a distinguished record in another discipline may be accepted in a qualified or provisional status.

DEGREE REQUIREMENTS

Students seeking the Master of Arts degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Geography Department.

1. Two required courses, Geog 501 and Geog 578.
2. One required seminar, Geog 541.
3. A minor or cognate area of study, and a graduate program of study that reflects the student’s focus on human geography topics (9 credits).

Thesis:

1. A minimum of 30 semester credits, including 9 semester credits for approved minor or cognate courses.
2. At least one-half of the credits must be at or above the 500-level.

3. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.

Non-thesis:

1. A minimum of 36 semester credits, including 9 semester credits for approved minor or cognate courses.
2. A minimum of 12 credits that focus upon geospatial skills and techniques which include quantitative methods, computer graphics and mapping, geographic information systems, remote sensing, field methods, and cartography. The non-thesis programs emphasize development of geospatial skills that can be applied to specific problems and projects that may or may not involve research.
3. A minimum of two credits of Independent Study
4. At least one-half of the credits must be at or above the 500-level.
5. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
6. Preparation of a written independent study approved by the faculty advisor.
7. Comprehensive final examination.

MISSION OF SCIENCE

The mission of the Department of Geography is to provide a solid foundation in the concepts and theories of physical geography, and to develop skills in the use of geospatial technologies, which will prepare students for careers in natural resources management, geoscience, federal government service, and geographic information science, or for doctoral work in physical geography.

Goal 1: Students will be able to create new knowledge and apply geographic techniques to solve geographic problems related to natural resources management and the geosciences.

Goal 2: Students will exhibit a fundamental understanding of the breadth, depth, and integration of geography.

Goal 3: Students will be able to integrate their learning in geography to the broader world.

ADMISSION REQUIREMENTS

1. A four-year bachelor’s degree from a recognized college or university.
2. A GPA of at least 3.00 in all undergraduate work.
3. A minimum of 9 semester credits of undergraduate coursework in geography, preferably physical geography.
4. Meet all graduate school requirements for admission.
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IETLS scores of 6.5.

INTERNATIONAL APPLICANTS: Students from another country must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Geography Department.

1. Two required courses, Geog 501 and Geog 578.
2. One required seminar, Geog 541.
3. A minor or cognate area of study, and a graduate program of study that reflects the student’s focus on human geography topics (9 credits).

Thesis:

1. A minimum of 30 semester credits, including 9 semester credits for approved minor or cognate courses.
2. At least one-half of the credits must be at or above the 500-level.

3. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.

Non-thesis:

1. A minimum of 36 semester credits, including 9 semester credits for approved minor or cognate courses.
2. A minimum of 12 credits that focus upon geospatial skills and techniques which include quantitative methods, computer graphics and mapping, geographic information systems, remote sensing, field methods, and cartography. The non-thesis programs emphasize development of geospatial skills that can be applied to specific problems and projects that may or may not involve research.
3. A minimum of two credits of Independent Study
4. At least one-half of the credits must be at or above the 500-level.
5. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
6. Preparation of a written independent study approved by the faculty advisor.
7. Comprehensive final examination.
5. International applicants who have received their bachelor’s or master’s degree in the United States or English speaking Canada are not required to submit the TOEFL or IELTS.
6. Meet all graduate school requirements for admission.

Outstanding applicants are evaluated on an individual basis and those with limited background in geography but a distinguished record in another discipline may be accepted in a qualified or provisional status.

**Degree Requirements**

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Geography Department.

1. Two required courses, Geog 501 and Geog 578.
2. One required seminar, Geog 541.
3. A minor or cognate area of study, and a graduate program of study that reflects the student’s focus on physical geography topics (9 credits).

**Thesis:**
1. A minimum of 30 semester credits, including 9 semester credits for approved minor or cognate courses.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
4. Preparation and successful defense of a thesis. (A minimum of 4 credits for 998 Thesis.)

**Non-thesis:**
1. A minimum of 36 semester credits, including 9 semester credits for approved minor or cognate courses.
2. A minimum of 12 credits that focus upon geospatial skills and techniques which include quantitative methods, computer graphics and mapping, geographic information systems, remote sensing, field methods, and cartography. The non-thesis programs emphasize development of geospatial skills that can be applied to specific problems and projects that may or may not involve research.
3. Two credits of Independent Study (997) is required.
4. At least one-half of the credits must be at or above the 500-level.
5. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
6. Preparation of a written independent study approved by the faculty advisor.

**CERTIFICATE PROGRAM**

The Geography department also offers a graduate certificate in Geographic Information Science (GISc). GISc is the foundation of Geographic Information Systems (GIS), which integrate spatial data sets in the form of digital maps, digital aerial photos, remotely sensed imagery, and global positioning system (GPS) coordinates. The goal of GISc is to model landscapes digitally and to enable the mathematical characterization of spatial and temporal processes.

Certificate students must be admitted to UND as either full or part-time graduate students. Application for admission must be made to the UND Graduate School. The certificate is designed to serve: a) non-geography graduate students currently pursuing a graduate degree from UND, and b) non-degree-seeking professionals already holding a graduate and/or baccalaureate degree who seek to “re-tool.”

The courses taken in a previously completed GISc certificate program may be applied to a Master’s degree in Geography.

**Admission Requirements**

1. A baccalaureate degree from an accredited university.
2. A GPA of at least 2.75 in all undergraduate work.

**Certificate Requirements**

Successful completion of the 12-credit GISc Certificate requires the following:

1. Completion of the nine credits of core courses (see below).
2. Completion of at least three credit hours of elective courses (see below).
3. A “B” grade or better in all core and elective courses.
4. Completion time of no more than five years.

**Required Core Courses:**
- Geog 471/L...Cartographic & Computer Assisted Mapping ........... 3 cr
- Geog 474 ...... Introduction to GIS ........................................... 3 cr
- Geog 574 ...... Advanced Techniques in GIS ............................ 3 cr
- Elective Courses (at least 3 credits from):
  - Geog 377/L...Quantitative Applications in Geography .............. 3 cr
  - Geog 475 ...... Digital Image Processing ............................. 3 cr
  - Geog 575 ...... Seminar in Remote Sensing .......................... 3 cr
  - Geog 591 ...... Directed Studies in Geographical Problems .......... 1-4 cr

**Courses**

- **Geog**
  - Geog 541. Seminar in Geography. 3 credits. Prerequisites: Geography 578 and graduate standing in geography. A seminar that includes discussions of selected readings, student reports, and student research projects leading to oral and written presentations.
  - Geog 551. Advanced Human Geography. 3 credits. Prerequisite: consent of instructor. An investigation of an advanced topic in human geography. May be repeated if a different topic is examined.
  - Geog 560. Seminar in Regional Geography. 3 credits.
  - Geog 574. Advanced Techniques in Geographic Information Systems. 3 credits. Prerequisites: Geography 474 or equivalent. An advanced course designed to extend GIS knowledge and experience and to prepare students to become effective GIS analysts. The course follows a hands-on, problem-solving approach that integrates the interests and analytical needs to participating students.
  - Geog 575. Seminar in Remote Sensing. 3 credits. Prerequisite: Geography 475 or consent of instructor. A seminar in the analysis of remote sensing techniques as applied to contemporary research problems in geography.
  - Geog 576. Field Methods and Analysis in Geography. 3 credits. An advanced, intensive approach to the measuring and mapping of cultural and physical features of the earth in the field. Familiarization with the practical problems involved in data collection techniques in rural as well as urban areas and transfer of the pattern of phenomena of an area to a scale suitable for mapping.
  - Geog 580. Geographic Research and Writing. 2 credits. Prerequisite: Graduate standing. Required of all graduate students during the first semester in which they are registered and in residence or the first semester offered. Orientation to methods of research and in the art of preparing papers for publication. Area of study is determined by student and must be coordinated with co-op host.

**Certificate Requirements**

Successful completion of the 12-credit GISc Certificate requires the following:

1. Completion of the nine credits of core courses (see below).
2. Completion of at least three credit hours of elective courses (see below).
3. A “B” grade or better in all core and elective courses.
4. Completion time of no more than five years.

**Required Core Courses:**
- Geog 471/L...Cartographic & Computer Assisted Mapping ........... 3 cr
- Geog 474 ...... Introduction to GIS ........................................... 3 cr
- Geog 574 ...... Advanced Techniques in GIS ............................ 3 cr
- Elective Courses (at least 3 credits from):
  - Geog 377/L...Quantitative Applications in Geography .............. 3 cr
  - Geog 475 ...... Digital Image Processing ............................. 3 cr
  - Geog 575 ...... Seminar in Remote Sensing .......................... 3 cr
  - Geog 591 ...... Directed Studies in Geographical Problems .......... 1-4 cr
The Mission of the Master of Science in Geological Engineering is to develop students into highly qualified engineers capable of conducting research and solving complex problems related to petroleum and geothermal energy, geo-environmental concerns, and natural hazards.

Goal 1: Program graduates shall have sufficient skills in geoscience, mathematics, computer modeling, and poro-mechanics to formulate and solve practical problems in geological engineering.

Goal 2: Program graduates shall have the ability to independently conduct research to advance the state of the knowledge; and/or to provide innovative solutions to technical problems in a timely manner in at least one of the areas of exploration and production of energy and mineral resources, geomechanics, hydrogeology, ground water remediation, or site investigation/characterization.

Goal 3: Program graduates shall be skilled in research methods, be able to access, critically analyze, and utilize available information from a variety of sources; and shall be able to communicate the results of a research or development project both orally and in writing.

Admission Requirements

1. Bachelor of Science degree in Geological Engineering from an ABET accredited or equivalent program. A bachelor’s degree in another engineering discipline or in a science field, qualifies a student to be admitted to “qualified status” with an obligation to acquire background undergraduate engineering and geology knowledge.

2. Graduate Record Examination General Test for applicants from non-ABET accredited programs.

3. A cumulative Grade Point Average (GPA) of at least 3.0

4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Geological Engineering Department.

Thesis Option:

1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.

   Geology/Geological Engineering Coursework ........................................ 12 credits

   Other Engineering and Science Coursework ............................................. 12 credits

   Thesis ........................................................................................................... 6 credits

2. At least one-half of the credits must be at or above the 500-level.

3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.

4. Completion of the thesis.

Non-Thesis Option (Independent Study):

1. Thirty-four (34) credits including credits required for the major.

   Geology/Geological Engineering Coursework ........................................ 15 credits

   Research Project/Independent Study ......................................................... 3 credits

   Electives ...................................................................................................... 16 credits

2. At least one-half of the credits must be at or above the 500-level.

3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.

4. Preparation of a written independent study approved by the faculty advisor.

5. Comprehensive final examination.

Courses

(GeoE)

Most of the 500-level courses listed below are offered at least once every three semesters. Others are offered less frequently, on demand.

500. Sedimentary Geology, 1 to 4 credits. Prerequisite: Consent of instructor. A sequence of courses emphasizing: A. sedimentary processes and deposits; B. carbonate petrology; C. clastic petrology; and D. analysis of depositional systems.

505. Isotope Geochemistry, 3 credits. Prerequisites: Geology 321, or permission of instructor. Geochemistry and cosmochemistry of radioactive and stable isotopes; isotope equilibria; applications in paleoclimatology, environmental isotope geochemistry, igneous, metamorphic, and sedimentary petrology.

506. Glacial Geology, 4 credits. 3 hours lecture, 2 hours laboratory. Prerequisite: Geology 311. Origin, growth, and movement of glaciers; landforms and deposits incident to glaciation.

509. Advanced Mineralogy, 1 to 4 credits. Prerequisite: Geology 320. Geology 321 is also recommended. Advanced study of specific mineral groups or selected topics in mineralogy.

511. Advanced Structural Geology, 4 credits. Reading and research in special topics in structural geology and geotectonics.

512. Advanced Paleontology, 3 to 4 credits. Prerequisite: Geology 320. Selected topics in paleontology taught using conventional lecture and laboratory/field approach.

515. Advanced Paleontology, 3 to 4 credits. Prerequisites: Geology 415, Biology 101, or consent of instructor. A sequence of courses emphasizing A. Invertebrate paleontology; B. Evolution and the fossil record; C. Paleozoology; D. Paleontological procedures; E. Micropaleontology.

518. Topics in Advanced Stratigraphy, 2 to 4 credits. Prerequisites: Geology 411, 415. Selected topics in lithostratigraphy and biostratigraphy.

520. Statistical Applications in Geology, 3 credits. Prerequisites: An introductory statistics course, such as CTL 515 or Psych 241, and consent of instructor. The application of statistical techniques to geologic data and problems, with emphasis on analysis of geologic sequences, map analysis, and multivariate analysis of geologic data.
The Geology Graduate Program provides instruction and research opportunities for graduate students in the geological sciences, maintains and develops geological research at UND, and serves the community, state, and region.

**Goal 1:** Graduate students will be able to communicate effectively in writing and through oral presentation.

**Goal 2:** Graduates of our program shall be employable in Earth science professions.

**Goal 3:** Graduate students shall be proficient in recently developed computational, laboratory, and field technology, and instrumentation.

**Goal 4:** Graduate students shall be up-to-date concerning current trends in the geological sciences.

**Goal 5:** Graduate students shall have a broad knowledge of geology.

**Goal 6:** Graduate students shall do well in their coursework, demonstrating acquisition of knowledge and skills in the Earth sciences.

**Goal 7:** Graduate students shall have advanced and indepth training in their chosen field.

**Goal 8:** The faculty who teach and advise geology graduate students shall be actively engaged in research and serve as excellent role models.

**Admission Requirements**

1. For admission to the geology M.S. program, applicants must hold a Bachelor’s degree in geology from an accredited college or university or otherwise demonstrate sufficient course work, training, or experience in geoscience.

2. For “approved” status, students must have completed a 5-6 credit hour geology field course, along with satisfactory achievement in supporting science and mathematics, as determined by the department graduate admissions committee.

3. For all graduate programs in the Department of Geology and Geological Engineering, a cumulative 3.0 or higher grade point average is required.

4. Submission of a Graduate Record Examination (GRE) general test score is strongly recommended if you do not have a degree in geology. Applicants are encouraged to submit their GRE score to support their application.

5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Students missing any of the above requirements may be admitted under provisional or qualified status, but all admission requirements must be completed, without graduate credit, within one year after beginning graduate work.

**Geology**

http://www.geology.und.edu/
Initial decisions for admission and financial aid are made about March 1 for the fall semester and about September 1 for the spring semester.

Undergraduate students in the Geology, Geological Engineering, or Environmental Geology and Technology majors are eligible for early admission to the M.S. program on qualified status, providing that they have:

1. Completed 95 semester credit hours of coursework.
2. Completed 30 semester hours of coursework and 8 hours of upper division coursework in the geological sciences, including the equivalent of physical and historical geology.
3. Achieved a GPA of 3.0 or better in the geological sciences.

Advancement to Approved status will occur when the student has completed the graduation requirements for the bachelor’s program they are enrolled in, and when all deficiencies have been removed.

Undergraduate students admitted on qualified status are eligible to take 500 level courses in their last two semesters prior to completing the bachelor’s degree requirements. Students must complete the petition titled, “Graduate Credit as an Undergraduate Student” prior to registering for the courses. Such courses could be included in the 30 credit hours for the degree and could appear in the program of study.

**Degree Requirements**

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Geology Department.

1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
4. Twenty semester hours from subdisciplines listed below are required before a student can be advanced to candidacy. A minimum of 6 semester credits must come from each subject area:
   a. mineralogy, petrology, geochemistry
   b. sedimentology, stratigraphy, paleontology, geomorphology
   c. structural geology, geophysics, hydrogeology
5. Up to 12 hours of 300-400 level coursework in geology (and of courses listed in the Graduate section of the catalog) may be taken for graduate credit.

The time normally needed to complete the requirements for the masters degree in geology is about two years of full-time work. Students with graduate teaching or research assistantships may need more time.

**MASTER OF ARTS**

**Mission Statement and Program Goals**

The Geology Graduate Program provides instruction and research opportunities for graduate students in the geological sciences, maintains and develops geological research at UND, and serves the community, state, and region.

**Goal 1:** Graduate students will be able to communicate effectively in writing and through oral presentation.

**Goal 2:** Graduates of our program shall be employable in Earth science professions.

**Goal 3:** Graduate students shall be proficient in recently developed computational, laboratory, and field technology and instrumentation.

**Goal 4:** Graduate students shall be up-to-date concerning current trends in the geological sciences.

**Goal 5:** Graduate students shall have a broad knowledge of geology.

**Goal 6:** Graduate students shall do well in their coursework, demonstrating acquisition of knowledge and skills in the Earth sciences.

**Goal 7:** Graduate students shall have advanced and indepth training in their chosen field.

**Goal 8:** The faculty who teach and advise geology graduate students shall be actively engaged in research and serve as excellent role models.

**Admission Requirements**

1. For admission to the geology M.A. program, applicants must hold a bachelor’s degree in geology from an accredited college or university or otherwise demonstrate sufficient coursework, training, or experience in geoscience.
2. For “approved” status, students must have completed a 5-6 credit hour geology field course, along with satisfactory achievement in supporting science and mathematics, as determined by the department graduate admissions committee.
3. For all graduate programs in the Department of Geology and Geological Engineering, a cumulative 3.0 or higher grade point average is required.
4. Submission of a Graduate Record Examination (GRE) general test score is strongly recommended if you do not have a degree in geology. Applicants are encouraged to submit their GRE score to support their application.
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Students missing any of the above requirements may be admitted under provisional or qualified status, but all admission requirements must be completed, without graduate credit, within one year after beginning graduate work.

Initial decisions for admission and financial aid are made about March 1 for the fall semester and about September 1 for the spring semester.

Undergraduate students in the Geology, Geological Engineering, or Environmental Geology and Technology majors are eligible for early admission to the M.S. program on qualified status, providing that they have:

1. Completed 95 semester credit hours of coursework.
2. Completed 30 semester hours of coursework and 8 hours of upper division coursework in the geological sciences, including the equivalent of physical and historical geology.
3. Achieved a GPA of 3.0 or better in the geological sciences.

Advancement to Approved status will occur when the student has completed the graduation requirements for the bachelor’s program they are enrolled in, and when all deficiencies have been removed.

Degree Requirements

Students seeking the Master of Arts degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Geology Department.

1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
4. Twenty semester hours from subdisciplines listed below are required before a student can be advanced to candidacy.
5. A minimum of 6 semester credits must come from each subject area.
a. mineralogy, petrology, geochemistry
b. sedimentology, stratigraphy, paleontology, geomorphology
c. structural geology, geophysics, hydrogeology
6. Up to 12 hours of 300-400 level coursework in geology (and of courses listed in the Graduate section of the catalog) may be taken for graduate credit.

DOCTOR OF PHILOSOPHY

Mission Statement and Program Goals

The Geology Graduate Program provides instruction and research opportunities for graduate students in the geological sciences, maintains and develops geological research at UND, and serves the community, state, and region.

Goal 1: Graduate students will be able to communicate effectively in writing and through oral presentation.

Goal 2: Graduates of our program shall be employable in Earth science professions.

Goal 3: Graduate students shall be proficient in recently developed computational, laboratory, and field technology and instrumentation.

Goal 4: Graduate students shall be up-to-date concerning current trends in the geological sciences.

Goal 5: Graduate students shall have a broad knowledge of geology.

Goal 6: Graduate students shall do well in their coursework, demonstrating acquisition of knowledge and skills in the Earth sciences.

Goal 7: Graduate students shall have advanced and indepth training in their chosen field.

Goal 8: The faculty who teach and advise geology graduate students shall be actively engaged in research and serve as excellent role models.

Admission Requirements

1. For admission to the geology Ph.D. program, applicants must hold a bachelor’s degree in geology from an accredited college or university or otherwise demonstrate sufficient coursework, training, or experience in geoscience.

2. For “approved” status, students must have completed a 5-6 credit hour geology field course, along with satisfactory achievement in supporting science and mathematics, as determined by the department graduate admissions committee.

3. For all graduate programs in the Department of Geology and Geological Engineering, a cumulative 3.0 or higher grade point average is required.

4. Submission of a Graduate Record Examination (GRE) general test score is strongly recommended if you do not have a degree in geology. Applicants are encouraged to submit their GRE score to support their application.

5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IETLS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Students missing any of the above requirements may be admitted under provisional or qualified status, but all admission requirements must be completed, without graduate credit, within one year after beginning graduate work.

Initial decisions for admission and financial aid are made about March 1 for the fall semester and about September 1 for the spring semester.

Degree Requirements

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Geology Department.

Students normally take the equivalent of three years of full-time work beyond the master’s degree for the doctorate.

1. Completion of 90 semester credits beyond the baccalaureate degree.

2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.

3. With approval of a student’s Faculty Advisory Committee, up to one-half of the work beyond a master’s degree (maximum of 30 semester credit hours) may be transferred from another institution that offers post-master’s degrees in the discipline.

4. A qualifying examination may be required before the end of the student’s first year in a doctoral program.

5. Demonstration of:
a. proficiency in two foreign languages, or
b. proficiency in one foreign language and two scholarly tools courses, or
c. proficiency in four scholarly tools courses (scholarly tools courses typically are advanced undergraduate courses in related fields in mathematics, science, or engineering).

6. Completion of a dissertation, which incorporates independent work that is an original contribution to knowledge.
Courses (Geol)

Most of the 500-level courses listed below are offered at least once every three semesters. Others are offered less frequently, on demand.

500. Sedimentary Geology. 1 to 4 credits. Prerequisite: Consent of instructor. A sequence of courses emphasizing: A. sedimentary processes and deposits; B. carbonate petrology; C. clastic petrology; and D. analysis of depositional systems.

505. Isotope Geochemistry. 3 credits. Prerequisites: Geology 321, or permission of instructor. Geochemistry and cosmochemistry of radioactive and stable isotopes; isotope equilibria; applications in paleoclimatology, environmental isotope geochemistry, igneous, metamorphic, and sedimentary petrology.

506. Glacial Geology. 4 credits. 3 hours lecture, 2 hours laboratory. Prerequisite: Geology 311. Origin, growth, and movement of glaciers; landforms and deposits incident to glaciation.

509. Advanced Mineralogy. 1 to 4 credits. Prerequisite: Geology 320. Geology 321 is also recommended. Advanced study of specific mineral groups or selected topics in mineralogy.

511. Advanced Structural Geology. 4 credits. Reading and research in special topics in structural geology and geotectonics.

512. Advanced Petrology. 1 to 4 credits. Prerequisite: Geology 320. Selected topics in petrology taught using conventional lecture and laboratory/field approach.

515. Advanced Paleontology. 3 to 4 credits. Prerequisites: Geology 415, Biology 101, or consent of instructor. A sequence of courses emphasizing A. Invertebrate paleontology; B. Evolution and the fossil record; C. Paleoecology; and D. Paleontological procedures: E. Micropaleontology.

518. Topics in Advanced Stratigraphy. 2 to 4 credits. Prerequisites: Geology 411, 415. Selected topics in lithostratigraphy and biostratigraphy.

520. Statistical Applications in Geology. 3 credits. Prerequisites: An introductory statistics course, such as CTL 515 or Psych 241, and consent of instructor. The application of statistical techniques to geologic data and problems, with emphasis on analysis of geologic sequences, map analysis, and multivariate analysis of geologic data.

522. History and Philosophy of Geology. 3 credits. Prerequisite: Permission of instructor. Historical and philosophical development of the science of geology.

523. Topics in Advanced Geomorphology. 1 to 4 credits. Prerequisite: Geology 311. Selected topics in geomorphic processes and landforms.

525. Weathering and Soils. 3 credits. Prerequisites: Geology 311 and 411 or consent of instructor. Properties and classification of soils; the factors and processes of weathering and soil formation.

530. Advanced Physical Hydrogeology. 3 credits. Prerequisite: Geol/GeoE 417, Geol 427, Math 265, or consent of instructor. Selected topics in ground and soil water movement, fracture flow, analytical/numerical modeling, and groundwater supply.

531. Hydrogeochemistry. 3 credits. Prerequisite: Geology 321, Math 166, or permission of instructor. The origin, characteristics and modeling of surface and ground water geochemistry.

532. Contaminant Hydrogeology. 3 credits. Prerequisites: Geol 417, Geol 427, Math 265, or consent of instructor. Chemical and physical processes affecting contaminant behavior in groundwater with analytical/numerical modeling and case studies.

540. Water Sampling & Analysis. 3 credits. Prerequisite: Chemistry 121. Techniques of water and sediment sampling and analysis using equipment in the UND Water Quality Laboratory. Results are interpreted in the context of the natural systems from which the samples are taken. Enrollment is limited to eight students per section. A laboratory fee is required.

590. Research. 1 to 4 credits. Laboratory, field, or library research on problems of interest (may be repeated).

591. Directed Studies. 1 to 4 credits. Directed advanced research in a specialized field of geologic study (may be repeated).


311. Geomorphology. 4 credits.

320. Petrology. 3 credits.

321. Geochemistry. 3 credits.

323. Engineering Geology. 3 credits.

340. Digital Mapping Methods. 3 credits.

401. Geological Interpretation of Aerial Photographs. 3 credits.

405. Industrial Minerals. 3 credits.

406. Ore Deposits. 3 credits.

407. Petroleum Geology. 3 credits.

411. Sedimentology and Stratigraphy. 5 credits.

414. Geophysics. 3 credits.

415. Introduction to Paleontology. 4 credits.

417. Hydrogeology. 3 credits.

418. Hydrogeological Methods. 2 credits.

419. Groundwater Monitoring and Remediation. 3 credits.

422. Seminar. 1 credit.

425. Design Hydrology for Wetlands. 3 credits.

427. Groundwater Modeling. 3 credits.

Higher Education

See Education: Educational Leadership & Teaching and Learning

History

http://www.und.edu/dept/histdept/

FACULTY: Berger, Broedel, Burin, Campbell, Caraher, Iseminger (Graduate Program Director), Kelsch, Mochoruk, Porter (Chair)

Prescott and Reese

DEGREES GRANTED: Master of Arts, Master of Education, Doctor of Arts and Doctor of Philosophy

PROGRAM DESCRIPTION

The department of History offers programs leading to the Master of Arts degree, the Doctor of Arts degree, and the Ph.D. degree. The M.Ed. degree is also available for students who wish to complete an education degree with an area of concentration in History. See the M.Ed. requirements in the Degree Requirements section for further information. The program advisor for the M.Ed. will be in the Department of History, but students planning to take this option should consult an advisor in the College of Education and Human Development.

Some Teaching Assistantships, providing stipends and waivers of tuition, are available. Applications for assistantships should be submitted by March 1, but later applications will be considered.

MASTER OF ARTS

Mission Statement and Program Goals

The mission of the Graduate Program of the History Department of the University of North Dakota is to provide quality graduate-level instruction in the fields of North American, European, and World History. Successful students will be prepared to seek careers as history teachers at the high school and junior college level, as public historians, museum curators, archivists, or in a variety of other professions (journalism, business, government service) which require well-developed skills in research, critical thinking, and oral and written expression.

Goal 1: Students will be able to conduct significant, independent research in their chosen field of concentration.

Goal 2: Students will demonstrate considerable knowledge of disciplinary sub-fields, major interpretive schools of thought, appropriate methodological approaches, and a mastery of the major works in their field of concentration.

Goal 3: Students will be able to combine the results of their primary research with their knowledge of the pertinent secondary and theoretical literature and present their findings both orally and in writing.

Admission Requirements

1. A four-year bachelor’s degree from a recognized college or university.

2. Undergraduate preparation of a minimum of 20 semester credits in history with at least six credits at the upper division level.

3. An overall undergraduate GPA of at least 3.00 and at least 3.25 in all undergraduate history courses.

4. A writing sample of 8-10 pages, preferably a research or seminar paper (submitted directly to the department’s Director of Graduate Study).

5. 3.25 in all undergraduate history courses.

6. 3 credits in history with at least six credits at the upper division level.

7. A four-year bachelor's degree from a recognized college or university.

8. 2 to 12 credits. S/U grading.

9. A four-year bachelor’s degree from a recognized college or university.

10. A writing sample of 8-10 pages, preferably a research or seminar paper (submitted directly to the department’s Director of Graduate Study).
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Degree Requirements

Students seeking the Master of Arts degree at the University of North Dakota must satisfy all general requirements of the Graduate School as well as requirements of the History Department.

1. A total of 30 credits including 21 in either United States or European history and 9 credits in: a) a field of history not included in the primary concentration, such as United States or European History, or b) a minor in a related discipline such as Communications, English, Geography, or Sociology, or c) a cognate as defined in the Degree Requirement section of this catalog.

2. Research seminars, either 511 or 515.

3. At least one readings course, either 593 or 594.

4. History 502, Historiography, counted as three credits in the major concentration.

5. Six credits of Thesis 998.

Students in the M.A. program should consider taking the Public History courses, 480 and 481, and some work in records management; or geography, including cartography; or journalism; to increase employment opportunities.

DOCTOR OF ARTS

The Doctor of Arts degree is designed to prepare those whose primary interest is teaching history at the undergraduate collegiate level. It places heavy emphasis upon subject matter and a supervised teaching internship. The internship requires teaching a survey course for one semester and a second course for one semester at the 200 or 300 level. The department offers five fields of study: Ancient World, Early Modern Europe, Modern Europe, United States to 1877, and United States since 1877.

The Doctor of Arts program has been designated a Western Regional Graduate Program by the Western Interstate Commission on Higher Education (WICHE) because of its uniqueness and strength. It is, therefore, open to residents of the thirteen western states at resident tuition rates.

M.A. students are eligible for four semesters of assistantships and doctoral students are eligible for six semesters of assistantships.

Mission Statement and Program Goals

The mission of the Graduate Program of the History Department of the University of North Dakota is to provide quality graduate-level instruction and supervision in five fields of study: Ancient World, Early Modern Europe, Modern Europe, United States to 1877 and United States Since 1877. Successful students will be prepared to seek careers as college and university history teachers, as public historians, museum curators and archivists, or in a variety of other professions (journalism, business, government service) which require well-developed skills in research, critical thinking, and oral and written expression.

Goal 1: Students will be able to teach courses in Ancient History, European History, and United States History on the undergraduate levels.

Goal 2: Students will be able to conduct significant, independent research in their chosen field of concentration.

Goal 3: Students will demonstrate a broad knowledge of disciplinary sub-fields, major interpretive schools of thought, appropriate methodological approaches and a mastery of the major works in their field of concentration.

Goal 4: Students will be able to combine the results of their primary research with their knowledge of the pertinent secondary and theoretical literature and present their findings both orally and in writing.

Admission Requirements

1. All M.A. admission requirements.

2. A master’s degree, preferably in history and with thesis, but at least 15 semester credits of history at the graduate level.

3. A GPA of at least 3.50 for the master’s level work.

4. Taking the Graduate Record Examination is optional, but recommended for those whose previous academic record makes their admission questionable or those who have been out of school for several years. High GRE scores may indicate sufficient promise to permit admission of applicants with inadequate grade point averages or insufficient courses. The department may require the GRE as a condition of admission if preliminary examination of the student’s application indicates that the score would be helpful in determining ability to do graduate level work.

5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

7. At least two years of teaching experience in history, the social sciences, or the humanities.

Degree Requirements

Students seeking the Doctor of Arts degree at the University of North Dakota must satisfy all general requirements of the Graduate School as well as specific requirements of the History Department.

1. Completion of 90 semester credits beyond the baccalaureate degree, including acceptable master’s work.

2. History 502, 511 or 515, 551, 595, and 599.

3. One three-credit course taken outside of the department, preferably Psychology 501, Psychological Foundations of Education (other courses acceptable with departmental approval).

4. A teaching internship of eight credits.

5. A cognate of a minimum of 12 credits from such areas as the social and behavioral sciences or the humanities.
6. A 20-credit-hour area of concentration from one of the fields listed above which includes a 5-credit independent research project representing a sustained creative effort exploring a significant topic of concern to historians and teachers of history.

7. Written examinations in both United States fields and in two of the three European fields selected on the basis of work done in a Master’s degree program as well as the doctoral program. (Exams may be taken after 72 hours of the program of study have been completed.)

8. Before receiving their degrees, all students will have taught both Western Civilization survey courses (History 101 and History 102) and both United States History survey courses (History 103 and History 104) or their equivalents. This requirement may be satisfied by teaching as a Teaching Assistant in the department or by teaching in the internship or, if approved by the department, by having previous teaching experience.

Students in the D.A. program should consider taking the Public History courses, 480 and 481, and some work in records management; or geography, including cartography; or journalism; to increase employment opportunities.

**JOINT PH.D. PROGRAM WITH NDSU**

**Doctor of Philosophy**

**Mission Statement and Program Goals**

The mission of the Graduate Program of the History Department of the University of North Dakota is to provide quality graduate-level instruction and supervision in the major fields of Great Plains History, Rural History, North American, and Western European History and in the Minor Fields of Public History and World History. Successful students will be prepared to seek careers as college and university history teachers, as public historians, museum curators and archivists, or in a variety of other professions (journalism, business, government service), which require well-developed skills in research, critical thinking, and oral and written expression.

**Goal 1:** Students will be able to teach college and university-level courses in Great Plains History, Rural History, North American History, Western European History, Public History and World History.

**Goal 2:** Students will be able to conduct significant, independent research in their chosen field of concentration.

**Goal 3:** Students will demonstrate a broad knowledge of disciplinary sub-fields, major interpretive schools of thought, appropriate methodological approaches, and a mastery of the major works in their field of concentration.

**Goal 4:** Students will be able to combine the results of their primary research with their knowledge of the pertinent secondary and theoretical literature and present their findings both orally and in writing and in their teaching.

**Admission Requirements**

1. Preference for admission into the Ph.D. program with full graduate standing will be given to applicants who have a GPA of at least 3.5 in history courses in an earned bachelor’s or master’s degree.

2. Applicants will submit a statement of intent clearly outlining the applicant’s research interests, career goals, and purpose for seeking a Ph.D. in history.

3. Applicants will submit a substantial paper previously submitted for a class in history to provide evidence of ability to research thoroughly, to interpret and analyze primary and secondary sources, to synthesize information, to organize thoughts logically, and to communicate clearly and effectively.

4. Scores on the Graduate Record Examination are required.

5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

**Major Fields**

Great Plains History
Rural History
North American History
Western European History

**Minor Fields**

Public History
World History

**Degree Requirements**

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements of the Graduate School as well as specific requirements of the History Department.

1. Students must satisfactorily complete 90 credits beyond the bachelor’s degree. Students entering with an M.A. degree must complete at least 60 additional semester graduate credits. Core course requirements must be met which include: Methods of Historical Research, Historiography, Seminar in the Teaching of History, at least two research seminars, and at least two readings courses. Students must complete 36 course credits with at least 27 credits in the period of course work. Students will earn 12 credits in two or more major fields. Students may choose a third major field or a minor field (nine semester credits).

2. Students must have a proficiency in two languages other than their native language or one foreign language and one special research skill such as statistics or computer science.

3. The program will require at least one academic year in residence at either campus. Each student will register at one of the universities that will be the student’s academic “home.” The student’s adviser must be employed in the home university. At least one member of the student’s committee must be employed at the other (not home) university. Students may have to take courses at both universities.

4. Students will write three comprehensive examinations in their major and minor fields. The exams will be read and graded by the supervisory committee. Students will complete an oral examination based on the written exams. The oral examination is to be conducted by the supervisory committee.

5. Students will write a dissertation (up to 24 credits) on an approved topic in consultation with the faculty adviser and the supervisory committee of five faculty. The disser-
tation must be based on extensive research in primary and secondary sources, must argue an original thesis, and must be defended before the supervisory committee.

6. The committee will be composed of the faculty adviser who represents the student’s field of study and who will direct the research and writing of the dissertation. A second member of the committee (second reader) represents the student’s major field of study. A third member of the committee will represent the student’s minor field of study. The fourth member of the committee represents either the student’s major field or minor field. At least one of the four history faculty must be from the cooperating (non-home) university. The Graduate School will appoint the fifth member of the committee.

Residency Requirements

1. Students enrolled in the Ph.D. program are required to complete at least one academic year (18 credits minimum) in residence at one campus.

2. Resident students may qualify for teaching assistantships. Students who have completed a M.A. degree may be assigned full responsibility for undergraduate courses or may be assigned to assist a faculty member in teaching courses.

3. Students will be required to take some courses from faculty at both campuses, but will register at only one university. Some courses will be offered by interactive video network, some will be offered through internet online systems, some courses will require students to travel to the other campus.

4. Students not residing on one of the cooperating campuses will have to have access to a satisfactory research library for various courses and for dissertation research.

Libraries

The combined UND/NDSU libraries contain over two million volumes. In addition, each university library houses an archive of historic materials that has supported the research of many faculty members and visiting scholars.

The catalogs of the Chester Fritz Library and the Elwyn B. Robinson Department of Special Collections at the University of North Dakota are available online.

The catalog of the Libraries at North Dakota State University is available online along with the catalog of the Institute for Regional Studies.

The North Dakota State University Library also houses the Germans From Russia Heritage Collection.

Locations

The University of North Dakota is in Grand Forks and North Dakota State University is in Fargo. Both cities are situated along Interstate 29 about 75 miles apart.

Courses (Hist)

501. Methods of Historical Research. 3 credits. Prerequisite: graduate status. This course is intended to teach graduate students to comprehend, analyze, apply, and evaluate the basic techniques and frameworks for historical research. These include basic historical theories, methods, and problems (such as causality, objectivity, types of evidence, schools of historical thought, evaluation of sources, qualitative and quantitative analysis). Students will also learn how to use standard databases and bibliographical aids to find, identify, and assess appropriate information to support, modify, or reject historical interpretations and arguments.

582. Historiography. 3 credits. Required for all candidates for advanced degrees in history. An introduction to the history of historical thought, from the classical Greeks to the present, with examination of some of the works of important historians writing in the western tradition. The first half of the course is primarily devoted to classical and European historians; the second half is primarily devoted to modern and American historians.

511. Research Seminar in American History. 3 credits. Required for all candidates for the Doctor of Philosophy, Doctor of Arts, and Master of Arts who do not take History 515. This course requires preparation of a research paper. The subject of the research will be within an announced general topic area of American History. Repeatable.

513. Research Seminar in World History. 3 credits. This course introduces students to the research and writing of World History with a stress on the proper utilization of comparative and thematic methodology. It requires the preparation of a research paper that utilizes the methodology of World History.

515. Research Seminar in European History. 3 credits. Required for all candidates for the Doctor of Philosophy, Doctor of Arts, and Master of Arts who do not take History 511. This course requires preparation of a research paper. The subject of the research will be within an announced general topic area of European History. Repeatable.

551. Seminar in the Teaching of History. 1 to 4 credits. Required of all students pursuing the Doctor of Philosophy and Doctor of Arts. Includes methods appropriate to college-level teaching. Class consists of discussion, demonstration, and practice. S/U grading only.

585. Directed Readings. 3 credits. Prerequisites: Graduate Status. Independent, directed readings on a topic tailored to the individual needs of the student. (No more than 3 hours of HIST 585 can count as credit towards a Doctoral Program without the approval of the Chair, the Graduate Director, and the Adviser.)

592. Readings in World History. 3 credits. This course focuses upon the reading and understanding of World History historiography, theories and methods through thematic and comparative readings. Repeatable.

593. Readings in American History. Topics vary. 2 to 3 credits.

594. Readings in European History. Topics vary. 2 to 3 credits.

595. Research. 1 to 5 credits. For candidates for the Doctor of Arts only. Requires a research project that will be a component of the area of concentration. Repeatable to the required maximum of five credits.

599. Internship in the Teaching of History. 1 to 12 credits. For candidates for the Doctor of Arts only. The internship requires the teaching of two or three courses to demonstrate proficiency in college-level teaching at the undergraduate level. Although the teaching is supervised, the student has full responsibility for the courses. The internship may be conducted on this campus or, with proper arrangement and supervision, on another campus. Eight credits of internship are required, but the course may be repeated to a maximum of twelve credits. S/U grading only.

‡ All 593 and 594 courses involve reading, bibliographical study, discussion, and writing. Study may be confined to a subtopic within the general subject area. Repeatable with different subtopics. Students in the M.A. program will not ordinarily take more than one 593 or 594 in the primary concentration.

The following undergraduate courses are eligible for inclusion on graduate programs of study. Additional assignments and higher standards of accomplishment are required of students taking these courses for graduate credit. See the Undergraduate Section for course descriptions.

332. Women in American History to 1865. 3 credits.

333. Women in American History since 1865. 3 credits.

343. Ancient Greece. 3 credits.

344. Ancient Rome. 3 credits.

350. Europe: The Reformation, 1500-1568. 3 credits.

351. Europe: Age of Absolutism, 1648-1789. 3 credits.

352. Europe: French Revolution and Napoleonic Era, 1789-1815. 3 credits.

353. Europe: 1815-1918. 3 credits.

355. Europe: Since 1918. 3 credits.

403. The United States Colonial Period. 3 credits.

404. The United States Revolutionary Era, 1760-1789. 3 credits.

405. The United States: Age of Jefferson and Jackson, 1789-1850. 3 credits.

406. The United States: Civil War-Reconstruction, 1850-1877. 3 credits.

407. The United States: Rise of Industrial America, 1877-1920. 3 credits.

408. The United States: 1920-1945. 3 credits.

410. History of Mexico. 3 credits.

412. U.S. Foreign Relations Since 1900. 3 credits.

413. The United States Since 1945. 3 credits.

416. Russia to 1855. 3 credits.

419. Great Britain Since 1815. 3 credits.

431. History of the Great Plains. 3 credits.

460. The Atlantic World. 3 credits.

470. United States-Canadian Relations, 1776 to Present. 3 credits.

480. Introduction to Public History. 3 credits.

481. Public History Practice. 3 credits.
The Instructional Design and Technology (IDT) program is a collaboration between the College of Education and Human Development, the College of Arts and Sciences, and the John D. Odegard School of Aerospace Sciences. The designers believe the program benefits from the expertise of a diverse faculty, the various resources of the different organizational units, and a collaborative decision-making structure among the three units. The IDT program is administered through the College of Education and Human Development (EHD) and follows the IDT, EHD, UND, UND Graduate School, and NDUS rules and policies. The IDT program currently offers a Master of Science, Master of Education, Certificate in K-12 Technology, and a Certificate in Corporate Training and Performance. IDT also offers a doctorate through the Teaching and Learning Ph.D. program, in which IDT is an area of emphasis (see Teaching and Learning in the graduate catalog). The master’s degrees and both certificate options are available online and on campus.

Program Delivery Options

The IDT master’s and certificate programs are available for on-campus and distance delivery, making it possible to attain these degrees via distance delivery, on-campus courses, or a combination of both. Online students and on-campus students are peers in the same class sessions, and experience the same educational opportunities. Courses typically have a few synchronous (live) class sessions, where students may attend on-campus in the actual classroom, or they may participate through our distance delivery system. In this manner, class lectures, discussion, presentation, and collaboration are done seamlessly, in a nearly identical fashion to traditional classes.

Asynchronous sessions (those done at the time and place of the students’ choosing each week) are handled through a course management system. Students use these tools to read material loaded by the teacher, turn in assignments, communicate through message boards, participate in discussions through threaded discussion tools, take tests, and receive their grades. There are assignments and participation activities every week, whether the class meets live or not. In this way, students get the best of both worlds: the flexibility of online learning and the personal contact and connection of face-to-face instruction.

MASTER OF SCIENCE

Mission Statement and Program Goals

The primary mission is to prepare program graduates for service in education, business, government, and industry who will enhance performance and learning through the use of instructional design and technology. Graduates will be able to design curriculum, training, and human performance solutions using any medium, and for any subject area, environment or learner. Graduates of the doctoral program will be qualified to work as university faculty in IDT.

The Master of Science (M.S.) degree is primarily intended for students who plan to work in business, government, and industry developing and delivering technologically supported curriculum and/or solving human performance problems. This degree is available in two tracks. The M.S. (thesis option) is intended for students who want to develop and utilize research skills, (e.g., for work in academic environments where research is encouraged). The M.S. (scholarly project option) is intended for those students who prefer to emphasize the development and evaluation of instructional materials. Required coursework within the two options is consistent with this distinction between an emphasis on research or practice.

Admission Requirements

1. An overall undergraduate grade point average of 2.75 or a junior/senior year grade point average of 3.00 for the Master of Education and Master of Science degrees, and for the certificate program.
2. A 3.5 or better grade point average for all graduate work.
3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
   *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
5. Two essay questions as part of the application process.

Provisional admission may be considered for students whose academic performance does not meet these criteria. Whether such consideration is given will depend on the circumstances and the judgment of the admissions faculty.

A basic knowledge of the microcomputer and substantial skill in using standard applications to produce work products (word processing, database, spreadsheet, drawing/painting, graphing, and other common applications).

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Instructional Design and Technology program.

1. At least one-half of the credits must be at or above the 500-level.
2. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.

Required Courses:

- Core coursework in Instructional Design and Technology: 9 cr.
- Additional coursework in IDT area of emphasis: 9 cr.
- Foundations coursework in education and psychology: 3 cr.
- Scholarly Tools/Research: 6 cr.
- Electives: 3 cr.
- Internship: 2 cr.

Thesis or Scholarly Project: 2-4 cr.

Total: 34-36 cr.

The IDT degree options are based on the same set of program components:

1. **Program core component**: New courses presenting IDT content.
2. **Research component**: Development of research skills.
3. **Foundations component**: Fundamental background in psychology.
4. **Area of Emphasis in IDT:** Opportunity for area or skill specialization within IDT

The IDT course requirements are organized within a major, foundations area, research/scholarly tools area, and area of emphasis. The major consists of the IDT core and the area of emphasis in IDT. Students in the M.S. degree program will be required to complete 18 credit hours of coursework in IDT subject matter. This requirement includes:

**Core Coursework:**

<table>
<thead>
<tr>
<th>IDT Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 500</td>
<td>Survey of Instructional Design</td>
<td>3</td>
</tr>
<tr>
<td>IDT 520</td>
<td>Instructional Systems Design &amp; Development</td>
<td>3</td>
</tr>
<tr>
<td>IDT 525</td>
<td>Development, Implementation and Evaluation of Instructional Materials</td>
<td>3</td>
</tr>
</tbody>
</table>

And Area of Emphasis (9 credit hours) from the following courses:

<table>
<thead>
<tr>
<th>IDT Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 590</td>
<td>Special Topics in IDT</td>
<td>1-3</td>
</tr>
<tr>
<td>IDT 591</td>
<td>Readings in IDT</td>
<td>1-3</td>
</tr>
<tr>
<td>IDT 592</td>
<td>Research in IDT (M.S. must take as scholarly tool, does not count toward cognate)</td>
<td>1-3</td>
</tr>
<tr>
<td>IDT 593</td>
<td>Directed Studies in Instructional Design and Technology</td>
<td>1-3</td>
</tr>
</tbody>
</table>

**K-12 Emphasis:**

<table>
<thead>
<tr>
<th>IDT Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 510</td>
<td>Technology-Based Instruction: Applications &amp; Methods</td>
<td>3</td>
</tr>
<tr>
<td>IDT 540</td>
<td>Digital Media and the Internet in Schools</td>
<td>3</td>
</tr>
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</table>

**Corporate Emphasis:**

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<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 560</td>
<td>Instructional Design Consulting</td>
<td>3</td>
</tr>
<tr>
<td>IDT 570</td>
<td>Human Performance Technology</td>
<td>3</td>
</tr>
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</table>

**Computer- and Web-Based Instruction:**

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<tr>
<th>IDT Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>IDT 530</td>
<td>Introduction to Computer-Based Instruction</td>
<td>3</td>
</tr>
<tr>
<td>IDT 535</td>
<td>Advanced Computer-Based Instruction Development</td>
<td>3</td>
</tr>
<tr>
<td>IDT 545</td>
<td>Instructional Simulations &amp; Games</td>
<td>3</td>
</tr>
<tr>
<td>IDT 580</td>
<td>Introduction to Web-Based Instruction</td>
<td>3</td>
</tr>
</tbody>
</table>

**Foundations:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 501</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Scholarly Tools:**

| EFR 509     |                                                   |              |
| IDT 592     |                                                   |              |

**Internship:**

| IDT 584     |                                                   |              |

**Thesis/Scholarly Project:**

| IDT 997 or IDT 995 | 2 credits |
| IDT 998 Thesis     | 4 credits  |

---

**MASTER OF EDUCATION**

**Mission Statement and Program Goals**

The primary mission is to prepare program graduates for service in education, business, government, and industry who will enhance instruction and learning through the use of instructional design and technology. These graduates will be able to design curriculum, training, and human performance solutions using any medium, and for any subject area, environment or learner.

The Master of Education (M.Ed.) degree is primarily intended for students who plan to work in an education environment, including K-12 schools and higher education. Individuals pursuing this degree will work primarily as technology facilitators or curriculum design specialists. As technology facilitators, they are likely to work with instructors in assisting them to appropriately, effectively, and successfully integrate technology into their instruction. They are also likely to do some direct work with students in teaching skills associated with the use of technology. As curriculum design specialists, they are likely to work at the school, district, or state levels to design curriculum for public education. Students pursuing this degree will learn the theoretical issues associated with technologically supported instruction but their emphasis will be in the application of this knowledge in terms of best practices. A scholarly project is required and is considered a capstone experience. The scholarly project must address a real-world practical instructional design learning or performance problem and fully employ an instructional design or human performance technology model to the solution of that problem, or address a theoretical construct in the same way that a thesis does.

**Admission Requirements**

1. An overall undergraduate grade point average of 2.75 or a junior/senior year grade point average of 3.00 for the Master of Education and Master of Science degrees, and for the certificate program.

2. A 3.5 or better grade point average for all graduate work.

3. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

5. Two essay questions as part of the application process.

**Degree Requirements**

Students seeking the Master of Education degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Instructional Design and Technology program.

1. At least one-half of the credits must be at or above the 500-level.

2. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.

**Required Courses:**

| Core coursework in Instructional Design & Technology | 9 cr. |
| Additional coursework in IDT area of emphasis | 6 cr. |
| Foundations coursework in education and psychology | 6 cr. |
| Scholarly Tools/Research | 3 cr. |
| Electives | 6 cr. |
| Internship | 2 cr. |
| Scholarly Project/Independent Study | 2 cr. |
| Total | 34 cr. |

The IDT degree options are based on the same set of program components:

1. **Program core component:** New courses presenting IDT content.

2. **Research component:** Development of research skills.

3. **Foundations component:** Fundamental background in psychology.

4. **Area of Emphasis in IDT:** Opportunity for area or skill specialization within IDT

The IDT course requirements are organized within a major, foundations area, research/scholarly tools area, and area of emphasis. The major consists of the IDT core and the area of emphasis in IDT.
Students in the M.Ed. degree program will be required to complete 18 credit hours of coursework in IDT subject matter. This requirement includes:

Core Coursework:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 500</td>
<td>Survey of Instructional Design</td>
<td>3</td>
</tr>
<tr>
<td>IDT 520</td>
<td>Instructional Systems Design &amp; Development</td>
<td>3</td>
</tr>
<tr>
<td>IDT 525</td>
<td>Development, Implementation and Evaluation of Instructional Materials</td>
<td>3</td>
</tr>
</tbody>
</table>

And Area of Emphasis (6 credit hours) from the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 590</td>
<td>Special Topics in IDT</td>
<td>1-3</td>
</tr>
<tr>
<td>IDT 591</td>
<td>Readings in IDT</td>
<td>1-3</td>
</tr>
<tr>
<td>IDT 592</td>
<td>Research in IDT</td>
<td>1-3</td>
</tr>
<tr>
<td>IDT 593</td>
<td>Directed Studies in Instructional Design and Technology</td>
<td>1-3</td>
</tr>
</tbody>
</table>

K-12 Emphasis:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 510</td>
<td>Technology-Based Instruction: Applications &amp; Methods</td>
<td>3</td>
</tr>
<tr>
<td>IDT 540</td>
<td>Digital Media and the Internet in Schools</td>
<td>3</td>
</tr>
</tbody>
</table>

Corporate Emphasis:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 560</td>
<td>Instructional Design Consulting</td>
<td>3</td>
</tr>
<tr>
<td>IDT 570</td>
<td>Human Performance Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

Computer- and Web-Based Instruction:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 530</td>
<td>Introduction to Computer-Based Instruction</td>
<td>3</td>
</tr>
<tr>
<td>IDT 535</td>
<td>Advanced Computer-Based Instruction Development</td>
<td>3</td>
</tr>
<tr>
<td>IDT 545</td>
<td>Instructional Simulations &amp; Games</td>
<td>3</td>
</tr>
<tr>
<td>IDT 580</td>
<td>Introduction to Web-Based Instruction</td>
<td>3</td>
</tr>
</tbody>
</table>

The IDT Certificate Program offers two 12-credit certificates. They are designed for those who do not need or want a full master’s program, but who want documentation of their skills in instructional design and technology. The certificates provide minimum competencies in the field of instructional design, and are not designed to result in fully qualified instructional designers.

IDT Certificate in K-12 Technology Integration

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 520</td>
<td>Instructional Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>IDT 525</td>
<td>Development, Implementation and Evaluation of Instructional Materials</td>
<td>3</td>
</tr>
</tbody>
</table>

Two Additional Courses from the Following (6 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 510</td>
<td>Technology-Based Instruction: Applications &amp; Methods</td>
<td>3</td>
</tr>
<tr>
<td>IDT 540</td>
<td>Digital Media and the Internet in Schools</td>
<td>3</td>
</tr>
</tbody>
</table>

Total credits 12

IDT Certificate in Corporate Training and Performance

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 520</td>
<td>Instructional Systems Analysis &amp; Design</td>
<td>3</td>
</tr>
<tr>
<td>IDT 525</td>
<td>Development, Implementation and Evaluation of Instructional Materials</td>
<td>3</td>
</tr>
</tbody>
</table>

Two Additional Courses from the Following (6 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 545</td>
<td>Instructional Simulations and Games</td>
<td>3</td>
</tr>
<tr>
<td>IDT 560</td>
<td>Instructional Consulting</td>
<td>3</td>
</tr>
<tr>
<td>IDT 570</td>
<td>Human Performance Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

Total credits 12

The IDT master’s and certificate programs are available for on-campus and distance delivery, making it possible to attain these degrees via distance delivery, on-campus courses, or a combination of both. Online students and on-campus students are peers in the same class sessions, and experience the same educational opportunities. Courses typically have a few synchronous (live) class sessions, where students may attend on-campus in the actual classroom, or they may participate through our distance delivery system. In this manner, class lectures, discussion, presentation, and collaboration are done seamlessly, in a nearly identical fashion to traditional classes.

Asynchronous sessions (those done at the time and place of the students’ choosing each week) are handled through a course management system. Students use these tools to read material loaded by the teacher, turn in assignments, communicate through message boards, participate in discussions through threaded discussion tools, take tests, and receive their grades. There are assignments and participation activities every week, whether the class meets live or not. In this way, students get the best of both worlds: the flexibility of online learning and the personal contact and connection of face-to-face instruction.

Cognate/Minor for Non-Program Majors

The IDT program welcomes graduate students outside of IDT who want to learn more about the integration of technology with instruction. To complete a cognate or minor in IDT, students must take IDT 500, IDT 520, and IDT 525 for a total of nine semester hours. This will be considered by the IDT faculty to be a cognate or minor at the master’s level. If the student is a doctoral student and his or her department requires more credits for a minor, the IDT program chair will work with the student to select additional coursework to meet that minimum.

Courses (IDT)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 500</td>
<td>Survey of Instructional Design</td>
<td>3</td>
</tr>
</tbody>
</table>

A study of the various methods for using technology to deliver and/or support instruction: tutorials, drills, simulation, interactive video, instructional games, intelligent computer-based instruction, performance support systems, job aids, testing, distance learning, intelligent tutoring systems, and instructional management systems.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 530</td>
<td>Introduction to Computer-Based Instruction</td>
<td>3</td>
</tr>
</tbody>
</table>

The first course in a two-course required sequence, IDT 520 is a study of methodologies for analyzing and designing instruction. Topics include needs analysis, job/task analysis, and assessment of instructional outcomes. IDT 525 is the second required course in this two-course sequence.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 525</td>
<td>Development, Implementation and Evaluation of Instructional Materials</td>
<td>3</td>
</tr>
</tbody>
</table>

A study of the various methods for using technology to deliver and/or support instruction: tutorials, drills, simulation, interactive video, instructional games, intelligent computer-based instruction, performance support systems, job aids, testing, distance learning, intelligent tutoring systems, and instructional management systems.

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 545</td>
<td>Instructional Simulations and Games</td>
<td>3</td>
</tr>
</tbody>
</table>

A study of the characteristics of high-quality CBI, addressing such topics as program structure, user interface, navigation, message/screen design, use of graphics, response analysis, feedback strategies, error checking, branching, and computer-managed instruction.

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 560</td>
<td>Instructional Consulting</td>
<td>3</td>
</tr>
</tbody>
</table>

An examination of the technology (hardware and software) for developing and delivering computer-based instruction (CBI). A study of the characteristics of high-quality CBI, addressing such topics as program structure, user interface, navigation, message/screen design, use of graphics, response analysis, feedback strategies, error checking, branching, and computer-managed instruction.

<table>
<thead>
<tr>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 570</td>
<td>Human Performance Technology</td>
<td>3</td>
</tr>
</tbody>
</table>
543. Digital Media and the Internet in Schools. 3 credits. Prerequisites: IDT 510, 520. This course builds on the theories and approaches to technology integration first introduced in IDT 510. Students will gain practice developing lesson plans and examples of student artifacts with specific media such as digital video, digital audio, digital photography, and the Internet. Students will gain competency in generating and using media according to the principles of technology integration, rather than technology use.

544. Instructional Simulations and Games. 3 credits. Prerequisites: Program major or permission of the instructor. This course provides an in-depth study of the theoretical, philosophical, and practical issues surrounding the use of simulations and games in learning environments. Methods and approaches for integrating commercial games into learning environments and for developing new simulations and games around content will be examined.

545. Graduate Seminar in Instructional Design and Technology. 3 credits. Prerequisites: Program major or permission of the instructor. Seminar on critical reading and writing related to scholarship in the field of Instructional Design and Technology.

546. Theories and Models of Instructional Design. 3 credits. Prerequisites: Program major or permission of the instructor; IDT 520. This course focuses on pedagogical theories from education and psychology as they relate to instructional design, and on alternate models of instructional design. Topics include epistemological views of knowledge, major schools of thought on the nature of learning, a survey of instructional and learning theories, and a survey of instructional design models. Particular emphasis is placed on the interrelation of theories, models, and practice in the field of instructional design.

547. Instructional Design Consulting. 3 credits. Prerequisites: Program major or permission of the instructor; IDT 520. This course trains students in the practical, (e.g., needs analysis, change agency, data-driven decisions, solution specification) and practical (e.g., management of client relationship, project management skills, budgeting) of instructional design consulting. Role-play, response to an RFP, and discussion of modern approaches to managing the consulting process will be primary activities in this course.

548. Human Performance Technology. 3 credits. Prerequisites: IDT 500, 520. An overview of the Human Performance Improvement (HPI) and Human Performance Technology (HPT) models and processes. Particular emphasis on determining whether instructional interventions or performance improvement interventions are called for, the scientific foundations of performance technologies, and the role of technology in the improvement of performance.

549. Introduction to Web-Based Instruction. 3 credits. Prerequisites: Program major or permission of the instructor; IDT 520. This course trains students to design and develop web-based instruction, including basic web site design tools and theory, design and development of online learning with course management systems, supporting technologies in web-based instruction, and the design and development of online learning environments.

550. Internship in Instructional Design and Technology. 2 to 4 credits. The internship is a culminating experience in which the student assumes responsibility for an instructional design and technology project.

551. Special Topics in Instructional Design and Technology. 1 to 3 credits. An in-depth study of a selected topic in instructional design and technology. Topics will vary with faculty expertise and current issues. Some topics will include simulations, instructional applications of the World Wide Web, performance support systems, adaptive testing, intelligent tutoring systems, and hypermedia applications.

552. Readings in Instructional Design and Technology. 1 to 3 credits. Selected readings with oral and written reports.

553. Research in Instructional Design and Technology. 1 to 3 credits. Supervised research in areas of student interest.

554. Directed Studies in Instructional Design and Technology. 1 to 3 credits. Individual project work in the design and development of technology-based instruction. All projects will require a formal report.

555. Scholarly Project. 2 credits. The scholarly project demonstrates critical analysis and application of information and experiences gained throughout the program of study.

556. Independent Study. 2 credits. The independent study allows the student to pursue a major field of study and to prepare a formal report summarizing this investigation.

557. Thesis. 4 to 9 credits. The thesis is an original research project completed.

Kinesiology

http://www.und.edu/dept/pexs/

FACULTY: Brinkert, Caine (Chair), M. Short, S. Short, Steen and Whitehead (Graduate Program Director)

DEGREES GRANTED: Master of Science

PROGRAM DESCRIPTION

The Department of Physical Education, Exercise Science and Wellness offers individualized programs of study that lead to the Master of Science (thesis or non-thesis option) with a major in Kinesiology. The program provides students with opportunities to study the scientific foundations of kinesiology as well as several of its professional applications. Faculty and students work together to develop programs of study to meet the M.S. degree requirements (see below), to assist with students’ academic and professional goals, and to contribute to the Department mission.

Mission Statement

The Department of Physical Education and Exercise Science exists to promote lifelong participation in physical activity, exercise, and sport for the people of North Dakota and beyond. The mission of the Department’s Graduate Program in Kinesiology is to prepare students for a variety of professional careers in Kinesiology by providing a rigorous and dynamic curriculum which integrates classroom work and experiential learning opportunities.

Admission Requirements

Applicants who are seeking admission to Graduate School must meet all of the minimum general graduate school admission requirements identified in the Graduate School Catalog. In addition, the prospective students must fulfill the requirements for admission to the graduate program in Kinesiology.

1. A four-year bachelor’s degree from a recognized college or university.
2. A minimum of 20 semester credits of undergraduate work in kinesiology, physical education, exercise science and wellness, and related areas. The following undergraduate courses (or equivalents) are required:
   a. Adapted Activities Programming (PXW 404),
   b. Exercise Physiology (PXW 402) or Biomechanics (PXW 332)
   c. Motor Learning (PXW 276) or Motor Development (PXW 355)
   d. Sport Psychology (PXW 440) or Sport Sociology (PXW 401)
3. A cumulative Grade Point Average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A= 4.00).
4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

5. Students who have received a bachelor’s degree or higher from the United States, United Kingdom, or English-speaking Canada are not required to submit the TOEFL.

6. A personal statement of academic and professional goals, which will be used to evaluate the potential for success in the graduate program and the adequacy and appropriateness of undergraduate/professional preparation.

7. Satisfactory scores on the Graduate Record Examination (General Test).

Note: An applicant without satisfactory undergraduate preparation may be admitted to the program, but will be required to remove deficiencies by completing the necessary undergraduate courses without receiving graduate credit for them.

**Degree Requirements**

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Kinesiology Graduate Program.

**Thesis Option:**

1. A major of at least 30 credits.
2. Completion of PXW 501 (Introduction to Research in Kinesiology, 4 credits); PXW 526 (Introduction to Kinesiology Statistics, 3 credits); PXW 561 (Critical Synthesis and Analysis in Kinesiology, 2 credits); and PXW 998 (Thesis, 4-9 credits).
3. At least one-half of the credits must be at or above the 500-level.
4. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
5. Establish the Faculty Advisory Committee and submit the Program of Study by the completion of nine graduate credits.

**Non-Thesis Option:**

1. A major of at least 32 credits.
2. Completion of PXW 501 (Introduction to Research in Kinesiology, 4 credits); PXW 526 (Introduction to Kinesiology Statistics, 3 credits); PXW 561 (Critical Synthesis and Analysis in Kinesiology, 2 credits); and PXW 997 (Independent Study, 2 credits).
3. At least one-half of the credits must be at or above the 500-level.
4. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
5. Select permanent advisor and submit the Program of Study by the completion of nine graduate credits.
6. Complete independent study.
7. Pass a written and oral final comprehensive examination administered by a committee made up of members from the department’s graduate faculty.

**Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>501</td>
<td>Introduction to Research in Kinesiology</td>
<td>4</td>
<td>PXW 415 or consent of the instructor. The course will deal with the determination of standards for human performance in kinesiology, and the principles to apply these standards for exercise prescription.</td>
</tr>
<tr>
<td>502</td>
<td>Evaluation in Kinesiology</td>
<td>3</td>
<td>PXW 415 or consent of the instructor. The course will deal with the determination of standards for human performance in kinesiology, and the principles to apply these standards for exercise prescription.</td>
</tr>
<tr>
<td>511</td>
<td>Theory and Practice in Administration</td>
<td>2</td>
<td>PXW 341 or consent of the instructor. A study of the knowledge, skills and insights as they relate to planning, management and leadership necessary for effective administration of programs.</td>
</tr>
<tr>
<td>512</td>
<td>Theory and Practice in Sports Administration</td>
<td>2</td>
<td>Problems, policies and facilities in athletic departments with emphasis at the secondary level. Public relations problems met and problems of interrelationships with the general curriculum.</td>
</tr>
<tr>
<td>520</td>
<td>Curriculum Development</td>
<td>3</td>
<td>PXW 276 or PXW 355, or consent of instructor. Study of age-related performance changes across the life span. Emphasis will be on physical and mental change as they affect motor skill acquisition and performance.</td>
</tr>
<tr>
<td>521</td>
<td>Analysis of Teaching and Coaching</td>
<td>3</td>
<td>A review of the knowledge and skills for instruction of physical activity and sports, with practical applications to teaching and coaching.</td>
</tr>
<tr>
<td>523</td>
<td>Historical and Philosophical Foundations</td>
<td>2</td>
<td>Educational justification of various phases of the physical education, exercise science and wellness programs based on historical and philosophical evidence.</td>
</tr>
<tr>
<td>524</td>
<td>Adapted Activities</td>
<td>3</td>
<td>PXW 404 or consent of the instructor. Theory and practice of modified activities adapted to needs, capacities and abilities of the atypical child.</td>
</tr>
<tr>
<td>525</td>
<td>Motor Development</td>
<td>3</td>
<td>PXW 276 or PXW 355, or consent of instructor. Study of age-related performance changes across the life span. Emphasis will be on physical and mental change as they affect motor skill acquisition and performance.</td>
</tr>
<tr>
<td>526</td>
<td>Introduction to Kinesiology Statistics</td>
<td>3</td>
<td>PXW 404 or consent of the instructor. A research-based study of the psychological aspects that are associated with participation in exercise/physical activity.</td>
</tr>
<tr>
<td>530</td>
<td>Sports Biomechanics</td>
<td>4</td>
<td>PXW 332 or consent of the instructor. The application of principles of mechanics to the study of human motion.</td>
</tr>
<tr>
<td>531</td>
<td>Sport Psychology</td>
<td>3</td>
<td>PXW 440 or consent of the instructor. A research-based study of the psychological aspects associated with participation in sport.</td>
</tr>
<tr>
<td>532</td>
<td>Exercise Physiology Lab Techniques</td>
<td>3</td>
<td>PXW 402. This course provides an overview of laboratory and field measurements common to exercise physiology. The course focuses on the use of these measurements for conducting physical fitness and wellness assessments and exercise physiology related research.</td>
</tr>
<tr>
<td>533</td>
<td>Motor Learning and Control</td>
<td>3</td>
<td>PXW 276 or equivalent or consent of the instructor. Study of the acquisition and control of human motor skill.</td>
</tr>
<tr>
<td>534</td>
<td>Sport Sociology</td>
<td>3</td>
<td>PXW 401 or consent of the instructor. This course is designed to examine various sociological factors in American society and their relationship to the sport experience.</td>
</tr>
<tr>
<td>535</td>
<td>Advanced Exercise Physiology I</td>
<td>3</td>
<td>PXW 402 or equivalent, and consent of the instructor. The focus of this course is on the mechanisms which affect the cardiovascular and pulmonary system responses at rest, during and after exercise.</td>
</tr>
<tr>
<td>536</td>
<td>Advanced Exercise Physiology II</td>
<td>3</td>
<td>PXW 402 or equivalent, and consent of the instructor. The focus of this course is on the mechanisms which affect the cardiovascular and pulmonary system responses at rest, during and after exercise.</td>
</tr>
<tr>
<td>537</td>
<td>Applied Sport Psychology</td>
<td>3</td>
<td>PXW 440 or consent of the instructor. A study of psychological skill training programs for use with team and individual sports athletes.</td>
</tr>
<tr>
<td>538</td>
<td>Exercise in Health and Disease</td>
<td>3</td>
<td>PXW 535 or consent of the instructor. The role of exercise in the prevention and rehabilitation of individuals with various disease states (e.g., atherosclerosis, chronic obstructive lung disease, hypertension, diabetes, osteoporosis, obesity, and others) and health states (e.g., aging and pregnancy). This is a lecture course.</td>
</tr>
<tr>
<td>539</td>
<td>Theory and Practice of Exercise Testing</td>
<td>3</td>
<td>PXW 440 or consent of the instructor. The focus of this laboratory course is on the electrophysiology of myocardial function and exercise prescription for symptomatic and asymptomatic populations. Students will learn to interpret resting and exercise electrocardiogram recordings.</td>
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</table>
540. Teaching Lifetime Fitness. 3 credits. A study of the philosophical, disciplinary, and professional considerations that are necessary for the optimal planning and execution of lifetime fitness/wellness education programs in public schools and allied settings.

541. Adult Fitness Programming. 3 credits. A study of adult fitness and wellness programs in different settings and for a variety of adult subpopulations and special groups.

555. Special Topics in Kinesiology. 1 to 4 credits. Prerequisite: Consent of instructor. Investigation of special topics in the study of kinesiology not included in current departmental course offerings.

560. Seminar in Kinesiology. 1 credit. Prerequisite: Consent of the instructor. Presentations of current topics based on reviews of literature. Repeatable to 4 credits. S/U grading only.

561. Critical Synthesis and Analysis in Kinesiology. 2 credits. Prerequisite: 20 hours of graduate credit. This course is designed to provide the student with the opportunity to critically analyze and synthesize selected topics in kinesiology.

585. Internship in Kinesiology. 3 to 6 credits. Prerequisite: Appropriate foundational and major area coursework; consent of adviser and on-site supervisor. Professional experience and skill development through supervised placement at an approved work site (or other program) relevant to the course of study.

590. Individual Research in Kinesiology. 1 to 4 credits. Prerequisite: PXW 501 and consent of the student’s faculty adviser. Library, laboratory or field research of an approved project in Kinesiology.

592. Directed Readings in Kinesiology. 2 to 3 credits. Prerequisite: PXW 501 and consent of the student’s faculty adviser. Extensive readings to cover a student’s area of specialization and interest; written reports are required (may be repeated to a total of six credits).

997. Independent Study. 2 credits.

998. Thesis. 1-9 credits, minimum of 4 credits for thesis option.

Linguistics

http://www.und.edu/dept/linguistics/

SPECIAL SUMMER FACULTY: Baart, Bickford (Chair), C. Black, H. A. Black, Clifton (Graduate Director), Headland, Karan, Levinsohn, Marlett, Olson, Parker, Pavey, Roberts, Slater, Snider, D.A. Weber and D.D. Weber

DEGREES GRANTED: Master of Arts

PROGRAM DESCRIPTION

The graduate program in Linguistics provides graduate education in linguistics, with a particular focus on theoretically-informed descriptive linguistics in preparation for careers involving minority-language communities and lesser-studied languages. It is particularly appropriate for students anticipating careers in language development, documenting endangered languages, language survey, translation, and literacy. It currently offers an M.A. degree and is developing graduate certificate programs in community-based literacy and field linguistics.

It is a cooperative program between UND and SIL International, and offered primarily during a nine-week summer session every year. Students are initially accepted into the program only in the summer session (when the program’s faculty members are on campus) and are normally expected to spend at least two summers enrolled in the program. (See the detailed information at: http://www.und.edu/dept/linguistics/lingma.htm).

Mission Statement and Program Goals

The Graduate Program in Linguistics provides intensive graduate instruction, integrating linguistic theory with practical application, in the areas of language research, documentation, description, and development of linguistic resources such as writing systems, literacy, native literature, and translated materials. The distinctive focus of the program relates to work in multicultural, multilingual settings involving both major and lesser-studied languages, both spoken and signed. It is designed to move students toward careers involving linguistic analysis, acquisition of languages and cultures, linguistic community development, literacy, or translation.

Goal 1: Students will demonstrate knowledge of selected disciplinary subfields, publications and theoretical approaches within the field of linguistics.

Goal 2: Students will demonstrate ability to conduct independent research in the field of linguistics, especially in languages and situations where relatively little previous study has been undertaken.

Goal 3: Students will develop potential to make positive contributions to language communities through expansion of their linguistic resources.

Admission Requirements

1. A four-year bachelor’s degree from a recognized college or university.
2. A minimum of 20 semester credits in linguistics or related fields, e.g., foreign language, of which at least 10 credits must be in linguistics, and which must include the equivalent of Ling 452.
3. A cumulative Grade Point Average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A= 4.00).
4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
5. International applicants who have received their bachelor’s or master’s degree in the United States or English-speaking Canada are not required to submit the TOEFL or IELTS.

Students deficient in prerequisite credits (see #2 above), but otherwise qualifying for acceptance, may use their first summer’s coursework at SIL (or 10 graduate credits in courses designated as linguistics) to satisfy the prerequisites. Foreign language proficiency may be demonstrated by passing an examination in the language in lieu of formal credits.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Linguistics Program.

1. A minimum of 32 credits including:
   a. 3 credits listed in the Linguistics section of the graduate catalog in the area of phonetics/phonology.
   b. 3 credits in Linguistics in syntax/semantics.
   c. 3 credits in Linguistics in applied linguistics.
   d. 4 credits for a thesis.
   e. At least 6 other credits in Linguistics.
2. Of the remaining 13 credits, courses with linguistics content offered by other departments, such as English, may be counted as linguistics credits for the major.
3. Nine credits may be in a minor or in cognate courses (see the Degree Requirements section of the Graduate catalog.)
4. At least one-half of the credits must be at or above the 500-level.
5. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
6. The thesis will be based on the analysis of language data collected by the student or on theoretical or applied applications of data arising from language research.

7. Students majoring in Linguistics may wish to minor in English at UND.

Students may take the linguistics courses without applying to the M.A. program. All students who wish to take SIL courses (whether in the M.A. program or not) should apply directly to SIL each year, preferably by April 15 (April 1 for non-U.S. citizens). Application and other information is available at: http://www.und.edu/dept/linguistics/ or call 1-800-292-1621. The chair of the linguistics program is Albert Bickford, SIL-UND, 16131 N. Vernon Dr., Tucson, AZ 85739 (director_silund@sil.org) and the director of graduate studies is John Clifton (john.clifton@und.nodak.edu). Information is also available from the SIL office on campus when the courses are in session during the summer (777-0575).

Courses

503. Phonology II. 3 credits. Prerequisite: Linguistics 450, 451, or equivalent. Phonological phenomena examined from a generative point of view; emphasis on creation and testing of hypotheses about the phonological systems of particular languages.

504. Syntax II. 3 credits. Prerequisite: Linguistics 452. Drawing on one or more theories of the generative tradition, this course explores syntactic forms that are commonly attested in human language. There is emphasis on the role of language universals and linguistic argumentation in arriving at analyses of language phenomena.

505. Typology and Discourse. 3 credits. Prerequisite: Linguistics 452. The course covers recent trends relating to language typology and cross-linguistic generalizations, focusing on the domains of morphology, syntax, and pragmatics.

506. Field Methods. 3 credits. Prerequisites: Linguistics 450 and 452 or equivalent. Recommended prerequisite: Linguistics 480. Corequisite: Linguistics 451 or equivalent. Practical aspects of linguist field work and analysis, including an intensive practicum with speakers of a non-Western language for the purposes of developing skill in data collection, data management (using some computational tools), and the analysis and description of the phonological, grammatical, and lexical structures of human languages.

507. Special Topics in Linguistics. 1 to 4 credits. Topics of current interest in linguistics. May be repeated if topic is different.

510. Semantics and Pragmatics. 3 credits. Prerequisite: Linguistics 452 or equivalent. Various dimensions of meaning on the lexical, propositional, and interpropositional levels. Meaning is studied both as a property of linguistic expressions and as derived from contextual factors. Topics include principles of lexicography, selection restrictions, operators and their scope, illocutionary force, inference, and relations between form and meaning.

511. Translation of Texts: Theory and Practice. 3 credits. Prerequisites: Linguistics 452 and two years of foreign language or equivalent proficiency. Corequisite: Linguistics 510. This course is an introduction to the theory and practice of text translation, emphasizing the accurate, natural and clear transference of meaning between languages and cultures. Current issues in translation theory will be discussed, especially the approach based on Relevance Theory. Practical aspects of the course will include recognizing common translation problems and solutions, maintaining quality control, the role of computation, program planning aspects of translation projects or activities and teaching others to translate.

519. Introduction to Literacy Principles. 3 credits. Prerequisites: Linguistics 451 and 452 or equivalents. Corequisite (recommended): Linguistics 530. Introduction to literacy principles, methods, materials and programs in multilingual societies, especially those involving one or more minority languages. Includes language policy and planning, reading theory, materials design, and literacy program design and implementation, with special emphasis on training and assisting members of the minority language community to establish and maintain ongoing literacy programs. Intended as an introduction to the topic for field linguists who are not planning to be literacy specialists. Content is similar to the package of courses 520/521/522, but in less depth; it may be taught with some class sessions in common with the larger package. May not be used for graduate credit on the same program of study as 520/521/522.

520. Foundational Issues of Community-based Literacy in Multilingual Societies. 3 credits. Corequisites: Linguistics 521, 522, and 530. Upon completion of this course, students will be able to: (a) explain in detail the inter-relationship between illiteracy, poverty, politics and environment; (b) identify and describe the major movements and trends in literacy; (c) explain and teach the principles of adult education; (d) identify the major “players” in the field of adult literacy; (e) explain the major issues involved in developing a multilingual education program for school children.

521. Literacy Program Planning and Management. 3 credits. Corequisites: Linguistics 520, 522, and 530. Upon completion of this course, students will be able to: (a) explain, with examples, change processes in traditional communities; (b) design a complete literacy program; (c) explain alternative strategies for designing and managing a literacy program; (d) evaluate the need for external funding in a literacy program; (e) do detailed costing for a literacy program; (f) write a funding proposal for a literacy program; and (g) use the LinguaLinks Electronic Performance Support system and access relevant Internet resources.

522. Materials and Methods in Adult Literacy. 3 credits. Corequisites: Linguistics 520, 521, and 530. Upon completion of this course, students will be able to: (a) explain some of the major theories of reading and the history of their evolution; (b) explain, describe, and critique various instructional strategies for teaching reading; (c) design instructional materials from any one of five different strategies for teaching reading; (d) design teacher training protocols for literacy programs; (e) design testing protocols for reading materials; (f) develop instructional materials for transitional literacy programs; (g) organize and direct a writers’ workshop; and (h) explain the need for post-literacy materials and how to develop these.

530. Introduction to Writing Systems. 1 credit. Corequisite: Linguistics 451 or equivalent. Introduction to the principles of designing and testing a writing system. Attention is given to linguistic, sociolinguistic, educational, psycholinguistic, political/ideological, production and implementation issues in orthographic development.

535. Ethnographic Methods in Field Linguistics. 3 credits. Prerequisite: 6 credits in linguistics or permission of the instructor. Major areas within cultural anthropology (social, political, economic, religious, etc.) particularly with respect to issues that affect how one conducts field linguistic research and language development projects in a cross-cultural context, and which emphasize the interrelatedness of language and culture. Methods of ethnographic field methods for collecting cultural data, including practical experience in applying those methods in a research project. Recommended to be taken at the same time as Ling 506, Field Methods, because of the possibilities for integrated assignments between the two courses.

550. Directed Studies in Linguistics. 1 to 4 credits. Supervised individual study. May be repeated if topic is different. A maximum of 8 credits may be applied to the M.A. in linguistics.

594. Research in Linguistics. 1 to 6 credits. May be repeated if topic is different.

450. Articulatory Phonetics. 2 credits.

451. Phonology I. 3 credits.

Mathematics

http://www.und.edu/dept/math/mathhome.html

DEGREES GRANTED: Master of Science and Master of Education

PROGRAM DESCRIPTION

The Department offers courses leading to the M.S. (thesis and non-thesis) and M.Ed. degrees with a major in mathematics. The Department also offers a graduate minor in statistics.

MASTER OF SCIENCE

Mission Statement and Program Goals

The mission of the Mathematics Department graduate program is to provide a quality education in a variety of areas at the master’s level and to produce graduates who are qualified to pursue doctoral work, if they should desire, or careers in government, industry, and teaching. The program maintains high standards while also providing an atmosphere in which capable students with less developed academic backgrounds can maximize their potentials. The program attempts to immerse students in an atmosphere of scholarly and creative activity in a way that will encourage them to interact with each other, with the faculty, and with undergraduates. The program seeks to expand the creative abilities of students and encourages them to communicate their results effectively in written and oral forms and to become involved in mathematical and social communities. Overall, the mission is to produce graduates who love to create and use mathematics and who are able to take an active part in their own learning.

Admission Requirements

1. The equivalent of a bachelor’s degree with a major in mathematics.
2. A cumulative grade point average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A=A-4.0).
3. Students who have not completed the equivalent of Math 431 and 432 will be required to do so as part of their graduate program.
4. The program may include just the major, the major and a minor, or the major and a cognate area. The major must include 20 credits from the major department, and a minor or cognate area must include at least nine credits.
5. Preparation of a written independent study approved by the faculty advisor.
6. Comprehensive final examination.
7. Required Courses:
   a. Two full graduate sequences (12 cr) chosen from the following:
      Math 512 and 513 .......................... 6 credits
      Math 515 and 516 .......................... 6 credits
      Math 518 and 519 .......................... 6 credits
      Math 520 and 521 .......................... 6 credits
      Math 541 and 542 .......................... 6 credits
   b. At least one additional graduate level mathematics course, 3 cr
   c. Independent Study 997, 2 cr
   d. Electives/Cognates, 15 cr
   Total 32 cr

**MASTER OF EDUCATION**

**Mission Statement**

The Master of Education program in Mathematics will provide teachers with an understanding of at least one area of modern mathematics as well as an understanding of the teaching and learning of mathematics.

**Admission Requirements**

1. Satisfy the undergraduate requirements in Education, i.e., 18 credit hours in Education including student teaching.
2. The equivalent of a bachelor’s degree with a major in mathematics.
3. A cumulative grade point average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A=A-4.0).
4. Students who have not completed the equivalent of Math 409, 421, 431, 441 and 442 will be required to do so as part of their graduate program.
5. For applicants whose native language is not English, a minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-Based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
   *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
6. Students who have not completed the equivalent of Math 409, 421, 431, 441 and 442 will be required to do so as part of their graduate program.

**Degree Requirements**

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Mathematics Department.

**Thesis Option:**

1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.
2. The program may include just the major, the major and a minor, or the major and a cognate area. The major must include 20 credits from the major department, and a minor or cognate area must include at least nine credits.
3. At least one-half of the credits must be at or above the 500-level.
4. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
5. Comprehensive final examination.
6. Required Courses:
   a. Two full graduate sequences (12 cr) chosen from the following:
      Math 512 and 513 .......................... 6 credits
      Math 515 and 516 .......................... 6 credits
      Math 518 and 519 .......................... 6 credits
      Math 520 and 521 .......................... 6 credits
      Math 541 and 542 .......................... 6 credits
   b. At least one additional graduate level mathematics course, 3 cr
   c. Thesis 998, 4 cr
   d. Electives/Cognates, 11 cr
   Total 30 cr

**Non-Thesis:**

1. Thirty-two (32) credits including a minimum of two credits of Independent Study.
2. At least one-half of the credits must be at or above the 500-level.
Mechanical Engineering

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579. Practicum in Middle School Mathematics. 2 credits. Prerequisites: Must be a licensed K-12 teacher; Math 576, 577 or 578; instructor consent. Teachers will use their content and pedagogical knowledge to plan lesson(s) and develop and implement an action research project in their school. May be repeated for up to 6 credits. May not be used in Ph.D. or Master’s programs.

403. Theory of Probability. 3 credits.

405. Selected Topics in Mathematics. 1 to 3 credits.

408. Combinatorics. 3 credits.

409. Geometry. 3 credits.

412. Differential Equations. 3 credits.

415. Topics in Applied Mathematics. 1 to 3 credits.

416. Topics in Statistics. 1 to 3 credits.

420, 422. Statistical Theory. 6 credits.

431, 432. Advanced Calculus. 6 credits.

435. Theory of Numbers. 3 credits.

441. Abstract Algebra. 3 credits.

442. Linear Algebra. 3 credits.

450. Elements of Topology. 3 credits.

460. Mathematical Modeling. 3 credits.

461, 462. Numerical Analysis. 6 credits.

465. Topics in Operational Research. 3 credits.

471. Introduction to Complex Variables. 3 credits.

494, 495. Reading Course in Mathematics. Credit not to exceed 1 hour a semester and total credit not to exceed 3 hours.

Mechanical Engineering

http://www.me.und.edu

FACULTY: Ames, Bandyopadhyay, Bibel, Cavalli (Graduate Director), Grewal, Kulkarni, Neubert, Semke and Zahui

DEGREES GRANTED: Master of Science and Master of Engineering

PROGRAM DESCRIPTION

The Department of Mechanical Engineering offers graduate programs leading to either the Master of Science (M.S.) or Master of Engineering (M.Eng.) degrees. The M.S. degree is a research-oriented degree that is available in either thesis or non-thesis options. The non-thesis M.S. degree requires completion of an independent study. The M.Eng. degree is an engineering practice-oriented degree that requires completion of an engineering design project.

The Department offers combined B.S./Master’s programs that allow a student to complete a master’s degree in as little as one year beyond the bachelor’s degree. The master’s degree may be either an M.S. or M.Eng. See “Combined Degree Program” under the School of Engineering and Mines section for additional details.

MASTER OF SCIENCE

Mission Statement and Program Goals

Thesis Option

The mission of the Master of Science (Thesis) program is to prepare mechanical engineers for either technical careers in government or industry or for doctoral studies in mechanical engineering or related fields. This preparation will include guided, independent research and advanced coursework in mechanical engineering and related areas. Both the research and the coursework will be selected as appropriate in specific areas of interest to the student and their graduate committee and for which the faculty is qualified to direct and instruct.

Non-Thesis Option

The mission of the Master of Science (Non-Thesis) program is to prepare mechanical engineers for technical careers in government or industry in mechanical engineering or related fields. This preparation will include guided, independent research and advanced coursework in mechanical engineering and related areas. Both the research and the coursework will be selected as...
appropriate in specific areas of interest to the student and their graduate advisor and for which the faculty is qualified to direct and instruct.

**Student Learning Goals**

**Thesis Option**

**Goal 1:** Graduates will demonstrate a mastery of scientific research by formulating, assessing, and documenting a scientific hypothesis.

**Goal 2:** Graduates will be well prepared for a career in government/industry and/or doctoral studies in mechanical engineering or a related field.

**Non-Thesis Option**

**Goal 1:** Graduates will demonstrate a mastery of scientific investigation by researching and preparing a scholarly report on a topic related to mechanical engineering.

**Goal 2:** Graduates will be well prepared for a career in government/industry in mechanical engineering or a related field.

**Admission Requirements**

1. B.S. degree in Mechanical Engineering from an ABET accredited program and have an acceptable GPA.
2. GRE general test required for applicants with undergraduate degrees from other than ABET accredited programs.
3. 2.75 overall undergraduate GPA or a GPA of at least 3.00 for the junior and senior years.
4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
   *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
5. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
6. Students seeking admission to a combined B.S./Master’s program must have a GPA of at least 3.0 at the time of admission.

Students who hold an undergraduate engineering or science degree other than mechanical engineering may be admitted to provisional or qualified status with an obligation to acquire additional background in mechanical engineering as appropriate.

**Degree Requirements**

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Mechanical Engineering Department.

**Thesis Option**

1. A minimum of 30 semester credits in a major field approved by the graduate committee, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
4. Completion of a research project and its presentation in a thesis (4-9 credits for 998 Thesis).

**Non-Thesis Option**

1. Thirty-two (32) credits including credits approved by the graduate advisor required for the major.
2. Two credits of 997, Independent Study.
3. At least one-half of the credits must be at or above the 500-level.
4. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
5. Preparation of a written independent study approved by the faculty advisor.
6. Comprehensive final examination.

The research project, independent study, or design project may be from interdisciplinary areas such as bioengineering or environmental engineering, or they may be topics in design, manufacturing processes, vibrations, stress analysis, materials, power, fluid mechanics, heat transfer, thermodynamics, or combustion.

**MASTER OF ENGINEERING**

**Mission Statement and Program Goals**

The mission of the Master of Engineering in Mechanical Engineering program is to provide advanced preparation in the practice of mechanical engineering for mechanical engineers seeking technical careers in industry. This preparation will include a guided, independent design project and advanced coursework in mechanical engineering and related areas. Both the design project and the coursework will be selected as appropriate in specific areas of interest to the student and graduate advisor and for which the faculty is qualified to direct and instruct.

**Goal 1:** Graduates will demonstrate a mastery of the practical implementation of engineering concepts by identifying a substantial need, formulating a design or process to meet the need and implementing their solution to meet that need.

**Goal 2:** Graduates will be well prepared for a career in industry in mechanical engineering or a related field.

**Admission Requirements**

1. B.S. degree in Mechanical Engineering from an ABET accredited program and have an acceptable GPA.
2. GRE general test required for applicants with undergraduate degrees from other than ABET accredited programs.
3. 2.50 overall undergraduate GPA or a GPA of at least 2.75 for the junior and senior years.
4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
   *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
5. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
Degree Requirements

Students seeking the Master of Engineering degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Mechanical Engineering Department.

1. 30 credits approved by the graduate advisor.
2. 15 credits at the 500 level or above.
3. 9 credits of engineering science, basic science, and/or mathematics.
4. ME 595 Design Project for 9 credits.
5. A written report on the design project.
6. All major department courses must be at the 400 level or above, and no courses below 300 level may be included in the program.
7. Comprehensive final examination.

The research project, independent study, or design project may be from interdisciplinary areas such as bioengineering or environmental engineering, or they may be topics in design, manufacturing processes, vibrations, stress analysis, materials, power, fluid mechanics, heat transfer, thermodynamics, or combustion.

Courses (ME)

A minimum of one 500-level course will be offered each semester. The courses will alternate between the thermal science-fluids-energy areas and the mechanics-materials-manufacturing-processes areas. All other courses listed will be taught on appropriate student demand.

514. Processing of Advanced Materials. 3 credits. Prerequisite: Engr 203, ME 301. Structural ceramics, metal matrix composites, superalloys are considered as advanced materials because of their high specific strength. Modulus and high temperature resistance. However, machining of these materials presents a big challenge to manufacturing engineers. The course will discuss in detail the latest achievements for cost-effective machining of these materials.

523. Advanced Machine Design. 3 credits. Prerequisite: Mechanical Engineering 322 and 323. Advanced design and analysis of machine components; kinematic synthesis and analysis of mechanisms, force analysis, rotor dynamics, gyrodyamics, stresses in thick cylinders and flywheels, lubrication, statistical considerations, energy methods, curved beams.

524. Deformation and Fracture. 3 credits. Prerequisites: ME 301 or consent of instructor. Aspects of elasticity theory, continuum mechanics and fracture mechanics. Fundamental relationships between material structure and engineering properties. Principles and properties of composite materials.

525. Metal Fatigue in Engineering. 3 credits. Prerequisites: Engr 203 and ME 301 or consent of the instructor. Metal fatigue in engineering, involving design, development, and failure analysis of components, structures, machines, and vehicles subjected to repeated loading.

526. Advanced Vibrations. 3 credits. Prerequisites: Mechanical Engineering 426. Advanced vibration theory including the solutions of multi-degree of freedom coupled systems, continuous systems, energy methods, and non-linear vibrations.

529. Advanced Finite Element Methods. 3 credits. Prerequisites: ME 429 or consent of instructor. Computer-aided techniques for finite element analysis of engineering systems. Topics include solution algorithm for nonlinear methods, large deflection, inelastic and contact analysis, and analysis of vibrating systems.

532. Advanced Dynamics. 3 credits. Prerequisites: Engr 202 and Math 266. Kinematics and kinetics of plane and three-dimensional motion, vector mechanics, general methods of linear and circular momentum, generalized coordinates, and variational methods including Hamilton’s and Lagrange’s equations.

542. Thermodynamics of Materials. 3 credits. Prerequisites: ME 301 and ME 341 or consent of instructor. Foundations of materials behavior in terms of energy and statistics. Topics will include entropy, free energy, phase equilibrium, ideal versus real solutions and diffusion.

545. Fluidized-Bed Combustion Engineering. 3 credits. Prerequisites: ME 306, ME 474, or consent of instructor. Fluidized bed hydrodynamics and heat transfer. Design of fluidized-bed coal combustors. Combustion models and their significance.

574. Advanced Heat Transfer. 3 credits. Prerequisite: ME 474, or consent of instructor. Advanced conduction in isotropic media in two and three dimensions steady and unsteady problems. Advanced convection including solution of Prandtl Boundary layer equations. Numerical methods, Fourier series, Bessel functions, LaPlace transforms, and error functions. Radioactive heat transfer.

575. Conduction and Radiation Heat Transfer. 3 credits. Prerequisites: ME 474 or consent of instructor. Advanced study of conduction and radiation heat transfer. Solution methodologies to classical heat conduction problems will be introduced. Topics include: multidimensional steady conduction via separation of variables and principle of superposition; transient conduction with time-dependent boundary conditions via method of complex temperatures; numerical solutions to heat conduction problems; spectral dependence of radiation; blackbody and gray surface radiation; radiation exchange between surfaces; radiation shield.

576. Convective Heat Transfer. 3 credits. Prerequisite: ME 474. Advanced study of convective heat transfer, involving developing an understanding of boundary layers, flow in pipes, and convective heat transfer processes. Topics include the concepts of boundary layers, laminar and turbulent flow on surfaces and inside of pipes, and turbulence models. Analytical tools introduced are useful for estimating or bounding heat transfer rates when correlations are not available.

590. Special Topics. 1 to 6 credits. Prerequisite: Departmental approval. Investigation of special topics dictated by student and faculty interests. May be repeated up to a total of 6 credits.

591. Research in Mechanical Engineering. 1 to 6 credits.

595. Design Project. 3 to 6 credits. Prerequisite: Restricted to Master of Engineering students and subject to approval by the student’s advisor. A three to six credit course of engineering design experience involving individual effort and formal written report. S/U grading only.

997. Independent Study. 2 credits.

998. Thesis. 1 to 9 credits. Development and documentation of scholarly activity demonstrating proficiency in Mechanical Engineering at the master’s level. S/U grading only.

426. Mechanical Vibrations. 3 credits.

428. Advanced Manufacturing Processes. 3 credits.

429. Intro to Finite Element Analysis. 3 credits.

446. Gas Turbines. 3 credits.

449. Heat and Air Conditioning. 3 credits.

464. Computational Fluid Dynamics. 3 credits.

476. Intermediate Fluid Mechanics. 3 credits.

477. Compressible Fluid Flow. 3 credits.

490. Special Laboratory Problems. 1 to 3 credits.

Microbiology and Immunology

http://www.med.und.nodak.edu/depts/micro/programs_study.html

FACULTY: Bradley (Interim Chair), Flower (Graduate Director), Hill, Melvold (Emeritus) and Nilles

DEGREES GRANTED: Master of Science, Doctor of Philosophy and Ph.D./M.D.

PROGRAM DESCRIPTION

The Department of Microbiology and Immunology offers graduate programs leading to the M.S., Ph.D., and PhD/MD degrees. Graduate study is available in a number of subdisciplines including cell biology, pathogenic microbiology, genetics, immunology, immunogenetics, autoimmunity, microbial physiology, molecular biology, and virology. The goals of the program are to provide scientific training and experience for careers in research and teaching in universities, clinical and research laboratories and in fields of related employment. Additional background is available in disciplines such as biochemistry, computer sciences, statistics and electron microscopy in other departments in the School of Medicine and the University.

Core requirements for M.S. and Ph.D. degrees include courses in biochemistry, microbiology, molecular biology, immunology, statistics and graduate seminars. For both the M.S. and Ph.D. degrees,
students are expected to carry out original research suitable for publication in a professional journal.

Master’s degree candidates are required to write a thesis and defend their research in a final oral examination. Doctoral candidates are required to successfully complete both a written and oral comprehensive examination as well as to write a dissertation and defend their research in a final oral examination.

A new, modern science building and an adjacent bioinformation learning resources center which house the research laboratories, library and teaching facilities of the School of Medicine were constructed in 1994. These facilities provide a state-of-the-art environment for teaching and research. The Department of Microbiology and Immunology occupies the fourth floor of the research building. Other basic science departments in this facility include the Departments of Anatomy and Cell Biology, Biochemistry and Molecular Biology, and Pharmacology, Physiology and Therapeutics. Additional resources include the Department of Pathology, the Energy and Environmental Research Center, the USDA Human Nutrition Center and the Computer Center. The proximity of these departments and facilities provides the opportunity for cooperative and collaborative research and training in the basic sciences.

MASTER OF SCIENCE

Mission Statement and Program Goals

The M.S. program in the Department of Microbiology and Immunology will provide students with formal classroom instruction, mentored training in laboratory research, and other educational experiences that will prepare them for further research training or for careers in scientific industrial, governmental and educational settings.

Goal 1: Students will demonstrate an appropriate knowledge base with respect to biomedical science, and to the fields of microbiology and immunology in particular. Students will demonstrate a thorough knowledge base of the field in which their research project is based.

Goal 2: Students will demonstrate the ability to critically evaluate data. Students will demonstrate the ability to present and defend their ideas, findings and analyses in oral form.

Goal 3: Students will demonstrate the ability to present and defend their ideas, findings and analyses in written form and oral form.

Admission Requirements

Applications for admission are accepted throughout the year. However, priority will be given to applications received by February 15 for Fall admission as awarding of financial aid for the next academic year is decided in March and early April.

1. Bachelor’s degree from an accredited institution and good academic record in the sciences.
2. A minimum grade point average of 3.0 on a 4.0 scale.
3. The Graduate Record Examination General Test.
4. A course in Microbiology and a background in chemistry, preferably through organic chemistry, are recommended.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Microbiology and Immunology Department.

1. A minimum of 30 credit hours including research and thesis.
2. A grade of at least B in BIMD 500.
3. Completion of BIMD 510, 513, 515 and 516.
5. Completions of one credit each of MBio 507 and 511.
6. Completion of MBio 509.
7. Completion of two of the following (4 credits): MBio 501, 504, 508, 512 or 519.
8. An overall GPA of at least 3.0.
10. Minimum course requirements as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>BIMD 500</td>
<td>Cellular and Molecular Foundations of Biomedical Science</td>
<td>6 cr</td>
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<tr>
<td>MBio 510</td>
<td>Basic Biomedical Statistics</td>
<td>2 cr</td>
</tr>
<tr>
<td>BIMD 513</td>
<td>Seminar in Biomedical Science</td>
<td>1 cr</td>
</tr>
<tr>
<td>BIMD 515</td>
<td>Steps to Success in Graduate School</td>
<td>1 cr</td>
</tr>
<tr>
<td>BIMD 516</td>
<td>Responsible Conduct in Research</td>
<td>1 cr</td>
</tr>
<tr>
<td>MBio 507</td>
<td>Seminar in Microbiology</td>
<td>1 cr</td>
</tr>
<tr>
<td>MBio 509</td>
<td>Immunology</td>
<td>3 cr</td>
</tr>
<tr>
<td>MBio 511</td>
<td>Microbiology and Immunology Literature</td>
<td>1 cr</td>
</tr>
<tr>
<td>MBio 513</td>
<td>Research Tools</td>
<td>2 cr</td>
</tr>
<tr>
<td>MBio 590</td>
<td>Research and Thesis</td>
<td>8 cr</td>
</tr>
<tr>
<td>998</td>
<td>Research and Thesis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total credits</td>
<td>30 cr</td>
</tr>
</tbody>
</table>

DOCTOR OF PHILOSOPHY

Mission Statement and Program Goals

The Ph.D. program in the Department of Microbiology and Immunology will provide students with formal classroom instruction, mentored training in laboratory research, and other educational experiences that will prepare them for advanced post-doctoral training and careers as independent biomedical scientists.

Goal 1: Students will acquire an appropriate knowledge base.

Goal 2: Students will learn to critically evaluate data.

Goal 3: Students will learn to formulate and test hypotheses and design informative and properly controlled experiments to test those hypotheses.

Goal 4: Students will learn to present and publish their experimental data.

Admission Requirements

1. Bachelor’s degree from an accredited institution and good academic record in the sciences.
2. A minimum grade point average of 3.0 on a 4.0 scale.
3. The Graduate Record Examination Test.
4. A course in Microbiology and a background in chemistry, preferably through organic chemistry, are recommended.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Microbiology and Immunology Department.

1. A minimum of 90 credit hours including research and dissertation.
2. A grade of at least B in BIMD 500.
3. Completion of BIMD 510, 513, 515 and 516.
5. Completions of one credit each of MBio 507 and 511.
6. Completion of MBio 509.
7. Completion of four of the following (8 credits): MBio 501, 504, 508, 512 or 519.
8. An overall GPA of at least 3.0.
10. Minimum course requirements as follows:

- BIIM 500 Cellular and Molecular Foundations of Biomedical Science 6 cr
- BIIM 510 Basic Biomedical Statistics 2 cr
- BIIM 513 Seminars in Biomedical Science 1 cr
- BIIM 515 Steps to Success in Graduate School 1 cr
- BIIM 516 Responsible Conduct in Research 1 cr
- MBio 507 Seminar in Microbiology 1 cr
- MBio 509 Immunology 3 cr
- MBio 511 Microbiology and Immunology Literature 1 cr
- MBio 513 Research Tools 2 cr
- MBio 590 Research 5-8 cr
- MBio 999 Dissertation 6 cr

And at least four of the following:
- MBio 501 Molecular Virology 2 cr
- MBio 504 Microbial Physiology 2 cr
- MBio 508 Microbial Pathogenesis 2 cr
- MBio 512 Microbial Genetics 2 cr
- MBio 519 Advanced Immunology 2 cr
- Total credits 90 cr

Joint Ph.D./M.D. Degree

See Program Requirements for Ph.D. Degree in the Degree Requirements section.

Courses

Courses marked with an asterisk(*) are offered in alternate years only.

- BIIM 500. Cellular and Molecular Foundations of Biomedical Science. 6 credits.
- BIIM 510. Basic Biomedical Statistics. 2 credits.
- BIIM 513. Seminars in Biomedical Science. 1 credit.
- BIIM 515. Steps to Success in Graduate School. 1 credit.
- BIIM 516. Responsible Conduct in Research. 1 credit.
- MBio 507. Seminar in Microbiology. 1 credit.
- MBio 509. Immunology. 3 credits.
- MBio 511. Microbiology and Immunology Literature. 1 credit.
- MBio 513. Research Tools. 2 credits.
- MBio 590. Research. 5-8 credits.
- MBio 999. Dissertation. 6 credits.

And at least four of the following:
- MBio 504. Microbial Physiology. 2 credits.
- MBio 508. Microbial Pathogenesis. 2 credits.
- MBio 512. Microbial Genetics. 2 credits.
- MBio 519. Advanced Immunology. 2 credits.
- Total credits 90 credits.

Music

http://www2.und.nodak.edu/undmusic/index.php

FACULTY: Blackburn, Blake, Christopherson, Costes, Ingle, Keyser, Lewis, Norman-Dearden, Popejoy, Rheude, Towne (Graduate Program Director) and Wittgraf (Chair)

DEGREES GRANTED: Master of Music and Doctor of Philosophy

PROGRAM DESCRIPTION

The mission of the University of North Dakota Department of Music is to inspire our students and community through education, performance, scholarship, and human relationships in music. Our professional and liberal arts degrees provide rigorous courses of study that cultivate the highest degree of artistic performance, innovative teaching, thorough professionalism, and critical inquiry. The University of North Dakota is an accredited institutional member of the National Association of Schools of Music.

The Music Department offers graduate programs leading to the Master of Music degree with specializations in Music Education, Performance, Pedagogy, Composition, Choral Conducting, Instrumental Conducting, and the Doctor of Philosophy degree in Music Education.
MASTER OF MUSIC

Mission Statements and Program Goals

Master of Music with a Major in Composition
The Master of Music in Composition provides a rigorous and specialized degree with the focus on developing a student’s mastery of musical materials and construction, in preparation for a career in composition or arranging or further advanced study.

Goal 1: Students will develop their compositional abilities and control of musical materials to a high level.

Goal 2: Students will consolidate their general knowledge of musical scholarship and research and approaches to this study.

Master of Music with a Major in Conducting
The Master of Music in Conducting provides a rigorous and specialized degree with the focus on developing a student’s individual musicianship and conducting abilities, in preparation for a performance or teaching career.

Goal 1: Students will develop their conducting and individual performing abilities to a high level.

Goal 2: Students will consolidate their general knowledge of musical scholarship and research and approaches to this study.

Master of Music with a Major in Music Education
The Master of Music in Music Education offers strong academic and professional training in both music and music education through a variety of approaches which aim to deepen the focus of a music educator’s chosen direction and their understanding and implementation of scholarship in their field, either as the capstone of education for public school teaching or in preparation for further graduate study in the field.

Goal 1: Students will develop their focal area (Research or Performance) to a high level.

Goal 2: Students will deepen their understanding of the various aspects of Music Education.

Goal 3: Students will consolidate their general knowledge of musical scholarship and research and approaches to this study.

Master of Music with a Major in Pedagogy
The Master of Music in Pedagogy provides a specialized degree with the focus on developing a student’s applied teaching abilities and individual musicianship, in preparation for a career as an applied music teacher.

Goal 1: Students will develop their pedagogical and performing abilities to high levels.

Goal 2: Students will consolidate their general knowledge of musical scholarship and research and approaches to this study.

Degree Requirements - M.M. and Ph.D.

All Graduate Music degree programs (M.M. & Ph.D.) require the following Core Courses:

MUSC 500 ........ Introduction to Graduate Study .......................................................... (3)
MUSC 502 ........ Perspectives of Music Theory .............................................................. (3)
MUSC 508 ........ Perspectives of Music History .............................................................. (3)

Degree Requirements - M.M.

Students seeking the Master’s degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Music Department.

Degree requirements for the Master of Music degree in Music Department include:

1. 32-38 credit hours in one of the available six specializations:
   a. Music Education
   b. Performance
   c. Pedagogy
   d. Composition
   e. Choral Conducting
   f. Instrumental Conducting
2. At least one-half of the credits must be at or above the 500-level.
3. The specialization in Conducting requires at least a one-year residence.

MUSIC EDUCATION SPECIALIZATION

Indepedent Study Option

Core Courses listed above ................................................................. (9)
MUSC 503 Psychological Foundations of Music Learning ............ (3)
MUSC 509 Trends in Music Education ......................................... (3)
MUSC 598 Research in Music Education .................................... (3)
MUSC 997 Independent Study (Music Education topic) ......... (2)
Electives in Music Education ....................................................... (6)
Electives ....................................................................................... (6-12)
(from outside Music Education, may be from outside the Department of Music)

Thesis Option

Core Courses listed above ................................................................. (9)
MUSC 503 Psychological Foundations of Music Learning ............ (3)
MUSC 509 Trends in Music Education ......................................... (3)
MUSC 598 Research in Music Education .................................... (3)
MUSC 998 Thesis (Music Education Topic) ............................. (4)
Electives in Music Education ....................................................... (6)
Electives ....................................................................................... (4-10)
(from outside Music Education, may be from outside the Department of Music)

Performance Option

Core Courses listed above ................................................................. (9)
Music Education Courses:
MUSC 503 Psychological Foundations of Music Learning ............ (3)
MUSC 509 Trends in Music Education ......................................... (3)
MUSC 598 Research in Music Education .................................... (3)
Electives in Music Education ....................................................... (6)
Applied Music & Recital (may include conducting):
MUSC 595 Individual Lessons ..................................................... (1-4)
MUSC 599 Graduate Recital ......................................................... (2)
Conducting Courses (required for conducting students only):
MUSC 521 Instrumental Literature .............................................. (3)
MUSC 561 Advanced Choral Conducting ................................... (2)
MUSC 562 Advanced Instrumental Conducting ......................... (2)
Electives ................................................................. (9-11)
(from outside Music Education, may be from outside the Department of Music)

Pedagogy Course:
MUSC 522 Solo Instrumental Literature .................................. (2)
MUSC 551 Vocal Pedagogy I ....................................................... (3)
MUSC 552 Solo Instrumental Literature .................................. (2)
MUSC 596 Individual Lessons .................................................... (4)
MUSC 997 Independent Study ..................................................... (2)
Electives ....................................................................................... (5-11)

Teacher Education Option

Prerequisite Degree: B.A., B.S., or B.M. in Music or Music Therapy

Core Courses listed above ................................................................. (9)
Music Education Courses:
MUSC 503 Psychological Foundations of Music Learning ............ (3)
MUSC 509 Trends in Music Education ......................................... (3)
MUSC 598 Research in Music Education .................................... (3)
Conducting Courses:
MUSC 521 Instrumental Literature .............................................. (3)
MUSC 561 Advanced Choral Conducting ................................... (2)
MUSC 562 Advanced Instrumental Conducting ......................... (2)
Method Courses:
MUSC 440 Elementary Music Methods .................................... (3)
MUSC 442 Secondary Music Methods .................................... (3)
Recital:
MUSC 599 Graduate Recital ....................................................... (2)
Undergraduate coursework to fulfill licensure requirements:
MUSC 140 2-5 credits); 150 (voice and/or guitar); 180; 242 (choral specialization); 340; 423; 427; 444 (choral); and 445 or 446. T&L 250 (or 252), 252, 325, 386, 433, 486, 487, 488.
All students must demonstrate keyboard proficiency equivalent to level 4; keyboard principals must demonstrate an equivalent level of vocal proficiency.

For those in the composition concentration, the final project in composition replaces an independent study.

MUSIC COMPOSITION SPECIALIZATION

Core Courses listed above ................................................................. (9)
MUSC 506 Advanced Composition .............................................. (8)
MUSC 537 Advanced Studies in Musical Form ............................. (2)
MUSC 538 Advanced Orchestration ............................................. (2)
MUSC 539 Advanced Counterpoint ............................................. (2)
MUSC 593 Final Project in Composition ..................................... (4)
Electives ....................................................................................... (5-11)

PERFORMANCE SPECIALIZATION

Core Courses listed above ................................................................. (9)
Performance Courses:
MUSC 599 Individual Lessons .................................................... (8)
MUSC 599 Graduate Recital ....................................................... (2)
MUSC 997 Independent Study ..................................................... (2)
Other Studies:
MUSC 523 Keyboard Literature .................................................. (3)
MUSC 551 Vocal Pedagogy I ....................................................... (3)
MUSC 525 Vocal Literature ......................................................... (3)
MUSC 570 Instrumental Ensemble Performance ......................... (2)
Electives ....................................................................................... (5-11)

PEDAGOGY SPECIALIZATION

(Piano & Voice only)

Core Courses listed above ................................................................. (9)
Pedagogy Courses:
MUSC 552 Keyboard Pedagogy I ................................................. (3)
MUSC 554 Keyboard Pedagogy II ............................................... (3)
MUSC 591 Keyboard Internship ................................................... (1)
MUSC 551 Vocal Pedagogy I ....................................................... (3)
MUSC 553 Vocal Pedagogy II ....................................................... (3)
MUSC 590 Vocal Internship ....................................................... (1)
Other Studies:
MUSC 523 Keyboard Literature .................................................. (3)
MUSC 525 Vocal Literature ......................................................... (3)
MUSC 596 Individual Lessons ..................................................... (4)
MUSC 597 Special Projects (Pedagogy topic) .............................. (2)
MUSC 997 Independent Study ..................................................... (2)
Electives ....................................................................................... (5-11)

CHORAL CONDUCTING SPECIALIZATION

Core Courses listed above ................................................................. (9)
Conducting Courses:
MUSC 561 Advanced Choral Conducting .................................. (2)
MUSC 562 Advanced Instrumental Conducting ......................... (2)
MUSC 599 Graduate Recital (Conducting) ................................ (2)
Other Studies:
MUSC 524 Choral Literature ....................................................... (3)
MUSC 551 Vocal Pedagogy I ....................................................... (3)
MUSC 580 Choral Ensemble Performance .................................. (2)
MUSC 594 Individual Lessons (Voice) ......................................... (2)
MUSC 997 Independent Study ..................................................... (2)
Electives ....................................................................................... (3-9)
INSTRUMENTAL CONDUCTING SPECIALIZATION

Core Courses listed above ................................................................. (9)

Conducting Courses:
- MUSC 561 Advanced Choral Conducting .................................. (2)
- MUSC 562 Advanced Instrumental Conducting ......................... (2)
- MUSC 595 Individual Lessons (Conducting) ............................... (2)

Electives ..................................................................................................... (6-12)

DOCTOR OF PHILOSOPHY IN MUSIC EDUCATION

Mission Statement and Program Goals

The Doctor of Philosophy in Music Education offers strong academic and professional training in education and music education through a variety of approaches with the aims of enabling students to produce independent scholarship and teach in higher education, or to provide leadership in music programs at any level.

Goal 1: Students will develop their understanding of Music Education to the highest possible level.

Goal 2: Students will consolidate their general knowledge of musical scholarship and research and approaches to this study.

Admission Requirements

Admission requirements for the Doctor of Philosophy degree in Music Education are the same as those found under the Teaching and Learning Doctoral Program in Education and are listed below.

1. Graduate grade point average(s) above 3.5.
2. Excellent writing skills.
3. Three references that speak to academic ability, professional accomplishments related to your field of study, and positive character traits.
4. A statement of clear professional goals that can be met by our program as specified in the graduate catalog.
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Recommended: The Graduate Record General Examination (verbal, quantitative, analytical), the Advanced Graduate Record Examination, and/or the Miller Analogies Test.

Degree Requirements - Ph.D.

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Music Department.

Requirements for the Doctor of Philosophy Degree set forth by the Music Department include:

The Ph.D. program of study in Teaching and Learning shall include the following:

1. Completion of 90-96 semester credits beyond the baccalaureate degree.
2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.
3. With approval of a student’s Faculty Advisory Committee, up to one-half of the work beyond a master’s degree (maximum of 30 semester credit hours) may be transferred from another institution that offers post-master’s degrees in the discipline.
4. At least one-half of the work must be in the major field, including:
   a. at least 10 credits of dissertation, which incorporates independent work that is an original contribution to knowledge in the field
   b. A minimum of 6 credits in the Foundations of Education
   c. A minimum of 12 credits of scholarly tools
5. At least 12 hours of a minor or cognate in a supporting area
6. Meet one of the three residency options described below:

Residency Requirements (Ph.D. only)

The purpose of residency is to provide an opportunity for sustained and concentrated intellectual effort, to provide for immersion in a research environment, and to permit extensive interaction with fellow students and faculty of the major department.

The residency for the Ph.D. in Music Education is designed to provide the student with the experiences outlined by the Graduate School. Students are expected to engage in serious scholarship and reflect on their learning and experiences, as well as to integrate their doctoral study such that the program of study they pursue will become a unified experience. A doctoral student in Music Education can meet the residency requirement in any one of the following ways:

1. Students will complete a residency while enrolled in a minimum of nine semester hours of credit during each of two consecutive semesters (Fall/Spring or Spring/Fall). Students in this option are encouraged, but are not required, to enroll in a Doctoral Seminar during their residency or at another time in the program. If a student is a GTA, GSA or GIRA, the number of credits that the student may take for this option is less and is specified in the catalog.
2. Students will complete a residency while enrolled in a minimum of eight semester hours of credit during each of three consecutive summer sessions and in a minimum of two Doctoral Seminars following their first and second or third summers in residence.
3. Students will complete a residency over a period of three consecutive years of continuous enrollment in a minimum of 36 hours of credit (12 credits per year for three years), to include a minimum of two Doctoral Seminars during the period of residency.

PH.D. IN MUSIC EDUCATION

Core Courses listed above ................................................................. (9)

Music Education Component:
- MUSC 503 Psychological Foundations of Music Learning ............ (3)
- MUSC 507 Foundations of Music Education .................................. (3)
- MUSC 999 Dissertation in Music Education .................................. (10-15)

Music Electives (other studies in Music) ........................................ (7-23)

Teaching & Learning Core (minimum of 12 credits):
- T&L 539 College Teaching ......................................................... (3)
- T&L 545 Adult Learners ............................................................. (3)
- T&L Core Electives (selected from T&L list in consultation with adviser) ................................................................. (6)

Foundations of Education:
- EFR 500 Foundations of Educational Thought ........................... (3)
- MUSC 503 Psychological Foundations of Music (listed above) ..... (3)
- MUSC 507 Foundations of Music Education (listed above) ....... (3)
Scholarly Tools in Education. (may serve as Research cognate, 3 options, see below) ........................................ (12)
Supporting Area and Electives: (may include Minor, 24 credits or Cognate, 12 credits) .................................................. (21-26)
Scholarly Tools Options (courses below or equivalents):

Option 1: Qualitative Emphasis Option
EFR 510 .................................. Qualitative Research Methods .................................................. (3)
EFR 520 .................................. Advanced Qualitative Research Methods .................................................. (3)
EFR 516 .................................. Statistics II ............................................................... (3)
MUSC 598 .................................. Research in Music Education .................................................. (3)
Or equivalents

Option 2: Quantitative Emphasis Option
EFR 510 .................................. Qualitative Research Methods .................................................. (3)
EFR 561 .................................. Multivariate Analysis ........................................................... (3)
MUSC 598 .................................. Research in Music Education .................................................. (3)
Or equivalents

Option 3: Tests and Measurements Option  
EFR 511 .................................. Curriculum Evaluation ........................................................... (3)
EFR 512 .................................. Educational Tests & Measurements .................................................. (3)
EFR 516 .................................. Statistics II ............................................................... (3)
MUSC 598 .................................. Research in Music Education .................................................. (3)

Courses (Musc)

500. Introduction to Graduate Study in Music. 3 credits. A course covering bibliography and methodology in the principal areas of research in music.

501. Graduate Music Theory Review. 3 credits. A comprehensive review of the harmonic, contrapuntal and formal elements of music, designed to prepare students for graduate-level music courses. Does not count toward fulfillment of the minimum 32 hours of the graduate music degree requirements; may be waived by examination.

502. Perspectives of Music Theory. 3 credits. Prerequisite: Music 501 or passing grade on placement examination. The study of formal systems in music through selected musical works.


504. Seminar in Music. 1 to 4 credits. Seminars concerning various topics of interest to the faculty and students.

506. Advanced Composition. 1 to 4 credits. The composition and performance of original works in selected instrumental and vocal media. May be repeated without limitation.

507. Foundations of Music Education. 3 credits. A comprehensive investigation of the historical, philosophical, and aesthetic foundations of music including current trends in music education.

508. Perspectives of Music History. 3 credits. Prerequisites: MUSC 500 and MUSC 505, or passing grade on placement examination, or instructor’s permission. A course on various topics on the history and literature of music and related musico-cultural fields. This course may require preparation and delivery of a substantial research paper on an appropriate topic. Repeatable when topics vary.

509. Trends in Music Education. 3 credits. An overview of historical and contemporary trends in music education.

511. Instrumental Literature. 3 credits. The study of instrumental music literature through scores and recordings.

522.Solo Instrumental Literature: Violin, Clarinet, Trumpet or Percussion. 2 credits. Study of solo and chamber music literature for the specified instrument through scores and recordings.

523. Keyboard Literature. 3 credits. The study of keyboard literature through scores and recordings.

524. Choral Literature. 3 credits. The study of choral literature through scores and recordings.

525. Vocal Literature. 3 credits. The study of solo vocal literature through scores and recordings.

537. Advanced Studies in Musical Form. 2 credits. Prerequisite: graduate status. Advanced study and analysis of the principal forms of musical composition.

538. Advanced Orchestration. 2 credits. Prerequisite: graduate status. Advanced study of orchestration and arranging techniques for various ensembles and combinations of instruments. Includes the study of exotic instruments.

539. Advanced Counterpoint. 2 credits. Prerequisite: graduate status. Advanced study of Counterpoint. Topics may include 16th-century styles, 18th-century styles, and/or 20th-century styles. The course includes both analysis of existing works, and composition of original works.

551. Vocal Pedagogy I. 3 credits. Teaching procedures, methods, and literature for teaching voice students from the late intermediate through advanced levels, addressing questions of style, performance practices, editions, and techniques. Includes observation and teaching in both group and individual settings. Regular grading.

552. Keyboard Pedagogy I. 3 credits. Teaching procedures, methods, and literature for teaching voice students from the late intermediate through advanced levels, addressing questions of style, performance practices, editions, and techniques. Includes observation and teaching in both group and individual settings. Regular grading.

554. Keyboard Pedagogy II. 3 credits. Prerequisite: Music 552, Keyboard Pedagogy I. Teaching procedures, methods, and literature for teaching keyboard students from the late intermediate through advanced levels, addressing questions of style, performance practices, editions, and techniques. Includes observation and teaching in both group and individual settings. Regular grading.

555. Instrumental Pedagogy: Violin, Clarinet, Trumpet or Percussion. 2 credits. Teaching procedures, methods and literature for teaching students of the specified instrument, addressing questions of style, performance practices, techniques, and editions.

561. Advanced Choral Conducting. 2 credits. Choral singers and composers since the sixteenth century, study of interpretations based on scores, recordings, and class performance.

562. Advanced Instrumental Conducting. 2 credits. Advanced techniques of instrumental conducting and score reading.

568. Administration and Supervision of Public School Music. 1 to 3 credits. Problems, techniques, and materials in supervision and administration of vocal and instrumental music programs in the public schools.

570. Instrumental Ensemble Performance. 1 credit, repeatable to 2 for Music Education students. For others, repeatable without limitation.

580. Choral Ensemble Performance. 1 credit, repeatable to 2 for Music Education students. For others, repeatable without limitation.

590. Vocal Internship. 1 credit. Prerequisite: Vocal Pedagogy I. Teaching of group and individual voice under the supervision and critique of voice faculty. Repeatable up to two (2) credits. Regular grading.

591. Keyboard Internship. 1 credit. Prerequisite: Keyboard Pedagogy I. Teaching of group and individual keyboard under the supervision and critique of keyboard faculty. Repeatable up to two (2) credits. Regular grading.

593. Final Project in Composition. 4 credits. The composition and performance of an original musical work of proportions suitable for a final composition project at the masters’ level.

594. Individual Lessons. 1 credit. Individual lessons in secondary instruments, conducting or voice. In registering for private lessons in voice, piano, organ, conducting or any orchestral instrument, “Voice” or the name of the instrument serves as the title of the course. For the final examination (excluding conducting), the student will perform before a faculty committee. May be repeated for credit without limitation.

595. Individual Lessons. 1 to 2 credits. Individual lessons in the major instrument, conducting or voice for the non-performance major. In registering for private lessons in voice, piano, organ, conducting or any orchestral instrument, “Voice” or the name of the instrument serves as the title of the course. For the final examination (excluding conducting), the student will perform before a faculty committee. May be repeated for credit without limitation.

596. Individual Lessons. 1 to 4 credits. Individual lessons in voice, piano or organ for the performance major. In registering for private lessons, “Voice” or the name of the instrument serves as the title of the course. For the final examination, the student will perform before a faculty committee. May be repeated for credit without limitation.

597. Special Projects. 1 to 3 credits. Individual study in an approved area of interest to the student.

598. Research in Music Education. 3 credits. An introduction to qualitative and quantitative research methodology relative to music education.

599. Graduate Recital. 2 credits, repeatable to 4. Prerequisite: Consent of instructor. The presentation of a graduate recital. Recitals may be given only after a recital audition has been reviewed and approved by the applied instructor and the student’s master’s committee. Music Education students must also complete an associated document.

97. Independent Study. 2 credits. Prerequisite: Permission of adviser. Independent study and preparation of a written document.

98. Thesis. 4 credits. Prerequisite: Permission of adviser.
Nursing
http://www.nursing.und.edu/

FACULTY: Adams, C. Anderson, J. Anderson (Graduate Program Director), Evanston, Gragert, Gregg, Heintz, Heuer, Ide, Larson, Lindseth, Martin, Melland (Interim Dean), Morris, Ralph, Seal, Semmens, Stahl, Tyree and Yurkovich

DEGREES GRANTED: Master of Science and Doctor of Philosophy

PROGRAM DESCRIPTION

The College of Nursing offers graduate programs leading to the Ph.D. or the Master of Science (M.S.) degree with a major in nursing. Information on any newly approved programs of study since the printing of this catalog will be available on the College of Nursing website: www.nursing.und.edu/.

There are currently six Master of Science specializations, five post-master’s certifications, and a Doctor of Philosophy in Nursing offered in the graduate nursing program. Capstone projects include the thesis or non-thesis independent study options at the master’s level and the comprehensive examination and dissertation in the doctoral program. For the majority of the master’s specializations, a nationally based certification examination is available, including Family Nurse Practitioner, Nurse Anesthesia, Psychiatric Mental Health Nursing-Clinical Nurse Specialist (CNS), Psychiatric Mental Health Nursing-Nurse Practitioner (NP), Gerontological CNS, Gerontological NP, Advanced Public Health Nurse, and Nurse Educator.

The Master of Science degree in nursing is targeted to prepare advanced practice nurses in areas of clinical specialization, as nurse practitioners or nurse educators, and to expand the scientific knowledge for nursing practice through research. The entire program is accredited by the Commission on Collegiate Nursing Education (CCNE). The course of study for Nurse Anesthesia is accredited by the Council on Accreditation (COA) for Nurse Anesthesia Education Programs.

MASTER OF SCIENCE
Mission Statement and Program Goals

The Mission of the College of Nursing is to educate individuals for professional roles in nursing and nutrition. The College strives to enhance the health of people in the region, nation, and across the globe by preparing leaders in nursing and nutrition through innovative, accessible programs and significant faculty and student scholarship and service.

The purpose of master’s education in nursing is to build upon undergraduate nursing education to prepare nurses with expanded theoretical and evidence-based knowledge for advanced roles in practice and education. The program is designed with both post-baccalaureate and RN to MS entry.

1. Integrate theory, research, and experiential knowledge into advanced nursing practice.
2. Advance nursing practice consistent with applicable professional standards.
3. Practice in roles appropriate to their respective clinical and functional preparation.
4. Investigate researchable nursing problems.
5. Effect change in nursing practice using leadership, management, and/or teaching strategies.
6. Collaborate with other disciplines to improve the delivery of health care and influence public policy.

7. Contribute to the advancement of nursing and the profession.

Admission Requirements

Admission requirements for the Master of Science in Nursing include:

1. A bachelor’s degree in nursing from an NLNAC or CCNE accredited program. (Foreign schools will be evaluated on an individual basis.)
2. A minimum GPA of 3.00 for the last two years of undergraduate study. For the Nurse Anesthesia program, the minimum GPA of 3.00 is based on all years of study at the undergraduate level and includes a GPA of 3.00 in undergraduate science coursework.
3. An undergraduate or graduate course in statistics.
4. Current R.N. licensure (Photocopy must be attached to application.).
5. One year of experience as a registered nurse (preferred).
6. Additional requirements for Nurse Anesthesia are an undergraduate course in biochemistry (Biochemistry 301 or equivalent), an undergraduate college algebra course (or equivalent), one year of critical care nursing experience (two years are preferred), and a successful interview.
7. An additional requirement for the Family Nurse Practitioner, the Psychiatric Mental Health, Gerontological, and Advanced Public Health Nurse specializations is completion of a successful interview.
8. Meet current health and immunization requirements of the College of Nursing before being permitted to enroll in a clinical nursing course.
9. Submit to and satisfactorily complete a background check prior to admission.
10. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
11. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Applications will be considered as they are completed except for Nurse Anesthesia, which must be received by October 1. Priority is given to those who apply to the Family Nurse Practitioner specialization by January 15. Students anticipating full-time study should plan to start their course of study in the fall.

The Master of Science program offers six areas of specialization:

1. Nurse Anesthesia
2. Family Nurse Practitioner (FNP)
3. Psychiatric Mental Health Nursing Clinical Nurse Specialist or Psychiatric Mental Health Nursing Nurse Practitioner
4. Gerontological Nursing Clinical Nurse Specialist or Gerontological Nursing Nurse Practitioner
5. Advanced Public Health Nurse
6. Nurse Education
7. Health Administration in Nursing
8. Clinical Nurse Specialist in Nursing Therapeutics

Admissions to the Health Administration and Clinical Nurse Specialist in Nursing Therapeutics Specializations are currently on hold; the moratorium to admissions for these specializations was passed by the Faculty Organization on December 1, 2006, and submitted to the University of North Dakota Graduate School in early January 2007.

General Nursing Admission

Those students selecting nursing as their major area of concentration will be assigned a nursing advisor and may take up to 24 credit hours of coursework that will transfer once they have selected a nursing specialization. These 24 credit hours are limited to the following courses:

- N500 .... Theories and Concepts in Nursing ........................................ (3)
- N501 .... Complementary Therapies ......................................................... (3)
- N502 .... Evidence for Practice ................................................................. (3)
- N510 .... Advanced Physiology/Pathophysiology I ..................................... (3)
- N511 .... Advanced Physiology/Pathophysiology II .................................... (3)
- N526 .... Ethical, Legal, and Health Policy Issues ...................................... (3)
- N532 .... Family Nursing ........................................................................... (3)
- N556 .... Epidemiology ........................................................................... (3)

Total Credits (24)

Degree Requirements

Students seeking the Master of Science in Nursing degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the College of Nursing.

Thesis or the non-thesis options are available for all specializations. The thesis option requires completion of four credits of N998 Thesis. The non-thesis option requires completion of two project-related credits of N997 Independent Study. There is no residency requirement.

1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
4. Completion of the Thesis for the M.S. thesis option or completion of Independent Study for the M.S. non-thesis option.
5. Clinical site visits by nursing professors are required by various certifying and accrediting bodies to appropriately supervise the learning experience of students. A clinical site visit course fee is required to offset the expenses to travel, arrange, and supervise clinical experiences across the state and beyond. Prospective students will be made aware of the Clinical Site Visit Course Fee structure through posting of the fees structure on the College of Nursing website and in the College’s Graduate Handbook

6. Required Courses:
   - Nurse Anesthesia requires completion of 500; 502; 504; 506; 507; 508; 510; 511; 517; 520; 521; 527; 554; 597; 585; BIMD 510; Anat 590; and the 4 thesis (998) or 2 independent study (997) credits. Students complete 29 credits of 597, Advanced Clinical Practicum, to comply with accreditation standards for supervised practice hours in anesthesia nursing. Total credits: 78-80
   - Nurse Education (online courses) requires completion of 500; 502; 510; 511; 526; 566; 567; 568; 569; 585; 4-6 credits of nursing support courses; and 4 thesis (998) or 2 independent study (997) credits. Total credits: 37-39

Family Nurse Practitioner (mostly online courses) requires completion of 500; 502; 510; 511; 526; 532; 534; 535; 536; 539; 553; 554; 556; 563; 585; 597; and the 4 thesis (998) or 2 independent study (997) credits. Students complete 14 credits of 597, Advanced Clinical Practicum, to comply with National Organization of Nurse Practitioner Faculty (NONPF) guidelines for supervised practice hours. Total credits: 57-62.

Psychiatric Mental Health Nursing Clinical Nurse Specialist (online courses) requires completion of 500; 502; 510; 511; 523; 526; 538; 539; 552; 554; 556; 563 (2 credits); 564; 583; 584; 585; 588; 589; 597; and 4 thesis (998) or 2 independent study (997) credits. Total credits: 57-62.

Gerontological Clinical Nurse Specialist (online courses) requires completion of 500; 502; 510; 511; 523; 526; 528; 529; 532; 533; 554; 556; 563; 585; 597; and the 4 thesis (998) or 2 independent study (997) credits. Students complete 14 credits of 597, Advanced Clinical Practicum, to comply with National Association of Clinical Nurse Specialists (NACNS) guidelines for supervised practice hours. Total credits: 56-58.

Gerontological Nurse Practitioner (online courses) requires completion of 500; 502; 510; 511; 523; 526; 529; 535; 539; 553; 554; 556; 563; 585; 597; and the 4 thesis (998) or 2 independent study (997) credits. Students complete 14 credits of 597, Advanced Clinical Practicum, to comply with National Organization of Nurse Practitioner Faculty (NONPF) guidelines for supervised practice hours. Total credits: 55-57.

Advanced Public Health Nurse (online courses) requires completion of 500; 502; 523; 526; 546; 547; 548; 549; 550; 551; 554; 556; 563; 572; and the 4 thesis (998) or 2 independent study (997) credits. Students complete 11 credits of Advanced PHN Practicum to comply with certification requirements. Total credits: 44-46.

Clinical Nurse Specialist in Nursing Therapeutics (mostly online courses) requires completion of 500; 502; 510; 511; 526; 532; 535; 536; 539; 553; 554; 556; 564; 583; 584; 585; 588; 589; 597; and the 4 thesis (998) or 2 independent study (997) credits.

Health Administration in Nursing requires completion of 500; 502; 562; PSCI 551; PSCI 552; PSCI 593; Econ 575; 8 credits of cognate electives; and 4 thesis (998) or 2 independent study (997) credits.

Admissions to the Health Administration and Clinical Nurse Specialist in Nursing Therapeutics Specializations are currently on hold; the moratorium to admissions for these specializations was passed by the Faculty Organization on December 1, 2006 and submitted to the University of North Dakota Graduate School in early January 2007.

CERTIFICATES IN NURSING

Five post-master’s certificate tracks are offered, including the Family Nurse Practitioner Certificate, the Nurse Anesthesia Certificate, the Psychiatric Mental Health Clinical Nurse Specialist Certificate, the Psychiatric Mental Health Nurse Practitioner Certificate, and the Nurse Education Certificate. The certificate programs are offered to nurses with master’s degrees in nursing who are seeking additional career options. Post-master’s certificates in Gerontological
Clinical Nurse Specialist, Gerontological Nurse Practitioner, and Advanced Public Health Nurse are under development at the time of printing of this catalog.

**Admission Requirements**

1. Master’s degree in nursing.
2. Licensure as a registered nurse in North Dakota.
3. Additional requirements for Nurse Anesthesia are a baccalaureate degree in nursing, an undergraduate course in biochemistry (Biochemistry 301 or equivalent), an undergraduate college algebra course (or equivalent), one year of critical care nursing experience (two years preferred), and a successful interview.
4. An additional requirement for the Family Nurse Practitioner, the Psychiatric Mental Health, the Gerontological and the Advanced Public Health specializations is completion of a successful interview.

**Certificate Requirements**

**Family Nurse Practitioner:** A total of 51 credits is required for the Family Nurse Practitioner Certificate. These courses meet the requirements of the American Nurses Credentialing Center. The following courses are required:

- N502 Evidence for Practice ......................................................... 3 credits
- N510 Advanced Physiology/Pathophysiology I .................................. 3 credits
- N511 Advanced Physiology/Pathophysiology II .................................. 3 credits
- N523 Health Promotion .................................................................. 3 credits
- N532 Family Nursing ....................................................................... 3 credits
- N534 Illness Management ............................................................... 3 credits
- N535 Drug Therapy I ..................................................................... 2 credits
- N536 Illness Management II ........................................................... 4 credits
- N539 Drug Therapy II ................................................................... 2 credits
- N553 Role Development of the NP ................................................. 2 credits
- N554 Managed Advanced Nurse Practice ...................................... 2 credits
- N556 Epidemiology ...................................................................... 3 credits
- N563 Education in Advanced Practice ........................................... 1 credit
- N585 Advanced Health Assessment ............................................... 3 credits
- N597 Advanced Clinical Practicum I ............................................. 4 credits
- N597 Advanced Clinical Practicum II ............................................ 5 credits
- N597 Advanced Clinical Practicum III .......................................... 5 credits

**Total Credits** 51 credits

**Nurse Anesthesia:** A total of 67-69* credits is required for the Nurse Anesthesia Certificate. These courses meet the requirements of the Council on Accreditation for Nurse Anesthesia Educational Programs. The following courses are required:

- N502 Evidence for Practice ......................................................... 3 credits
- N504 Advanced Pharmacology I ................................................... 3 credits
- N506 Advanced Pharmacology II .................................................. 3 credits
- N507 Anesthesia & Clinical Practice I ........................................... 4 credits
- N508 Nurse Anesthesia Review Course ......................................... 1 credit
- N510 Advanced Physiology/Pathophysiology I ............................... 3 credits
- N510 Anatomy for Anesthesiologists ............................................ 1 credit
- N511 Advanced Physiology/Pathophysiology II ............................... 3 credits
- N517 Anesthesia & Clinical Practice II ......................................... 5 credits
- N520 Foundations of Anesthesia Practice ................................ ...... 3 credits
- N521 Anesthesia & Clinical Practice III ....................................... 5 credits
- N527 Anesthesia & Clinical Practice IV ....................................... 5 credits
- N534 Managed Advanced Nurse Practice .................................... 2 credits
- N583 Individual Therapy ................................................................. 2 credits
- N584 Group & Family Therapies .................................................... 3 credits
- N585 Advanced Health Assessment ............................................. 3 credits
- N589 Management of Psychopathology I ..................................... 2 credits
- N589 Management of Psychopathology II .................................... 2 credits
- N597 Advanced Clinical Practicum ............................................. 8-11 credits

**Total Credits** 67-69 credits

* Students who have completed a graduate level statistics course are not required to take BIMD 510.

**Psychiatric Mental Health Clinical Nurse Specialist:** A total of 49-52 credits is required for the Psychiatric and Mental Health Clinical Nurse Specialist Certificate. These courses meet the requirements of the American Nurses Credentialing Center. The following courses are required:

- N523 Health Promotion .................................................................. 3 credits
- N535 Drug Therapy I ..................................................................... 2 credits
- N538 Psych Diagnostic Reasoning .............................................. 2 credits
- N539 Drug Therapy II .................................................................... 2 credits
- N552 Role Development of the CNS ........................................... 2 credits
- N554 Managed Advanced Nurse Practice .................................... 2 credits
- N556 Epidemiology ...................................................................... 3 credits
- N563 Education in Advanced Practice ........................................... 2 credits
- N564 Psychopharmacology ............................................................ 2 credits
- N583 Individual Therapy ................................................................. 2 credits
- N584 Group & Family Therapies .................................................... 3 credits
- N585 Advanced Health Assessment ............................................. 3 credits
- N588 Management of Psychopathology I ..................................... 2 credits
- N589 Management of Psychopathology II .................................... 2 credits
- N597 Advanced Clinical Practicum ............................................. 8-11 credits

**Total Credits** 49-52 credits

**Psychiatric Mental Health Nurse Practitioner:** A total of 48-51 credits is required for the Psychiatric and Mental Health Nurse Practitioner Certificate. These courses meet the requirements of the American Nurses Credentialing Center. The following courses are required:

- N502 Evidence for Practice ......................................................... 3 credits
- N510 Advanced Physiology/Pathophysiology I ............................... 3 credits
- N511 Advanced Physiology/Pathophysiology II ............................... 3 credits
- N523 Health Promotion ................................................................. 3 credits
- N535 Drug Therapy I ..................................................................... 2 credits
- N538 Psych Diagnostic Reasoning .............................................. 2 credits
- N539 Drug Therapy II .................................................................... 2 credits
- N554 Managed Advanced Nurse Practice .................................... 2 credits
- N556 Epidemiology ...................................................................... 3 credits
- N564 Psychopharmacology ............................................................ 2 credits
- N583 Individual Therapy ................................................................. 2 credits
- N584 Group & Family Therapies .................................................... 3 credits
- N585 Advanced Health Assessment ............................................. 3 credits
- N588 Management of Psychopathology I ..................................... 2 credits
- N589 Management of Psychopathology II .................................... 2 credits
- N597 Advanced Clinical Practicum ............................................. 8-11 credits

**Total Credits** 48-51 credits

**Nurse Education:** A total of 23 credits is required for the Nurse Education Certificate. The following courses are required:

- N502 Evidence for Practice ......................................................... 3 credits
- N510 Advanced Physiology/Pathophysiology I ............................... 3 credits
- N511 Advanced Physiology/Pathophysiology II ............................... 3 credits
- N566 Curriculum Development .................................................... 3 credits
- N588 Teaching Practicum ............................................................... 2 credits
- N589 Assessment and Evaluation ................................................ 3 credits
- N585 Advanced Health Assessment ............................................. 3 credits

**Total Credits** 23 credits

**DOCTOR OF PHILOSOPHY**

**Mission Statement and Program Goals**

The mission of the College of Nursing is to educate individuals for professional roles in nursing and nutrition. The College strives to enhance the health of people in the region, nation, and across the globe by preparing leaders in nursing and nutrition through innovative, accessible programs and significant faculty and student scholarship and service.

The purpose of the Doctor of Philosophy in Nursing program is to provide nurses for research and faculty roles with a research emphasis on care of vulnerable and diverse populations. The program is designed with both post-baccalaureate and post-master’s entry points. Nurses who have baccalaureate degrees in nursing, but have master’s degrees in other fields, may be eligible for advanced placement in the program.

1. Synthesize and critically evaluate the literature of nursing and related fields to identify issues and critical gaps in scientific nursing knowledge.
2. Make significant original contributions to scientific nursing knowledge through the interdisciplinary and independent conduct of basic and clinical research.
Admission Requirements

1. Completion of a bachelor’s or higher degree in nursing from a nationally accredited program or equivalent nursing preparation.
2. A cumulative Grade Point Average (GPA) of at least 3.0 for all undergraduate work and a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A=4.0).
3. A cumulative GPA of 3.5 or above in graduate coursework.
4. Graduate Record Examination or Miller’s Analogy Test scores.
5. Completion of a statistics course.
6. A one-page paper stating the applicant’s research interests and professional goals.
7. Evidence of current, unencumbered licensure to practice as a registered nurse.
8. Three letters of recommendation.
9. Résumé.
10. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5. *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
11. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
12. An interview will be required for applicants meeting these basic admission requirements.
13. Submit to and satisfactorily complete a background check prior to admission.

Note: Applicants with earned master’s degrees from accredited schools may qualify for up to 36 hours of credit toward the doctoral degree. Credit will be awarded only for courses in which a grade of B or better has been achieved.

Degree Requirements

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Nursing Department. The PhD nursing courses are offered online with synchronous and asynchronous.

Ph.D. students will be required to develop and submit a nationally competitive grant to support their doctoral research.

Ph.D. students are required to submit an article for publication to a refereed journal and to present dissertation work to a regional or national audience.

1. Students must complete a minimum of 90 semester credits of post-baccalaureate work, including an original dissertation.
2. Required Courses:
   - Theory and Research (18 credits)
     - N571 ......... Theoretical Development in Nursing .............. 3 cr
     - N573 ......... Research Grantmanship ............................................ 3 cr
     - N574 ......... Quantitative Nursing Methods .......................... 3 cr
     - N575 ......... Qualitative Nursing Methods .............................. 3 cr
     - N590 ......... Research Practicum .............................................. 3-6 cr
     - Theory and research electives ........................................ 3 cr
   - Nursing Science (18 credits)
     - N570 ......... Epistemology and Philosophy of Nursing ............ 3 cr
     - N572 ......... Diverse Vulnerable Populations ............................ 3 cr
     - N576 ......... Ethical and Policy Issues .................................... 3 cr
     - Nursing science and practice electives ................................. 9 cr
   - Scholarly Tools (9-12 credits)
     - Courses in statistics and/or qualitative analytical approaches, including at least one course in multivariate statistics.
   - Functional Component (9-12 credits)
     - N566 ......... Curriculum Development ................................. 3 cr
     - N567 ......... Teaching Strategies ............................................ 3 cr
     - N568 ......... Teaching Practicum ............................................ 2 cr
     - N569 ......... Assessment and Evaluation ................................. 3 cr
   - Electives (15 credits)
     - Courses will be selected by the students in consultation with the student’s faculty advisory committee to develop the particular research thrust of the student.
   - Dissertation (18 credits)
     - N597 ......... Dissertation Seminar (three 1-credit hour courses) 3 cr
     - N999 ......... Dissertation ....................................................... 15 cr

3. Comprehensive Examination: Students must successfully complete a written and oral comprehensive examination prior to advancement to candidacy and approval of the dissertation proposal. The student’s Program of Study Form, Dissertation Committee Form, and all course work (excluding dissertation credits) must be completed before applying to the Graduate School to take the Comprehensive Examination.
4. Final Examination: A final examination will be scheduled and administered according to the rules of the graduate school.

All doctoral nursing courses taken at the University of North Dakota College of Nursing must be completed with a grade of “B” or better. An individual course may not be taken more than twice.

All nursing courses taken at the master’s level that become part of the student’s doctoral program of study must be achieved with a grade of “B” or better.

Residency

There is no residency requirement. However, students are required to attend one to two “Intensives” per year. The Intensive experience (3-5 days) will gather students and faculty on the UND campus or at a regional nursing research conference for purposes of scholarship, networking, and education.

Transfer Credits

A maximum of 36 semester credits may be transferred from a master’s program. All nursing courses that are transferred and become
part of the student's doctoral program of study must be achieved with a grade of “B" or better.

A maximum of 24 semester credits may be transferred for post-master's coursework.

**Courses**

**Nurs**

500. Theories and Concepts in Nursing. 3 credits. The focus of this core course is on the identification and analysis of the professional components of nurse anesthesia practice, emphasizing role development; management and leadership; medical, ethical and legal responsibilities; the provision of culturally competent care; and scope of practice. Other topics that will be explored include quality improvement, the legislative process, credentialing, professional organizations, conflict resolution, and self-care and stress management for the anesthetist. An in-depth analysis of current trends and issues affecting healthcare and the delivery of anesthesia services are included in the course content.

501. Complementary Therapies. 3 credits. The focus of this interdisciplinary elective course is the theory, research, and practice of complementary health therapies. The goal of this course is not to provide skills training in any specific technique. Instead, the course is intended to augment the health care professional’s education by providing a broad overview of selected complementary therapies commonly used in the United States. Legal and ethical implications will be analyzed.

502. Evidence for Practice. 3 credits. Pre- or corequisites: N500 and statistics. This course emphasizes the application of basic research concepts to the building of evidence-based practice in nursing. Advanced competencies are developed in searching and evaluating the literature, examining the merit of different types and levels of evidence, and analyzing the generalizability and implications for clinical practice.

504. Advanced Pharmacology I. 3 credits. Prerequisite: Admission to Nurse Anesthesia Specialization. Pharmacodynamic and pharmacokinetic principles with a focus on anesthetic practice. Physiologic and drug classifications are used as a basis for anesthetic use, side effects, drug interactions, and contraindications of drugs used for intravenous anesthesia induction, inhalation, and balanced anesthesia maintenance. Pediatric and geriatric variations will be addressed.


507. Anesthesia Seminar & Clinical Practicum I. 4 credits. Prerequisite: N521. This course is designed to provide nurse anesthesia students an overview of the basic principles and skills needed to care for the routine surgical patient. Topics include difficult airway management, patient monitoring, patient preparation, positioning, patient safety, fluid and electrolyte management, documentation of anesthesia care, and an introduction to regional anesthesia. Analysis, integration, and utilization of research to improve practice is emphasized. The lecture content is reinforced through Clinical Simulation and laboratory experiences, allowing for immediate application of the lecture content and integration into the clinical setting. Students are introduced to the clinical setting through observational and hands-on experiences.

508. Nurse Anesthesia Review Course. 1 credit. Prerequisite: Completion of all Nurse Anesthesia Specialization coursework. This course is faculty guided and designed to assist students with their review of nurse anesthesia course and clinical material in preparation for the CCNA certification examination.

510. Advanced Physiology/Pathophysiology I. 3 credits. Prerequisite: Admission to graduate study. Normal physiologic functions associated with cellular structure and environment. Physiologic and pathophysiologic functions of the human body and its organ systems, both separately and integrated in whole activities.

511. Advanced Physiology/Pathophysiology II. 3 credits. Prerequisites: N510 or consent of instructor. Continuation of N510. Physiologic and pathophysiologic functions of the human body and its organ systems, both separately and integrated in whole activities.

517. Anesthesia Seminar & Clinical Practicum II. 5 credits. Prerequisite: N507. This course builds on the foundations learned in the prerequisite course. Advanced anesthesia principles are applied to various patient populations including the surgical patient with cardiovascular and respiratory diseases. Anesthesia care of other surgical populations including the trauma, orthopedic, urological, vascular, intra-abdominal and ENT patient will be explored. Important concepts include anatomical, physiological and pathophysiological, and pharmacological principles. Analysis, integration, and utilization of research to improve practice is emphasized. The lecture content is reinforced through Clinical Simulation and laboratory experiences, allowing for immediate application of the lecture content and integration into the clinical setting. A clinical rotation is included.

520. Professional Role Development for Nurse Anesthesia. 3 credits. Prerequisites: N507 and 521. Corequisite: N517. The focus of this course is on the identification and analysis of the professional components of nurse anesthesia practice, emphasizing role development; management and leadership; medical, ethical and legal responsibilities; the provision of culturally competent care; and scope of professional practice. Other topics that will be explored include quality improvement, the legislative process, credentialing, professional organizations, conflict resolution, and self-care and stress management for the anesthetist. An in-depth analysis of current trends and issues affecting healthcare and the delivery of anesthesia services are included in the course content.

521. Foundations of Anesthesia Practice. 3 credits. Prerequisite: Admission to the Nurse Anesthesia Specialization. This course provides the foundation for nurse anesthesia practice. Lecture and discussion begin with an analysis of the history of anesthesia nursing, professionalism, and standards of care for the anesthetist. Safety in the nurse anesthesia environment will be emphasized on the foundations learned in prerequisite courses. Additional content includes the application, chemical, physical, and biochemical concepts as they relate to anesthesia practice, including the mechanisms of anesthesia, medical mathematics, medical gas systems, laws governing gases, the anesthesia machine, monitoring principles and equipment, airway equipment and basic airway management, and universal precautions.

522. Advanced Theory and Application of Nurse Anesthesia. 3 credits. Prerequisites: N517. This course will further build on the foundations learned in prerequisite courses. Students will incorporate previously learned anatomy, physiology, pathophysiology, and patient management into the care of subspecialty patients and patients with complex co-existing diseases. Advanced anesthesia principles are applied to the OB, pediatric, geriatric, and neuro patient. The pharmacology and anesthesia management of these subspecialty populations and patients with various disease states, such as kidney, musculoskeletal, and endocrine disorders, will be explored. Analysis, integration, and utilization of research to improve clinical practice is emphasized. The lecture content is reinforced with a clinical experience that emphasizes anesthesia care for subspecialty populations.

526. Gerontological Nursing Problems I. 3 credits. This course focuses on a review of basic gerontological content as well as health promotion, diagnosis, and treatment of selected health problems. Application of theory and research to advanced practice roles and policy development is examined throughout the course.

529. Gerontological Nursing Problems II. 3 credits. Prerequisite: N528. This course will focus on a continuation of Gerontological Nursing Problems I with the promotion of health, treatment of selected health problems of the older client. Application of theory and research to advanced practice roles and policy development is examined throughout the course.

532. Family Nursing. 3 credits. Theoretical and scientific foundations for advanced practice nursing care for the family-as-a-unit in health and illness across the lifespan.

534. Illness Management I. 3 credits. Prerequisite: N523. Clinical decision-making skills are developed in the diagnosis and management of acute and chronic health conditions throughout the lifespan. Health promotion, health protection, disease prevention, health maintenance, and restoration in the context of illness are emphasized.

535. Drug Therapy I. 2 credits. Pre- or corequisite: N510. Pharmacological agents utilized to treat common acute and chronic health problems are explored in depth. The course focus is on advanced nurse practice roles related to prescription, pharmacological, and therapeutic applications of the drugs.

536. Illness Management II. 4 credits. Prerequisites: N534 and 555. The focus of this course is on the development of clinical competency in the management of common acute and chronic conditions in all age groups. Concepts from the basic and social sciences are applied in developing intervention strategies. The role of the FNP as case manager is emphasized.

537. Graduate Cooperative Education. 1-3 credits. The course focus is upon experience in advanced nursing practice integrating theory, research, and advanced practice in a specific area of nursing. Course overview: the purpose of this course is to provide the graduate nursing student with advanced nursing practice as an employee in a health care agency and to evaluate that experience in relation to the educational program.

538. Psych Diagnostic Reasoning. 2 credits. Pre- or corequisites: N500, 502, 510, 511, 523, 535, 539, 556, 585. This course provides students for advanced therapeutic communication, interviewing, and assessment. Skills are developed in differential diagnoses of psychopathology within the scope and standards of advanced psychiatric mental health nursing practice. Clinical application is included.

539. Drug Therapy II. 2 credits. Prerequisites: N535 or consent of instructor. Pharmacological agents utilized to treat common acute and chronic health problems are explored in depth. The course focus is on advanced nurse practice roles related to prescription, pharmacological, and therapeutic applications of the drugs.

543. Advanced Diabetes Management. 2 credits. Prerequisites: N510 and 511. This course provides the student with the opportunity to obtain theoretical knowledge of diabetes management across the lifespan. The course focuses on the integration of theoretical knowledge into practice in diabetes management.

544. CNS in Nursing Therapeutics I. 4 credits. Prerequisites and corequisites: N500, 502, 526, 535, and 539. This course focuses on clinical nurse specialists’ care of clients in diverse clinical settings, both acute care and community-based. Developmental, physiological, and psychosocial concepts, theory, and research findings are utilized to plan care for vulnerable individuals, families, and populations. Analysis, integration, and utilization of research findings to improve clinical practice are emphasized.

545. CNSs in Nursing Therapeutics II. 4 credits. Prerequisites: N544. The major focus of this course is the application of appropriate theories, models, and principles in nursing intervention and evaluation of care for vulnerable clients in multiple settings to achieve optimal health and functioning. The course builds on the concepts explored in Nursing Therapeutics I.

546. Advanced PHN I. 4 credits. Prerequisites: N500, 523, 556. Corequisite: N502. This course introduces concepts that are foundational to Advanced PHN practice and population health. The community assessment process and program planning and implementation are major focus of the course. Evidence-based Advanced PHN interventions at the individual/family, community, and systems levels are analyzed.
547. Advanced PHN Practicum I. 4 credits. Pre- or corequisite: N546. The focus of this course is exploration of foundations concepts of Advanced PHN practice. Students will conduct a community assessment and based upon the analysis of the assessment, develop a population health program plan that will address the concerns identified in the assessment and incorporate evidence-based Advanced PHN interventions. Concepts of leadership and interpersonal communication skills are emphasized.

548. Advanced PHN II. 3 credits. Prerequisites: N502, 546, 547, and 572. This course focuses on the leadership role of Advanced PHN practice. Public health and community-based organizational assessment, program monitoring and evaluation, quality improvement, and coordination of multiple projects are emphasized. Concepts of leadership in public and community health and collaborative interdisciplinary practice are discussed. Health policy, law, and ethics as they relate to public health are explored. In addition, PHN leadership in rural areas and in disaster/emergency preparedness and management are discussed.

549. Advanced PHN Practicum II. 3 credits. Corequisite: N548. This course focuses on implementation of Advanced PHN interventions, including obtaining sources of funding to support intervention programs.

550. Global Public Health Issues. 2 credits. This course focuses on population health issues at a global level. Differences in population health status between developing and developed countries are explored. Special emphasis is placed on war as a public health issue and the global impact of AIDS.

551. Case Management for Health Care. 3 credits. This interdisciplinary course provides an introduction to and experiences in developing case management techniques to broaden and strengthen the role of the provider in health care.

552. Role Development of the CNS. 2 credits. Prerequisite: N502. Students will compare and contrast the various roles of the clinical nurse specialist and clinical practice. The course content will be based on student interests and needs in conjunction with the faculty member’s area of specialization.

553. Role Development of the NP. 2 credits. Prerequisite: N502. This course focuses on professional development of the advanced practice nurse in terms of service, education, and research. Students will compare and contrast the various roles of the nurse practitioner and evaluate those roles as they relate to the student’s individual planned area of practice. Concepts of professional development are emphasized.

554. Managed Advanced Nurse Practice. 2 credits. Pre- or corequisites: Nurse Anesthesia students must complete this course. This course is designed to enhance the graduate student’s knowledge for directing care, providing leadership, and developing advanced nursing practice roles. A clinical/practicum component is included.*

555. Epidemiology. 3 credits. Concepts and methods for the study of patterns of health and disease in populations.

556. Nursing Administration: Practicum and Seminar. 3 credits. Pre- or corequisite: Graduate level clinical nursing course. This course focuses on administrative theory, organizational behavior, and the practice of nursing administration.*

562. Health Administration Practicum and Seminar. 6 credits. Pre- or corequisite: N502, 553, or consent of the instructor. This required graduate course within the Health Administration specialization is on the application of theoretical, research-based, and experiential knowledge related to the administration of health care delivery systems and organizations. Students will participate in meetings with the administrators of the agency.

563. Research in Advanced Practice. 1-2 credits. This course focuses on the theories of teaching and learning as well as curriculum and program development and techniques of evaluation. The educator role of the advanced practice nurse in a variety of settings and with diverse cultural and socioeconomic groups is examined. Nurse Practitioners take the course for 1 credit and attend the first 7.5 weeks. (NP students may elect to take the course for 1 credit or to attend the first 7.5 weeks. NP students who take the course for 1 credit may elect to take the entire course.) The Clinical Nurse Specialist students take the course for 2 credits and attend the full 15 weeks.

564. Psychopharmacology. 2 credits. Pre- or corequisite: N500, 502, 510, 511, 523, 535, 538, 539, 556, 585. This course provides the advanced practice student with knowledge in the pharmacoologie of psychopharmacology. Emphasis will be placed on the appropriate use of pharmaceuticals for mental disabilities/disorders.

565. Curriculum Development. 3 credits. This course focuses on the curriculum development process. Societal, professional, and institutional factors as well as current research findings influencing the curriculum development process are analyzed. Consideration of the impact of adult learning principles, workforce issues, legal-ethical concerns, and diverse student populations in regard to the curriculum development process is given.

567. Teaching Strategies. 3 credits. Prerequisites: N565 or consent of instructor. This course explores theory-based teaching strategies designed to develop cognitive abilities, interpersonal and affective qualities in learners from diverse backgrounds. Strategies and methods for the teaching of nursing content in a variety of settings are utilized. The use of technological tools in nursing education is evaluated.

568. Teaching Practicum. 2 credits. Prerequisites: N566 or consent of instructor. Corequisites: N567. Students assume the role of the nurse educator in selected learning settings under the guidance of a preceptor.*

569. Assessment and Evaluation. 3 credits. Prerequisites: N566, 567, 568, or consent of instructor. Principles of assessment, measurement, and evaluation are analyzed in this course as they relate to nursing education. The processes of assessing student learning, nursing care, and program outcomes are explored. Topics relevant to the evaluation of individual student learning such as test development, evaluation of critical thinking, and clinical and self-evaluation are included. The processes of faculty and program evaluation are examined.

570. Epistemology and Philosophy of Nursing. 3 credits. Prerequisite: Admission to the doctoral program or consent of instructor. The origins of nursing knowledge, its structures, and methods, the philosophical foundations of nursing, and the criteria for validating nursing’s knowledge claims are explored. Patterns of knowing as well as content, conceptual, and empirical types of nursing knowledge will also be discussed.

571. Theoretical Development in Nursing. 3 credits. Prerequisite: Admission to the doctoral program. Students will explore a wide range of concepts as they apply to diverse and vulnerable populations. The focus of the course is on understanding concepts and principles important to nursing when doing research, planning health care, developing health policy, and teaching in this area.

573. Research Grantsmanship. 3 credits. Prerequisite: N571. Pre- or corequisites: N574 and N575, graduate level statistics course or consent of instructor. This course integrates the scientific and practical aspects of research, resulting in the development of a pre-doctoral research grant proposal.

575. Qualitative Research Methods in Nursing. 3 credits. Prerequisite: Admission to the doctoral program or consent of instructor. This course builds on ethical and health policy issues developed at the master’s level, concentrating on the various perspectives of personhood as they influence the ethical and health policy issues of diverse and vulnerable populations. Students will evaluate how nursing ethics are applied on interdisciplinary, decision-making models and consider the appropriateness of selected ethical principles and implemented health policies.

579. Dissertation Seminar. 1 credit. may be repeated for up to 4 credits. Prerequisite: Advancement to candidacy for the doctoral degree. A series of presentations and discussions of doctoral student research, literature reviews, and current issues in nursing is presented in a seminar format. S/U grading.

583. Individual Therapy. 2 credits. Prerequisite: N500, 502, 510, 511, 523, 535, 538, 539, 556, 585, and admission into Psychiatric Mental Health specialization or consent of instructor. This course provides knowledge and skill development in the implementation of evidence-based clinical therapies and treatments focused on the individual in both cultural and personal contexts. Includes clinical practice.*

584. Group and Family Therapies. 3 credits. Prerequisite: N538, 583, and admission into Psychiatric Mental Health specialization or consent of instructor. Evidence-based clinical interventions with diverse groups and families are presented. Opportunities for clinical implementation accompany the theoretical models.*

585. Advanced Health Assessment. 3 credits. Pre- or corequisite: Completion of an undergraduate course in health assessment techniques and N510 or its equivalent or consent of instructor. An evidenced-based approach will be used to present methodology for graduate student performance on health histories, developmental assessments, and physical/psychosocial assessments of individuals. Communication and interviewing techniques for advanced nursing practice are applied. A clinical/laboratory component is included with variations for Family Nurse Practitioner, Psych/Mental Health, Gerontology, and Nurse Anesthesia students.*

588. Management of Psychopathology I. 2 credits. Pre- or corequisites: N538, 583, 584. The focus of this course is management of individuals, families and groups or affected by psychopathology. Continuity of care across settings and community and environment.

590. Directed Studies. 1 to 3 credits. Prerequisite: Consent of instructor. Designed to meet the needs of individual and/or small groups of graduate students. The course content will be based on student interests and needs in conjunction with the faculty member’s area of specialization.

591. Readings in Nursing. 1 to 3 credits. Prerequisite: Consent of instructor. Readings in selected nursing/health care topics with written and/or oral reports.

592. Advanced PHN Practicum III. 4 credits. Prerequisites: N548 and 549. This course involves a capstone experience. Students are expected to integrate knowledge from all of their previous coursework into an applied practicum experience in population health and to evaluate population health programs.
Occupational Therapy

http://www.med.und.nodak.edu/depts/ot/index.html

FACULTY: Atkinson, Bass, Hanson, Fox (Graduate Program Director), Haskins, Janssen, Jedlicka (Chair), Lamborn (Professional Program Coordinator at Casper), Meyer, Stube (TMOT Graduate Director), Wilhite and Zimmerman

DEGREES GRANTED: Master of Occupational Therapy

PROGRAM DESCRIPTION

The Occupational Therapy Department offers a five-year entry level Master of Occupational Therapy (MOT) Degree. Occupational Therapy as a profession is based on the belief that occupation, including its interpersonal and environmental components, may be used to prevent and mediate dysfunction and elicit maximum adaptation. For information regarding the program, the website is: www.med.und.nodak.edu/depts/ot/home.htm

The Occupational Therapy Program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE). For information regarding accreditation, contact ACOTE at (301) 652-2682, or 4720 Montgomery Lane, PO Box 31220, Bethesda, Maryland, 20824-1220. All basic professional programs must comply with the Standards for an Accredited Educational Program for the Occupational Therapist, 2006. Graduates of the program will be able to sit for the national entry-level certification examination for the occupational therapist administered by the National Board for Certification in Occupational Therapy, Inc. (NBCOT), 800 South Frederick Avenue, Suite 200, Gaithersburg, MD 20877-4150, (phone 301-990-9797). After successful completion of this examination the graduate will be an Occupational Therapist Registered (OTR). Most states require licensure in order to practice; state licenses may be based on the results of the NBCOT certification examination.

A satellite professional level MOT program is available at Casper College, Casper, WY. Tuition and other information regarding the program is available by contacting the Occupational Therapy Department at Casper College, Casper, WY, telephone 307-268-2613. Wyoming residents wishing to contact the UND OT Department may call 1-888-699-0006.

Mission Statement and Program Goals

The primary mission of the Department is to prepare educated men and women through the integration of academic and experiential learning experiences to meet the needs of society as entry-level occupational therapists possessing competence, integrity and compassion. The Department seeks to provide a variety of sequenced learning experiences designed to produce an entry-level occupational therapist who is able to initiate, maintain and manage occupational therapy services. Occupational Therapy is based on the belief that occupation, including its interpersonal and environmental components, may be used to prevent and mediate dysfunction and elicit maximum adaptation.

Goal 1: Students will be able to analyze and apply the occupation-based theories, models of practice and frames of reference used to guide occupational therapy evaluation and intervention.

Goal 2: Students will be able to demonstrate an understanding of the use of screening and evaluation tools used to determine the need for occupational therapy intervention.

Goal 3: Students will be able to formulate and implement the therapeutic intervention plan to facilitate occupational performance.

Goal 4: Students will be able apply principles of management and systems in the provision of occupational therapy services to individuals and organization.

Goal 5: Students will organize, collect, analyze and evaluate clinical data, research evidence, professional literature, and measures of outcome in order to make informed, evidence-based decisions in occupational therapy practice, including improving practice outcomes.

Goal 6: Students will demonstrate knowledge and understanding of the AOTA Code of Ethics, Core Values and Attitudes of Occupational Therapy, and AOTA-Standards of Practice as guidelines for professional interactions in academic and practice settings.

Goal 7: Students will demonstrate effective communication skills, both oral and written, across multiple contexts important to the practice of occupational therapy.

Admission Requirements

Pre-Occupational Therapy

The student spends the first two years as a pre-major at the University of North Dakota to complete the pre-professional program. In the spring of the sophomore year when the student is completing the required courses as listed below, he/she must make written application for admission to the professional occupational therapy program. The CLEP in natural sciences will not meet Biology and Chemistry requirements in Occupational Therapy. Students should carefully check all CLEP exams for potential acceptance at UND. A student must have at least a C in each science, and English composition.

The following courses are required to be taken prior to professional program:

- Engl 110, 120 or 125 & Comm 110 .................. Communications ........................ (9)
- Biol 150/150L or 151/151L ........................... General Biology (lab) ................. (4)
- Chem 115/115L or 121/121L ............ General Chemistry I (lab) .................. (4)
- Math 103 .................................................... (3)
- or College Algebra ........................................ (3)
- Math 104 .................. Finite Mathematics ................................ (3)
- Psych 111 .................. Introduction to Psychology .................. (3)
- Psych 241 .................. Introduction to Statistics* .............. (4 or 5)
- SOC 326 .................. Sociological Statistics ................... (3)
- Psych 250 .................. Developmental Psychology ............... (4)
- Psych 270 ..................Abnormal Psychology ................... (3)
- Anat 204 .................. Anat. for Paramedical Personnel ........... (3)
- Anat 204L .................. Anat. Lab ........................................... (2)
- Soc 110 .................. Introduction to Sociology ................... (3)
- Phy 301 .................. Mechanics of Human Physiology .......... (4)
- OT 200 .................. Intro. to Occupational Therapy .......... (2)
- Arts and Humanities Electives** ........... (9)

* As a prerequisite for Psych 241, student needs to take Math 103 or 104.

** When completing Arts and Humanities courses, it is required by the University of North Dakota that at least one course (3 credits) fulfill the World Cultures Requirement.
**Admission Requirements**

**Professional Program**

The criteria for admission to the professional program in occupational therapy is based on the following criteria and reflect the philosophy and purpose of the program. Acceptance is on a competitive basis with consideration given to pre-professional performance in the sciences, general graduation requirements (essential studies), leadership potential, volunteer work and personal qualifications. Each application is thoroughly reviewed. This review includes the applicant’s academic record, must have minimum overall GPA of 2.75 based on a 4 point scale, pattern of withdrawals, volunteer and/or work experience, references, paper and a personal interview.

During the admissions procedure, each applicant’s academic records are viewed for:

1. Total grade point average (minimum GPA 2.75).
2. Pattern of withdrawals, incompletes, etc.
3. Elective courses reflecting individual interest and development.

Admission packets are available early November of each year.

**Year III Professional Program**

Admission to the Graduate School requires:

1. Acceptance into the Professional Occupational Therapy program.
2. Successful completion of OT Professional Year I and II.
3. Completion of the Graduate School application forms.
4. Overall GPA of 2.75 or a 3.0 on junior and senior years.
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
7. Letter of endorsement from the Chair or Graduate Director of the Department, which assures automatic advancement in status from the undergraduate program to the graduate program. The letter of endorsement will be written for students in good academic and professional standing in the program.

Reminder: Many fieldwork facilities are requiring proof of immunizations, drug testing, fingerprints, and/or criminal background checks. It is your responsibility to check the fieldwork information and to pay the cost for each process.

It is important to be aware that a felony conviction may affect a graduate’s ability to sit for the National Board for Certification in Occupational Therapy (NBCOT) certification examination or to attain state licensure as an Occupational Therapist. You will be asked to respond to the following questions when registering for the NBCOT:

- Have you ever been found by any court, administrative or disciplinary proceeding to have committed negligence, malpractice, recklessness, or willful or intentional misconduct, which resulted in harm to another?

Information regarding NBCOT’s process of screening applicants for Character Review may be found at: www.nbcot.org. If you have any questions, the department will assist you in this process.

**Degree Requirements**

Students seeking the Master of Occupational Therapy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Occupational Therapy Department.

To maintain graduate student status, the professional level Year III student is required to maintain a GPA of at least 3.0 for all work completed in Year III. Students who were previously on academic or professional probation will be dismissed from the Graduate School if placed on one additional probation within the professional program.

**M.O.T CURRICULUM SEQUENCE**

**Professional Year 1**

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<thead>
<tr>
<th>Summer Session</th>
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<tr>
<td>OT 422 .......... Anotomy for Occupational Therapy ..........</td>
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<th>Fall Semester</th>
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<tr>
<td>OT 423 .......... Fundamentals of Neuroscience for Occupational Therapy ..........</td>
</tr>
<tr>
<td>OT 425 .......... Occupational Therapy with Infants &amp; Pre-School Children ..........</td>
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<tr>
<td>OT 427 .......... Orientation to Occupational Therapy Theory ..........</td>
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<tr>
<td>OT 428 .......... Quantitative Research Methods for Occupational Therapy ..........</td>
</tr>
<tr>
<td>OT 431 .......... Medical Sciences 1 ..........</td>
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<tr>
<td>OT 424 .......... Muscle Function in Health &amp; Disease ..........</td>
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<tr>
<td>OT 429 .......... Occupational Therapy with School Age Children ..........</td>
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<tr>
<td>OT 430 .......... Psychosocial Aspects of OT for Children, Adolescents &amp; Young Adults ..........</td>
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<td>OT 432 .......... Medical Science II ..........</td>
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<td>OT 433 .......... Group Leadership Skills in OT ..........</td>
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<td>OT 438 .......... Practicum: Children &amp; Adolescents ..........</td>
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<td>OT 497 .......... Cooperative Education: Occupational Therapy ..........</td>
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<td>OT 593 .......... Teaching Experience in OT ..........</td>
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<th>Schedule A</th>
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<td>OT 454 .......... Gerontic Occupational Therapy ..........</td>
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<td>OT 456 .......... Psychosocial Aspect of OT w/the Maturing Adult ..........</td>
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<tr>
<td>OT 458 .......... Qualitative Research Methods for OT ..........</td>
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<tr>
<td>OT 460 .......... Introduction to Management and Leadership ..........</td>
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<tr>
<td>OT 463 .......... Psychosocial Seminar and Practicum Integration ..........</td>
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<td>OT 469 .......... Interprofessional Health Care ..........</td>
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<td>OT 452 .......... Assistive Technology I ..........</td>
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<td>OT 453 .......... Physical Aspects of OT with the Maturing Adult ..........</td>
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<tr>
<td>OT 461 .......... Management in the U.S. Healthcare System ..........</td>
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<td>OT 462 .......... Physical Dysfunction Seminar and Practicum Integration ..........</td>
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<td>OT 494 .......... Directed Study in Occupational Therapy ..........</td>
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### Schedule B

#### Fall Semester Electives

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<td>Physical Aspects of OT with the Maturing Adult</td>
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#### Spring Semester

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<td>OT 454</td>
<td>Gerontic Occupational Therapy</td>
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<td>Management in the U.S. Healthcare System</td>
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<td>Interprofessional Health Care</td>
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#### Fall and Spring Semester Electives

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<td>OT 490</td>
<td>Occupational Therapy Seminar</td>
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<td>OT 493</td>
<td>Workshop/OT</td>
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<td>OT 496</td>
<td>Community Experience in OT</td>
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<td>Cooperative Education/OT</td>
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#### Professional Year 3

#### Graduate School - Schedule A

**Summer Session**

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<td>Fieldwork in Physical Dysfunction</td>
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**Fall Semester**

#### Assistive Technology Track:

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<td>OT 504</td>
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<td>OT 515</td>
<td>Integration of OT Theory</td>
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<td>Assistive Technology II</td>
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#### Administration/Management Track:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>OT 504</td>
<td>Occupation and Vocation</td>
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</tr>
<tr>
<td>OT 507</td>
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<tr>
<td>OT 515</td>
<td>Integration of OT Theory</td>
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<tr>
<td>OT 511</td>
<td>Service Delivery Systems</td>
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<tr>
<td></td>
<td><strong>Total:</strong></td>
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</tbody>
</table>

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### Summer Session

<table>
<thead>
<tr>
<th>Course Code</th>
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<td>OT 587</td>
<td>Fieldwork in Physical Dysfunction</td>
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### Fall Semester

#### Assistive Technology Track:

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<th>Course Code</th>
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<tr>
<td>OT 504</td>
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### Graduate School - Schedule B

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### Courses (OT)

#### 200. Introduction to Occupational Therapy.

- **Credit:** 2 credits. **Prerequisite:** None. **Description:** History, scope, objectives, and functions of Occupational Therapy.  

#### 420. Anatomy for Occupational Therapy.

- **Credit:** 5 credits. Detailed study of human anatomy, with an emphasis on skeletal muscle, its vasculature, and the peripheral nervous system. The laboratory portion of the course allows for a direct study of the human form through dissection of human cadavers.  

#### 423. Fundamentals of Neuroscience for Occupational Therapy.

- **Credit:** 3 credits. **Description:** Survey of the major theories of behavior, cognition, and neurological disorders based on experimental findings in neuroanatomy, neurophysiology, and neurobiology. Laboratory included.  

#### 424. Muscle Function in Health and Disease.

- **Credit:** 4 credits. The study of musculature acting on the extremities and trunk. Theory and techniques of musculoskeletal evaluation with analysis of normal and pathological human motion. Laboratory included.  

### Additional Course Details

- **OT 493. Workshop/OT:** 1-12 credits.  
- **OT 496. Community Experience in OT:** 1-4 credits.  
- **OT 593. Teaching in OT:** 1-3 credits.  
- **OT 599. Special Topics in OT:** 1-2 credits.  
- **Fall Semester Electives:** 9 credits.  
- **Spring Semester Electives:** 9 credits.  
- **OT 498. Independent Project:** 1-3 credits.  
- **OT 499. Special Topics in OT:** 1-2 credits.  
- **OT 461. Management in the U.S. Healthcare System:** 2 credits.  
- **OT 456. Psychosocial Aspects of OT with the Maturing Adult:** 2 credits.  
- **OT 504. Occupation and Vocation:** 3 credits.  
- **OT 507. Innovation Management and Leadership:** 3 credits.  
- **OT 515. Integration of OT Theory:** 3 credits.  
- **OT 502. Assistive Technology II:** 3 credits.  
- **OT 582. Graduate Practicum:** 1 credit.  
- **OT 460. Introduction to Management and Leadership:** 3 credits.  
- **OT 458. Qualitative Research Methods for OT:** 3 credits.  
- **OT 454. Gerontic Occupational Therapy:** 3 credits.  
- **OT 453. Physical Aspects of OT with the Maturing Adult:** 5 credits.  
- **OT 452. Assistive Technology I:** 3 credits.  
- **OT 424. Muscle Function in Health and Disease:** 4 credits.  
- **OT 423. Fundamentals of Neuroscience for Occupational Therapy:** 3 credits.  
- **OT 420. Anatomy for Occupational Therapy:** 5 credits.  
- **OT 419. Gross Anatomy:** 4 credits.

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University of North Dakota
young adulthood. Emphasis on assessment, intervention planning and program outcomes for individuals with disabilities in a variety of practice settings including school, community, and medicine. Laboratory included. S

430. Psychosocial Aspects of OT for Children, Adolescents & Young Adults. 4 credits. Psychosocial development and interruptions to development in children, adolescents, and young adults, with emphasis on OT evaluation, treatment planning and implementation, and treatment outcomes. Laboratory included. S

431. Medical Sciences I. 2 credits. First in a two-semester sequence of courses, which covers human body, systems and disease and disability groups discussed from all aspects of comprehensive rehabilitation. Included are chronic illness, neurological and orthopedic conditions, general medicine and surgery, and sensory dysfunctions across the lifespan. F

432. Medical Sciences II. 3 credits. Second in a two-semester sequence of courses, which covers human body, systems and disease and disability groups discussed from all aspects of comprehensive rehabilitation. Included are chronic illness, neurological and orthopedic conditions, general medicine and surgery, and sensory dysfunctions across the lifespan. Integration included. S

433. Group Leadership Skills in Occupational Therapy. 2 credits. Didactic and experiential learning in a small group setting. Provides students with opportunities to function as group facilitators in a variety of practice settings. S

438. Practicum: Children & Adolescents. 1 credit. Observation and experience in a university-approved pediatric and/or adolescent facility, supervised by occupational therapists, educators, and allied health professionals. S

451. Multicultural Competency in OT. 3 credits. Develop an understanding of and an appreciation for social-cultural and ethnic diversity and use that understanding to address issues, solve problems, and shape professional behavior. To recognize that diversity is intimately tied to the concepts of culture, race, language, identity and inter-group dynamics, as well as its applications to complex situations. These concepts are presented within the context of providing OT services. S

452. Assistive Technology I. 3 credits. Introductory study of assistive technology devices and products, assessment, and application methods focused on adaptations, modifications, and technology systems and services that assist individuals with disabilities in greater independence and accessibility across the lifespan. Laboratory included. F

453. Physical Aspects of OT with the Maturing Adult. 5 credits. Study of the OT process as applied to physical dysfunction of the maturing adult. Emphasis is on OT evaluation, planning, implementation of treatment, and treatment outcomes. Laboratory included. F

454. Gerontoc Occupational Therapy. 2 credits. Occupational perspectives of the elderly, including age-related changes, assessment and intervention strategies and the role of occupational therapy in prevention and wellness programs. Laboratory included. F

456. Psychosocial Aspects of OT with the Maturing Adult. 4 credits. Psychosocial development and interruptions to development in the maturing adult with emphasis on OT evaluation, treatment planning and implementation, and treatment outcomes. Laboratory included. F

458. Qualitative Research Methods for Occupational Therapy. 3 credits. Design and implementation of qualitative research, evaluation of qualitative research studies, analysis and interpretation of qualitative data, and the process of publication and presentation of research. Laboratory included. F

460. Introduction to Management and Leadership. 2 credits. Introduction to the management practices necessary to direct a quality health service and provide the knowledge and skills needed for entry-level leadership positions in OT practice. Focus is on critical reasoning and critical analysis in administrative and management functions. Laboratory included. F

461. Management in the U.S. Healthcare System. 2 credits. Provide an overview of health services system in the US and current trends and issues facing OT within this system. Content includes: federal and state roles, reimbursement of health care services, regulation, community services, health service providers, consultative, non-traditional areas of practice, service delivery models, legalities, and health policy advocacy. S

462. Physical Dysfunction Seminar and Practicum Integration. 3 credits. The student begins to integrate and synthesize the theoretical knowledge of physical dysfunction with clinical practice. It requires the application of foundational knowledge, tools and the theory of practice inherent in the role of an OT. Occupational therapy experiences in facilities, supervised by registered occupational therapists, qualified health professionals and university faculty. F

463. Psychosocial Dysfunction Seminar and Practicum Integration. 3 credits. Integration and synthesizing of theoretical knowledge with clinical experience toward the application of skills of self, self-evaluation, and communication skills in professional development. Occupational therapy experiences in mental health field facilities, supervised by registered occupational therapists, qualified health professionals and university faculty. F

469. Interdisciplinary Approach to Health Care (IPHC). 1 credit. Pre- or corequisite: Enrolled in the Occupational Therapy program. A process-learning course intended to provide experience in building a team of health professionals from different professions. The focus is on learning to work effectively with an interprofessional health care team. Emphasis placed on communication, the unique contributions of different professions, patient or family centered approach in health care delivery, and awareness of potential medical errors. S/U grading. F/S

488. Elective Fieldwork in Occupational Therapy. 3-9 credits. Application of occupational therapy in evaluation and treatment in optional areas of student special interest in selected fieldwork facilities. One to three months full-time. F,SS

489. Independent Projects. 1-3 credits, repeatable to 12 credits. Individual study and/or research in a particular area of interest for the students with approval of a supervisory faculty member. Elective on OT evaluation, treatment, and development of fieldwork projects. F

490. Occupational Therapy Seminar. 1 credit. Foundational knowledge relevant to the preparation of an independent study proposal. Serves as the basis for OT 494: Directed Study in Occupational Therapy. F

493. Workshop/Occupational Therapy. 1-12 credits, repeatable to 12 credits. A workshop course with topics dictated by faculty and student interests primarily for but not confined to continuing education. On demand.

494. Directed Study in Occupational Therapy. 1 credit. Development of the proposal in an area of interest to the student approved and supervised by faculty. Serves as the basis for OT 997: Independent Study or OT 995: Scholarly Project in OT. S

496. Community Experience in OT. 1-4 credits, repeatable to 12 credits. Student initiates and participates in off-campus professional learning activities related to OT under joint faculty and on-site professional supervision. F,SS

497. Cooperative Education: Occupational Therapy. 1-6 credits, repeatable to 12 credits. Qualified students are employed by selected facilities to further understanding of occupational therapy and health-related service provision. F,SS

502. Assistive Technology II. 3 credits. Advanced course in assistive technology application and practice including assessment, program planning and intervention outcomes. Focus on occupationally based intervention plans and strategies using assistive technology for individuals with disabilities across contexts. Laboratory included. F

504. Occupation and Vocation. 3 credits. Application of assessment and problem-solving skills necessary for remediation/rehabilitation of occupational performance deficits in the work realm. Laboratory included. F

510. Principles of Education in OT. 3 credits. Introduction to education and understanding of educational concepts and models of learning and development. Laboratory included. S

511. Service Delivery Systems. 3 credits. In depth analysis of current health care developments and trends that affect quality, access, and costs. Topics include legislation/policy issues, classification systems, role of public health and prevention programs, comparison of service delivery settings, special populations, evaluation of outcomes and future issues in health care. F

512. Advanced Neuroscience Topics for OT. 2 credits. Detailed study of neuroanatomy and clinical kinesiology. Laboratory included. F

515. Integration of Occupational Therapy Theory. 3 credits. Analysis and applications of theoretical perspectives to occupational therapy process with individuals, groups, and service delivery systems. F

582. Graduate Practicum. 1-3 credits, repeatable to 12 credits. Supervised experience in a variety of OT practice settings. Students are afforded the opportunity to gain practical, on-the-job experience working in an area that matches the focus of their graduate study. Students will be supervised by on-site personnel. (One credit hour required as corequisite for OT 502; additional hours optional). F,SS

585. Fieldwork in Psychosocial Dysfunction. 9 credits. Application of occupational therapy in evaluation and University of North Dakota reatment in psychosocial dysfunction fieldwork facilities. Three months full-time.

587. Fieldwork in Physical Dysfunction. 9 credits. Application of occupational therapy in evaluation and treatment in physical dysfunction fieldwork facilities. Three months full-time.

589. Readings in Occupational Therapy. 1-2 credits, repeatable to 6 credits. Selected readings in the student’s area of interest with oral and/or written reports. Consent of instructor required prior to enrollment. F,SS

593. Teaching Experience in OT. 1-3 credits, repeatable to 12 credits. Supervised experiences in higher education teaching of OT. Projects in course/curriculum development, writing course objectives, writing and delivering lectures and learning activities, and developing assessment tools for the classroom. F,SS

599. Special Topics in Occupational Therapy. 1-2 credits, repeatable to 6 credits. A series of lectures, discussions, and laboratory experiences developed around one or more specific topics in occupational therapy. F,SS

995. Scholarly Project in OT. 2 credits. A collaborative investigation of relevant professional topic and production of a scholarly report with approval of the major faculty.
Pharmacology, Physiology and Therapeutics

http://www.med.und.nodak.edu/depts/pharm/

FACULTY: Benoit, Brown-Borg, Combs, Doze, Geiger (Chair), Ghribi, Haselton (Graduate Director), Henry, Lei, Murphy, Porter and Rosenberger

DEGREES GRANTED: Master of Science and Doctor of Philosophy

PROGRAM DESCRIPTION

The Pharmacology, Physiology and Therapeutics provides coursework and research opportunities leading to the M.S. and Ph.D. The research interests of our faculty cover a wide range of topics including aging, neurodegenerative disease, neurotoxicology, synaptic transmission, lipid metabolism, cardiovascular physiology, renal physiology and molecular pharmacology.

Active participation in Departmental activities such as journal discussion groups and seminars is an integral part of training and is expected of students.

MASTER OF SCIENCE

Mission Statement and Program Goals

The mission of the Graduate Program of the Department of Pharmacology, Physiology, and Therapeutics is to train and educate students to become successful scientists by providing a rigorous academic foundation combined with cutting-edge biomedical research training.

Goal 1: Students will acquire discipline-based knowledge in pharmacology and physiology.

Goal 2: Students will develop mastery of critical thinking skills.

Goal 3: Students will develop the appropriate skills necessary to design experiments and interpret results.

Goal 4: Students will develop appropriate communication skills.

Admission Requirements

1. A four-year bachelor’s degree from a recognized college or university.
2. Successful completion of two semesters or equivalent course in general chemistry, and courses in general biology, general physics, and organic chemistry.
3. Undergraduate courses in analytical chemistry, calculus, genetics, physiology, biochemistry and statistics are desirable.
4. Overall undergraduate GPA of at least 3.0.
5. GRE scores on the General Test are required.
6. Graduate Students may be admitted to either the M.S. program or directly to the Ph.D. program.
7. Students who elect to begin the M.S. program and later decide to pursue the Ph.D. before finishing the M.S. may do so by petitioning the Departmental Faculty. This action requires a GPA in accordance with the current academic catalog.
8. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
9. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Physiology, Pharmacology, and Therapeutics Department.

Students are advised to consult the current approved guidelines for additional requirements or changes.

The graduate requirements for a Master of Science in Pharmacology, Physiology and Therapeutics consist of required coursework and research leading to the preparation of a thesis. In addition to the general requirements listed in the Academic Catalog, the following must be completed by all candidates for the M.S. in Pharmacology, Physiology and Therapeutics.

1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.

I. Coursework:

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<tr>
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<tr>
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<td>(6)</td>
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<td>BIMD 510</td>
<td>Basic Biomedical Statistics</td>
<td>(2)</td>
</tr>
<tr>
<td>BIMD 513</td>
<td>Seminars in Biomedical Science</td>
<td>(1)</td>
</tr>
<tr>
<td>BIMD 515</td>
<td>Steps to Success in Graduate School</td>
<td>(1)</td>
</tr>
<tr>
<td>BIMD 516</td>
<td>Responsible Conduct in Research</td>
<td>(1)</td>
</tr>
<tr>
<td>PPT 500*</td>
<td>Principles of Physiology and Pharmacology</td>
<td>(6)</td>
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<tr>
<td>PPT 521</td>
<td>Seminar in Pharmacology, Physiology &amp; Therapeutics</td>
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<tr>
<td>Electives</td>
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<td>BIMD 510</td>
<td>Cellular and Molecular Mechanisms of Pharmacology</td>
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<tr>
<td>PPT 505</td>
<td>Research Techniques</td>
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<td>PPT 530</td>
<td>Advanced Neurochemistry</td>
<td>(3)</td>
</tr>
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<td>PPT 535</td>
<td>Mechanisms of Neurodegenerative Disorders</td>
<td>(3)</td>
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<td>PPT 540</td>
<td>Molecular Neuropharmacology</td>
<td>(3)</td>
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* A student must obtain at least a “B” in PPT 500 the first time they take the course in order to remain in good standing in the PPT graduate program. If less than a “B” is received, the student may petition the PPT Graduate Faculty in order to take the course a second time.

II. Teaching:

The teaching requirement will be defined by the student’s Faculty Advisory Committee and will include one semester of laboratory teaching, e.g., PPT 301, or the development, presentation, and as-
sessment of lectures related to one educational unit as defined by the instructor of record in a Pharmacology, Physiology and Therapeutics undergraduate course.

III. Research and Thesis:

The M.S. in Pharmacology, Physiology and Therapeutics requires completion of a thesis based on the results of a research project completed by the graduate student under the guidance of a faculty advisor. The project must represent an original and independent investigation by the student. It is expected that the results of the research will be published in a refereed scientific journal. The thesis prepared by the candidate must be presented and defended before the Faculty Advisory Committee and the Departmental Faculty.

DOCTOR OF PHILOSOPHY

Mission Statement and Program Goals

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4. Overall undergraduate GPA of at least 3.00.
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*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

7. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
8. Graduate students may be admitted to either the M.S. program or directly to the Ph.D. program.
9. Students who elect to begin the M.S. program and later decide to pursue the Ph.D. before finishing the M.S. may do so by petitioning the Department Faculty. This action requires a GPA in accordance with the current academic catalog.

Degree Requirements

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Physiology, Pharmacology, and Therapeutics Department.

The graduate requirements for a Doctor of Philosophy in Pharmacology, Physiology and Therapeutics consist of required coursework, satisfactorily passing the comprehensive exam, and research leading to the preparation of a dissertation. In addition to the general requirements listed in the Academic Catalog, the following must be completed by all candidates for the Ph.D. in Pharmacology, Physiology and Therapeutics.

1. Completion of 90 semester credits beyond the baccalaureate degree.
2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.
3. At least one-half of the work must be in the major field.
4. Successful completion of a comprehensive examination.
5. Successful completion of dissertation.

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Electives (See Elective course offerings. Three credits must be from PPT electives)

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</table>

Minimum Total Credits (90)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPT 503</td>
<td>Advanced Pharmacology or Physiology</td>
<td>3</td>
</tr>
<tr>
<td>PPT 525</td>
<td>Advanced Renal Physiology</td>
<td>3</td>
</tr>
<tr>
<td>PPT 526</td>
<td>Advanced Respiratory Physiology</td>
<td>3</td>
</tr>
<tr>
<td>PPT 527</td>
<td>Advanced Neurophysiology</td>
<td>3</td>
</tr>
<tr>
<td>PPT 528</td>
<td>Advanced Endocrinology</td>
<td>3</td>
</tr>
<tr>
<td>PPT 529</td>
<td>Advanced Cardiovascular Physiology</td>
<td>3</td>
</tr>
<tr>
<td>PPT 511</td>
<td>Biochemical and Molecular Mechanisms of Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>PPT 530</td>
<td>Advanced Neurochemistry</td>
<td>3</td>
</tr>
<tr>
<td>PPT 535</td>
<td>Mechanisms of Neurodegenerative Disorders</td>
<td>3</td>
</tr>
<tr>
<td>PPT 540</td>
<td>Molecular Neuropharmacology</td>
<td>3</td>
</tr>
</tbody>
</table>

* A student must obtain at least a “B” in PPT 500 the first time they take the course in order to remain in good standing in the PPT graduate program. If less than a “B” is received, the student may petition the PPT Graduate Faculty in order to take the course a second time.

II. Teaching:

The teaching requirement will be defined by the student’s Faculty Advisory Committee and will include one semester of laboratory teaching, e.g., PPT 301, or the development, presentation, and assessment of lectures related to one educational unit as defined by the instructor of record in a Pharmacology, Physiology and Therapeutics undergraduate course.

III. Scholarly Tools

Students must complete at least one laboratory research techniques course, e.g., PPT 505, Research Techniques at the graduate level.

IV. Research and Dissertation

The Ph.D. in Pharmacology, Physiology and Therapeutics requires completion of a dissertation based on the results of a research project completed by the graduate student under the guidance of a faculty advisor. The project must represent an original and independent investigation by the student. It is expected that the results of the research will be published in a refereed scientific journal. The disser-
tation prepared by the candidate must be presented and defended before the Faculty Advisory Committee and the Departmental Faculty.

Courses

BIMD 500. Cellular and Molecular Foundations of Biomedical Science. 6 credits. A series of lectures and discussion groups with emphasis on interrelated themes in basic biochemistry, cell biology and molecular biology. Lectures will include current and emerging areas of research, while discussion will center on methods, techniques and expansion of lecture topics. Fall semester. Prerequisites: (a) a year of organic chemistry or (b) one semester of organic chemistry plus a course in either biochemistry or cell biology, or (c) permission of the course director.

BIMD 510. Basic Biomedical Statistics. 2 credits. A series of lectures, demonstrations and exercises to provide students with the basic rationales for the use of statistics in the assessment of biomedical data and a selected set of the most common and useful statistical tests. Spring Semester.

BIMD 513. Seminars in Biomedical Science. 1 credit. A series of presentations on original research conducted by UND faculty members as well as extramural leaders in academic and industrial research in the biomedical sciences. Students will participate through assigned reading and writing exercises related to the presentations.

BIMD 515. Steps to Success in Graduate School. 1 credit. A series of lectures and discussion sessions covering topics related to the development of skills and experience important for successful completion of graduate training and transition to post graduate training and employment. Students will examine a variety of issues including choosing an advisor and research topic, charting their course through graduate school, the importance of productivity, how to give a scientific presentation and write a scientific publication, applying for predoctoral grants, and planning for their careers.

BIMD 516. Responsible Conduct of Research. 1 credit. A series of lectures and discussion sessions covering topics related to responsible conduct in research. Students will examine a variety of issues including introduction to ethical decision-making, the experience of conflict, laboratory practices, data management, reporting of research, conflict of interest, and compliance. Examples and case studies will be drawn primarily from the biomedical sciences.

PPT 500. Principles of Physiology and Pharmacology. 6 credits. Prerequisites: BIMD 500 or consent of instructor. Graduate level survey course covering basic principles of human physiology and pharmacology. Material covered will include the physiology (how the body works) and the pharmacology (how drugs affect physiological functions) of the major organ systems. Covered also will be basic pharmacological principles including pharmacodynamics, pharmacokinetics and therapeutics. Teaching modalities used are designed to actively engage students in critical thinking and knowledge application.

PPT 503. Advanced Pharmacology or Physiology. 3 credits. Prerequisite: PPT 500 or consent of instructor.

PPT 505. Research Techniques. 1-3 credits. Prerequisite: consent of instructor.

PPT 511. Biochemical and Molecular Mechanisms of Pharmacology. 3 credits. Prerequisites: BIMD 500, PPT 500 or consent of instructor. Fundamental concepts of pharmacology with emphasis on biochemical and molecular mechanisms.

PPT 512. Special Topics in Pharmacology, Physiology and Therapeutics. 2 credits. Prerequisite: consent of instructor. An in-depth coverage of a particular topic chosen by the instructor.

PPT 521. Seminar in Pharmacology, Physiology and Therapeutics. 1 credit. S/U grading only.

PPT 525. Advanced Renal Physiology. 3 credits. Prerequisites: PPT 500 or consent of instructor.

PPT 526. Advanced Respiratory Physiology. 3 credits. Prerequisites: PPT 500 or consent of instructor.

PPT 527. Advanced Neuropathology. 3 credits. Prerequisites: PPT 500 or consent of instructor.

PPT 528. Advanced Endocrinology. 3 credits. Prerequisites: PPT 500 or consent of instructor.

PPT 529. Advanced Cardiovascular Physiology. 3 credits. Prerequisites: PPT 500 or consent of instructor.

PPT 530. Advanced Neurochemistry. 3 credits. Prerequisites: PPT 500 or consent of instructor. This course is designed to introduce graduate students to the discipline of neurochemistry. This course builds on concepts introduced in PPT 500, with an emphasis on brain biochemical processes occurring in health and disease.

PPT 535. Mechanisms of Neurodegenerative Disorders. 3 credits. Prerequisites: PPT 500 or consent of instructor. This advanced course is designed for the graduate student who has a background in basic neuroscience. The course directive is to provide an overview of the more common neurodegenerative disorders and address the state of the field.


Physical Therapy

http://www.med.und.nodak.edu/depts/pt/

FACULTY: Danks, Decker, Flom-Meland, Jeno, Johnson, LaBrecque, Mabey, P. Mohr, T. Mohr, (Chair and Graduate Director), Relling, Romanick and Wessman

DEGREES GRANTED: Doctor of Physical Therapy

PROGRAM DESCRIPTION

The Department of Physical Therapy offers the clinically-oriented, entry-level Doctor of Physical Therapy (DPT) degree. Students interested in the physical therapy program at UND should stay in contact with the PT department to keep informed of the pre-professional and professional curriculum. Our website address is: http://www.medicine.nodak.edu/pt/

Physical therapists provide services to patients who have impairments, functional limitations, and disabilities. Physical therapists assist patients in restoring health; alleviating pain; examining, evaluating, and diagnosing changes in physical function and health status resulting from injury, disease, or other causes. Physical therapists are also involved with intervention, prevention, and the promotion of health, wellness, and fitness. They are employed by hospitals, outpatient clinics, rehabilitation centers, skilled nursing facilities, home care, school systems, industrial settings, athletic facilities, and in private practice.

Mission Statement and Program Goals

The mission of the Department of Physical Therapy is to train physical therapists who will provide quality physical therapy services. The professional services provided by a physical therapist demand a strong background in the liberal arts and clinical sciences as well as high moral and ethical standards. In addition to clinical practice expectations, teaching, service, and research responsibilities are an integral part of the educational experience.

Goal 1: The student will demonstrate the skills necessary for the entry-level practice of physical therapy.

Goal 2: The student is an advocate for service to the community and the profession.

Goal 3: The student will develop critical inquiry skills related to clinical and basic science research.

Goal 4: The student will develop the skills required for life-long learning.

Goal 5: The student is to be an advocate for health and wellness at the individual and societal levels, demonstrate respect for self and others, and a commitment to the profession of physical therapy.

Admission Requirements

Pre-Physical Therapy

Prior to admission, a minimum of 90 semester hours of credit from an approved college or university is required. Students should be broadly educated in the sciences and humanities. The Department of Physical Therapy recognizes that, since physical therapy deals with people, an understanding of literature, art, history, ethics, and philosophy is an adjunct to a physical therapist. Science and humanities are both viewed as necessary for the practice of physical therapy.

The following list of courses and credits indicates the core prerequisites all applicants must complete prior to admission to the physical therapy program. It is strongly recommended that students...
be computer literate prior to entering the professional program. Students may take additional electives from any field of study; however, the depth of the pre-physical therapy education should demonstrate that students have progressed from simple to complex studies in at least one content area. This requirement might typically be demonstrated by a discipline major, but in any case should demonstrate a basic comprehensiveness and integrity of study within a particular content area. This does not suggest that a separate undergraduate degree must be awarded; however, the breadth and depth in a discipline should be demonstrated. Course credits equivalent to a minor, i.e., approximately 20 credits at UND, in a particular discipline could accomplish this requirement. The prospective student should include eight (8) credits from upper level courses, i.e., 300 and/or 400 numbers.

- Two semesters of General Biology (8 cr.)
- Two semesters of General Chemistry (8 cr.)
- Two semesters of General Physics (8 cr.)
- One semester of Human Anatomy (3 cr.)
- One semester of Human Physiology (3 to 4 cr.)
- One semester of Introductory Psychology (3 cr.)
- One semester of Developmental Psychology (3 to 4 cr.)
- One semester of Abnormal Psychology (3 cr.)
- One semester of a Public Speaking course (3 cr.)
- Two semesters of English Composition (6 cr.)
- Essential Studies requirements

All of the prerequisite coursework must be completed before entering the professional program; however, the prospective student may be enrolled in pre-professional coursework at the time of application. Students must apply for the professional program. WICHE-eligible students must apply to UND-PT through the WICHE certification. Students must apply for the professional program. WICHE-eligible students must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

Reference letters, a personal interview, and other personal qualifications are also considered prior to final acceptance. Prospective students are expected to complete at least 60 hours of observation prior to application.

1. Completion of all pre-physical therapy coursework including UND Essential Studies requirements and a cognate/minor OR baccalaureate degree.
2. Completion of Department of Physical Therapy and UND Graduate School application forms.
3. For applicants whose native language is not English, a minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IETLS scores of 6.5. *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
4. Applicants who have received their bachelors or masters degree in the United States or English-speaking Canada are not required to submit the TOEFL or IELTS.

**Degree Requirements**

1. Students must be formally accepted into the professional education component of the DPT and endorsed by the Chair of Physical Therapy. NOTE: Acceptance by the UND Office of Admissions or the Graduate School does not constitute acceptance into the professional program in Physical Therapy.
2. The professional education component of the DPT will require three academic years and two summer sessions following completion of the pre-physical therapy entrance requirements.
3. No student will be allowed to remain in the program or complete the full-time clinical experiences unless he/she attains a letter grade of at least “C” in the major courses.
4. To advance to candidacy, the student must successfully complete the first year comprehensive examination, and maintain a cumulative Graduate School GPA of ≥ 3.00 AND/OR a summer session GPA of ≥ 3.00. Students who fail to advance to candidacy during the first year will be dismissed from the professional program.
5. After advancement to candidacy, the student is expected to maintain a cumulative GPA of ≥ 3.00. The Graduate School will monitor the cumulative GPA, which must be ≥ 3.00. If the cumulative GPA is not ≥ 3.00, the Graduate School policies for probation and dismissal for GPA will govern the student’s status.
6. Students in the professional program should be aware that there are special requirements for clinical uniforms, professional liability insurance, medical insurance, immunizations, CPR certification, and completion of a criminal background check. These requirements must be met prior to any clinical contact with patients. The student will also be responsible for travel, housing, and food costs, in addition to the payment of tuition and fees, during the full-time clinical experience semesters. The majority of these experiences will be completed at geographical locations other than the City of Grand Forks.
7. Prospective students should be aware that a felony conviction may affect a graduate’s ability to obtain a professional license to practice physical therapy.
8. The faculty reserves the right to place on professional probation or to cancel the registration of any student in Physical Therapy whose performance in the classroom or the clinic is unsatisfactory.

## Pre-Physical Therapy

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENGL 110, 120 or 125 &amp; COMM 110</td>
<td>Communication</td>
<td>(9)</td>
</tr>
<tr>
<td>BIOL 150, 151</td>
<td>Introduction to Biology</td>
<td>(9)</td>
</tr>
<tr>
<td>CHEM 121, 122</td>
<td>Gen. Chemistry I, II</td>
<td>(8)</td>
</tr>
<tr>
<td>Social Science</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>PSYC 111</td>
<td>Intro to Psychology</td>
<td>(3)</td>
</tr>
<tr>
<td>PHYS 161, 162</td>
<td>Intro to College Physics</td>
<td>(8)</td>
</tr>
<tr>
<td>ANAT 204</td>
<td>Anatomy for Paramedical Personnel</td>
<td>(3)</td>
</tr>
<tr>
<td>PHY 301</td>
<td>Mechanics of Human Physiology</td>
<td>(4)</td>
</tr>
<tr>
<td>PSYC 250</td>
<td>Developmental Psychology</td>
<td>(4)</td>
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<tr>
<td>PSYC 270</td>
<td>Abnormal Psychology</td>
<td>(5)</td>
</tr>
<tr>
<td>PT 101</td>
<td>Orientation to Physical Therapy</td>
<td>(1)</td>
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<tr>
<td>Cognate/Minor (required)</td>
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</tbody>
</table>

*Electives (required, minimum of 20 with emphasis in a single discipline)

*Courses should contribute to completion of Essential Studies requirements.
PROFESSIONAL PROGRAM - PHYSICAL THERAPY

Professional Year 01 - Fall Semester (17 cr.)

PT 401 Intervention Techniques I .......................... (2)
PT 402 Professional Communication and Behavior .... (2)
PT 409 Clinical Pathology I ................................. (4)
PT 422 Anatomy for Physical Therapy .................. (5)
PT 423 Neuroscience for Physical Therapy .......... (4)

PT 410 Clinical Pathology II ................................ (3)
PT 412 Biomechanics and Kinesiology ................. (4)
PT 413 Exercise in Health and Disease ............... (3)
PT 415 Motor Control ........................................ (3)
PT 417 Clinical Examination and Evaluation I ...... (4)
PT 426 Manual Therapy I .................................... (2)

PT 512 Therapeutic Agents ................................ (3)
PT 513 Intervention Techniques II ....................... (3)
PT 514 Case Management I ................................ (2)
PT 519 Electrotherapy and Electrodiagnosis ........ (2)

PT 521 Critical Inquiry I ........................................ (1)
PT 528 Clinical Education I ................................ (9)
PT 529 Clinical Education II ................................ (9)

PT 522 Administration in Physical Therapy .......... (3)
PT 523 Lifespan I ................................................ (3)
PT 524 Psychological Aspects of Disability .......... (2)
PT 540 Cardiopulmonary Physical Therapy .......... (2)
PT 527 Critical Inquiry II .................................... (2)
PT 584 Evidence in Practice ................................ (1)
EFR 515 Statistics I ............................................ (3)
Electives ............................................................ (0-1)

Professional Year 02 - Fall Semester (17 cr.)

PT 562 Readings: Physical Therapy ....................... (2)
PT 591 Research in Physical Therapy .................. (4)
PT 592 Case Management II ............................... (2)
Electives ............................................................ (0-1)

Professional Year 03 - Fall Semester (15-17 cr.)

PT 511 Applied Movement Science/Rehab. Procedures (4)
PT 525 Clinical Examination and Evaluation II ...... (4)
PT 526 Manual Therapy II ................................... (2)
PT 535 Lifespan II ............................................... (2)
PT 539 Prevention and Wellness ......................... (2)
Electives ............................................................ (1-3)

Courses (PT)

101. Orientation to Physical Therapy. 1 credit. This course can only be used for undergraduate credit. Overview of the educational requirements, practice issues, and opportunities in the profession of physical therapy. Course content includes multimedia presentations, lectures, and observation in clinical settings.

401. Intervention Techniques I. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Beginning skills for patient management including skills and safety in positioning, draping, therapeutic massage, surface anatomy, and an introduction to communication techniques. Laboratory.

402. Professional Communication and Behavior. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Lecture and practice in interpersonal and interpersonal communication including professional behavior, ethics, patient education, and written documentation.

403. Clinical Pathology I. 4 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Disease groups discussed from all aspects of comprehensive rehabilitation. Included are chronic illness, neurological and orthopedic conditions, general medicine and surgery, pediatrics, geriatrics, and sensory disabilities.

410. Biomechanics and Kinesiology. 4 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Understanding the mechanics of movement acting on the extremities and trunk. Theory and techniques of muscle testing and goniometry. Laboratory.

413. Exercise in Health and Disease. 3 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Lecture and laboratory work to examine and maintain increase mobility, strength, and endurance for healthy individuals and those with disease, with completion of an exercise prescription to address impairments and functional limitations. Functions of the musculoskeletal, pulmonary, and cardiovascular systems will be addressed individually and within their relationships. Laboratory.

415. Motor Control. 3 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Lecture and laboratory work in therapeutic exercise to establish and maintain muscle control and coordination, including muscle re-education, facilitation, and relaxation. Laboratory.


422. Anatomy for Physical Therapy. 5 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Detailed lectures and demonstrations on musculoskeletal anatomy and neuroanatomy. Laboratory.

423. Neuroscience for Physical Therapy. 4 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Structure and function of the human nervous system including clinical application relevant to physical therapy practice.

426. Manual Therapy I. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Introduction to joint mobilization with emphasis on peripheral joints. Basic evaluation treatment techniques and exercises for the lumbar and cervical spine. Laboratory.

490. Special Topics. 1-4 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Introduction and investigation of advanced clinical procedures and topics. Topics discussed will be dictated by student and faculty interests.


511. Applied Movement Science and Rehabilitation Procedures. 4 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Integration of clinical evaluation, functional goals, and treatment planning for individuals with neurological and musculoskeletal dysfunction. The primary focus is on rehabilitation skills including assessment, exercise, handling techniques, functional activities, equipment prescription, patient education, and ADLs, as well as community mobility and governmental services. Laboratory.

512. Therapeutic Agents. 3 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Theory and application of various hydrotherapy, phototherapy, and thermotherapy modalities in Physical Therapy, including heat, light, sound, and water. Laboratory.

513. Intervention Techniques II. 3 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Theory and practical application of introductory patient care techniques in physical therapy. Laboratory.

514. Case Management I. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Case management with integration of examination, evaluation, diagnostic, plan of care, and intervention strategies. Verbal and written communication of results will be emphasized.

519. Electrotherapy and Electrodagnosis. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Theory and application of therapeutic electrical currents, biofeedback, electromyography, and nerve conduction velocity in physical therapy. Laboratory.

521. Critical Inquiry I. 1 credit. Prerequisite: Registered in Professional Physical Therapy Curriculum. Introduction to the collection of clinical data leading to a case study report.

522. Administration in Physical Therapy. 3 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Lectures/discussion and seminar formats used to explore concepts of administration procedures as applied to Physical Therapy and the health care delivery system.

523. Lifespan I. 3 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Course focuses on rehabilitation issues related to pediatrics including the characteristics of disabilities, development of evaluation and intervention, the use of adaptive equipment, legal issues, and strategies to promote collaborative service provision to children and families. Laboratory.

524. Psychological Aspects of Disability. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Readings and discussion course. Study of psychological coping mechanisms, reactions, and motivational factors pertinent to people with disabilities. Review of adjustment problems unique to specific disabilities and/or disease processes, including terminally ill.

525. Clinical Examination and Evaluation II. 4 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Emphasizes patient/client management elements of examination and evaluation. Emphasis is given to systems review and differential diagnosis, clinical decision-making resulting in referral and/or modified physical therapy interventions, and the communication of findings. Laboratory.

526. Manual Therapy II. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Theory and application of manual therapy skills for examination and intervention techniques, including thrust and nontrust manipulations of the spine, pelvis, and associated areas. Laboratory.
527. Critical Inquiry II. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Interpretation of statistical tests used in evidence-based medicine. Critical review of current articles related to diagnosis, therapy, harm, cost, systematic reviews, and meta-analysis. Application of evidence to physical therapy practice.

528. Clinical Education I. 9 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. The first in a sequence of four full-time clinical experiences in selected physical therapy provider centers throughout the United States.

529. Clinical Education II. 9 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. The second in a sequence of four full-time clinical experiences in selected physical therapy provider centers throughout the United States.

530. Lifespan I. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Examine the factors and forces that affect life quality in later years. The physiological, psychological, and sociological aspects of aging will be considered, including those influences in the cultural context that enhance and impede continued growth of the person. Laboratory.

531. Strategies for Early Intervention. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. This course is designed to review current practices in early intervention. Course materials will focus on characteristics of disabling conditions that influence growth and development of motor skills, cognition, and educational development. Emphasis will be on collaborative service provision with an interdisciplinary approach. Topics also covered include: current issues, assessment of the child/family unit, and legislative guidelines for service provision.

532. Advanced Topics in Pediatric Physical Therapy. 3 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. The theory and practice of prevention of injury, maintenance and improvement of wellness, and promotion of health and healthy behaviors across the lifespan. Concepts are applied to the general, athletic, and industrially exposed populations, with a view to interdisciplinary involvement in wellness optimization.

540. Cardiopulmonary Physical Therapy. 2 credits. Prerequisite: Registered in Professional Physical Therapy curriculum. This course is designed to expand the theoretical understanding and clinical application of cardiopulmonary physical therapy examination, evaluation, diagnosis, prognosis, intervention and outcomes. Laboratory.

549. Advanced Applied Anatomy/Clinical Kinesiology. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Study of applied anatomy and its importance to research and clinical application, particularly as related to Physical Therapy.

552. Clinical Education III. 9 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. The third in a sequence of four full-time clinical experiences in selected physical therapy provider centers throughout the United States.

553. Clinical Education IV. 9 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. The fourth in a sequence of four full-time clinical experiences in selected physical therapy provider centers throughout the United States.

561. Seminar: Physical Therapy. 1 to 4 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. This course serves to focus student attention toward graduate study in Physical Therapy. Explore and discuss areas of interest for students and faculty. May repeat to 4 credits maximum.


583. Critical Inquiry III. 1 credit. Prerequisite: Registered in Professional Physical Therapy Curriculum. Introduction to research instruments including surveys, electrical and mechanical instrumentation critical to research methods. Includes discussion of validation, calibration, and reliability of instruments used in physical therapy research. Students develop a proposal for their scholarly projects and complete IRB use of human subject forms.

584. Evidence in Practice. 1 credit. Prerequisite: Registered in Professional Physical Therapy Curriculum. Interpretation of statistical tests used in evidence-based medicine. Critical review of current articles related to diagnosis, therapy, harm, cost, systematic reviews, and meta-analysis. Application of evidence to physical therapy practice.

590. Directed Studies/Clinical Concepts. 1-12 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Individualized study of a particular area of interest for the student approved by his/her major advisor and supervised by preceptors with specialty and/or recognized expertise in the area of interest. Study may include library research, clinical research, discussion/seminars, projects, and directed clinical experience.

591. Research in Physical Therapy. 4 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Students develop the ability to effectively and accurately interpret and communicate research results, and as a component of the written Scholarly Project. Frequent group and/or individual meetings with the advisor incorporate peer review discussion to facilitate student development of professional written and oral communication skills.

592. Case Management II. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Case management, with emphasis on the teaching and learning process and techniques targeted to promote and optimize physical therapy services, including advocacy. Strategies appropriate for conflict resolution are introduced. Preparation of clinical documentation as a practitioner of physical therapy is emphasized through introduction and preliminary development of a portfolio.

995. Scholarly Project I. 1 credit. Prerequisite: Registered in Professional Physical Therapy Curriculum. Students provide a final written and oral report to the faculty on the results of their collaborative Scholarly Project.

Physician Assistant Studies

http://www.med.und.nodak.edu/physicianassistant/

FACULTY: Johnson (Medical Director), Kunz, Larson, Laxen (Program Director), McClean and McDuffy

DEGREES GRANTED: Master of Physician Assistant Studies

PROGRAM DESCRIPTION

The School of Medicine and Health Sciences, Department of Family and Community Medicine, offers a clinically oriented, rural emphasis terminal degree, a Master of Physician Assistant Studies (MPAS).

Physician Assistants (PA) are health care professionals licensed to practice medicine with physician supervision. They are skilled members of the health care team fulfilling a broad range of medical services that would otherwise be provided by a physician. The program prepares clinically practicing registered nurses and other licensed clinical professionals with extensive experience, to work as a PA within the medical model, in rural and underserved areas.

The program is accredited by ARC-PA, (Accreditation Review Commission on Education for the Physician Assistant, Inc.).

The MPAS degree is twenty-four months in length and is offered through a combination of on-line courses, on-campus study, and extensive clinical experience. The curriculum is designed to prepare clinically competent physician assistant practitioners.

Mission Statement and Program Goals

The primary mission of the University of North Dakota Physician Assistant Program is to prepare selected health care professionals to become clinically competent physicians assistants working collegially with and under the supervision of physicians, especially in primary care in rural areas of North Dakota and other rural/underserved areas within the United States.

With this mission, the goal is to help alleviate shortages and misdistribution of primary care providers and to provide access to comprehensive, affordable primary health care services to rural and underserved populations.

The Program’s approach to education is based on the philosophy that adult students are mature, highly motivated, and have a rich resource of past personal and professional experiences for present learning. While the faculty and preceptor serve as catalysts, learning is the responsibility of the student. The interdisciplinary teaching approach integrates previous clinical skill and knowledge utilizing multiple techniques to facilitate learning. The goal is preparation of the student as a primary care provider in a variety of settings, utilizing a problem-oriented approach to logical thinking and sound judgment.

Program Objectives

- Prepare clinically competent physician assistants to provide primary health care services.
- Develop a physician assistant/physician health care team through the didactic curriculum and clinical experiences.
- Provide an orientation to practices serving rural and/or underserved populations.
Admission Requirements

Master of Physician Assistant Studies

Acceptance is on a competitive basis with emphasis on the proven adult learner with clinical experience in primary care nursing, or, if selected for the “pilot” group, clinical experience in a health care profession.

- Current licensure in nursing, or, to be a member of the “pilot” group, professional licensure, registration, or certification in one’s clinical field.
- RN with a minimum of 3 years of clinical experience, or, if a member of the “pilot” group, a minimum of three years clinical experience in one’s field of certification/licensure.
- BA or BS degree, preferable in a health related area.
- Previous coursework in anatomy, physiology, and pharmacology with a grade of B or better.
- Within the last 5 years, a 200-level or higher science course such as genetics, microbiology, pharmacology, physiology, pathophysiology, anatomy, biochemistry.
- GPA of 2.75 or higher in undergraduate work, or more recent transcripts showing improvement (If GPA is lower, an applicant may be accepted, but would be accepted on a Provisional Status in the Graduate School for the first two semesters.)
- A proven record of continuing education in areas appropriate to the applicant’s field.
- Current BLS certification. ACLS certification must be in place prior to the ER experience in Primary Care II Clinical.
- Completion of a successful interview.
- Reference letters, written personal statement and other personal qualifications are also considered prior to final acceptance.
- An arrangement with a licensed physician (MD or DO) whose practice is in Family Medicine, General Internal Medicine or Internal Medicine/Pediatrics, preferably in a rural and/or with an underserved population, who is willing to serve as the primary clinical preceptor to the student during the clinical portion of the program.

Degree Requirements

Master of Physician Assistant Studies

Students seeking the Master of Physician Assistant Studies degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Physician Assistant Program.

Non-Thesis Option (Scholarly Project):

1. Thirty-two (32) credits including the number of credits required for the major.
2. Successful completion of all courses in core curriculum.
3. A minimum of two credits of Independent Study/Scholarly Project.
4. Preparation of a written independent study/scholarly project approved by the academic advisor.
5. Written comprehensive final examination if required by department.

Required Courses:

PA 500 ...... Introduction to the PA Role .................................................. 1 credits
PA 505 ...... Anatomy and Medical Terminology I .................................. 3 credits
PA 506 ...... Anatomy and Medical Terminology II ................................. 2 credits
PA 510 ...... Pathophysiology I ................................................................. 3 credits
500. Introduction to the PA Role. 1 credit. Prerequisite: Enrolled in Physician Assistant Program. This on-line course introduces the student to the profession. It reviews the history of the profession, the history of the UND PA Program, the ethical implications of being a graduate student, and the challenges to be faced in role transition. It introduces the student to the different techniques of interviewing including interviewing of different age groups or ethnic or cultural backgrounds for the purpose of obtaining information on the patient’s medical history.

505. Anatomy and Medical Terminology, Part I. 3 credits. Prerequisite: Enrollment in the Physician Assistant Program. Following completion of PA 505, an extensive clinical rotation of twelve weeks supervised by a physician is required to assist students in the synthesis and application of theoretical and scientific concepts in the care of patients in primary care, including outpatient, in-patient, surgery, and emergency room settings.

506. Primary Care III. 8 credits. Prerequisite: Enrollment in the Physician Assistant Program. This four-week, on-campus didactic course uses the problem solving process to instruct students in the diagnosis and management of acute and emergent and chronic conditions seen in the child, adolescent, adult and elderly in the primary care setting. Emphasis is placed on the analysis of a symptom and the process of developing a diagnosis. Components of medical interviewing and documentation are continued adapting to a variety of patient situations. The most common condition seen in primary care is taught in a system-based approach. Content areas include: quality care, nutrition, behavioral science and genetics are also covered. The pharmacology portion emphasizes pharmacological preparations (organized by systems) used in acute emergent and chronic conditions through teaching the principles of rational drug therapy: selection (generic vs. brand name drugs), initiation, and monitoring, with current information regarding efficacy, toxicity, and the cost of pharmaceuticals. Skills labs in suturing, casting and splinting, IV/injections and sterile technique are completed.

551. Primary Care II Clinical. 6 credits. Prerequisite: Enrolled in the Physician Assistant Program. Following completion of PA 550, an extensive clinical rotation of twelve weeks supervised by a physician is required to assist students in the synthesis and application of theoretical and scientific concepts in the care of patients in primary care, including outpatient, in-patient, surgery, and emergency room settings.

560. Primary Care III Clinical. 4 credits. Prerequisite: Enrollment in the Physician Assistant Program. Following completion of PA 560, a week eight clinical practicum supervised by a physician is required to assist students in the synthesis and application of theoretical and scientific concepts as it relates to patients in primary care, including outpatient, hospital, rehab, palliative and long term care settings.

565. PA Role. 3 credits. Prerequisites: Enrolled in the Physician Assistant Program. This online course introduces the student to a medical role definition in varied sectors of the health care industry. It introduces the PA student to: the U.S. health care system; the PA organizations on both the state and national level; the role of the PA in rural and underserved primary care settings; credentialing; licensure; professional liability; malpractice insurance and other legal/ethical issues. It also prepares the student for transition from PA-S to PA-C; practice preparation; role expectations; national certification and recertification; licensure; the impaired professional; leadership within the profession; and the life-long learner. Through clinical testing, it verifies and validates the student’s skills in history taking, physical exams, and treatment protocols. Through comprehensive written testing prior to graduation, it verifies and validates the student’s knowledge base in preparation for national board certification.

580. Specialty Clerkship. 1-8 credits. Prerequisite: Enrollment in the Physician Assistant Program. Specialty clerkships, each of varying lengths, are determined by the faculty adviser and student in discussion with the clinical preceptor, that are necessary to fulfill the program requirements for types of patients, patient settings, and age groupings and/or to strengthen the student’s understanding of the development of referral patterns between primary care practitioners and specialists. One credit of PA 585 may be substituted for one of the required 6 credits.

585. Current Trends and Issues. 2 credits. Prerequisite: Enrollment in the Physician Assistant Program. This online course covers the following areas: Ethical Issues; Complementary and Alternative Medicine; and Practice Management.

995. Scholarly Project. 2 credits. Prerequisite: Enrollment in the Physician Assistant Program. The scholarly project requires the student to investigate a topic related to an area of interest within primary care and/or the PA profession. Before initiating the project, the student must obtain approval from designated faculty.

Course Selections

588. International Clerkship. 1-4 credits, repeatable to 12. Prerequisite: Approval of the Director of the Physician Assistant Program. This course offers students clinical time in another country to become acquainted with problems in: health care delivery, mother and childcare, malnutrition, basic sanitation and preventative health care measures. One credit of PA 588 may be substituted for one of the credits required in PA 580. Offered on demand.

589. Reading in Physician Assistant Studies. 1-3 credits, repeatable to 12. Prerequisite: Enrollment in the Physician Assistant Program. Interested students are responsible for obtaining consent from a selected faculty member prior to beginning the course work. Collaboration with the clinical preceptor and faculty adviser is required. The method(s) of evaluation are determined. Offered on demand.

599. Special Topics in Physician Assistant Studies. 1-3 credits, repeatable to 12. Prerequisite: Enrollment in the Physician Assistant Program. Clinically relevant lecture discussions, and/or clinical experiences that are varied and dictated by student and faculty interest. Offered on demand.

990. Continuing Enrollment/Physician assistant Studies. Credit arranged. Prerequisite: Approval of the Director of the Physician Assistant Program. This course provides additional time, if needed to complete required components of the Masters in Physician Assistant Studies. Offered on demand.
Physics

http://www.physics.und.edu

FACULTY: Barkhouse, Dewar (Chair), Kim, Lykken, Marasinghe (Graduate Director), Oncel, Schwalm and Young

DEGREES GRANTED: Master of Science and Doctor of Philosophy

PROGRAM DESCRIPTION

The Department of Physics offers graduate programs leading to the Master of Science and Doctor of Philosophy degrees. Current research in the department emphasizes solid-state physics, materials science, astrophysics, and health physics. Departmental facilities permit both theoretical and experimental research investigations.

MASTER OF SCIENCE

Mission Statement and Program Goals

The primary functions of the Physics Department are teaching, research and service. In accordance with the mission of the University, the department provides courses for physics majors and minors, and service courses to students in other programs in the College of Arts & Sciences and other units of the University.

Goal 1: Students will acquire competency in graduate level physics including mechanics, electromagnetism, quantum mechanics, and theoretical methods.

Goal 2: Students will acquire in-depth exposure to research.

Goal 3: Students will acquire skills in oral presentations and acquire experience in writing research papers.

Goal 4: Students will develop analytical skills needed as a professional physicist.

Admission Requirements

1. A four-year bachelor’s degree from a recognized college or university.
2. A cumulative Grade Point Average (GPA) of at least 2.75 for all undergraduate work (2.5 for M. Engr.) or a GPA of at least 3.0 for the junior and senior year of undergraduate work (based on A=4.00).
3. Completed a minimum of 21 semester credits of undergraduate physics, plus mathematics through differential equations or the equivalent.
4. Coursework should include intermediate courses in mechanics, electricity and magnetism, optics, thermal physics, and modern quantum physics. Adequate preparation on general chemistry also is necessary.
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
6. A student who has received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit a TOEFL score.
7. An applicant without satisfactory undergraduate training may be admitted to the program, but will be required to remove deficiencies by completing the necessary undergraduate courses without receiving graduate credit for them.
8. Ph.D. applicants are encouraged to submit the Graduate Record Examination scores for the general test and advanced physics test.

DOCTOR OF PHILOSOPHY

Student Learning Goals

Goal 1: Students will acquire competency in graduate level physics including mechanics, electromagnetism, quantum mechanics, statistical physics, and theoretical methods.

Goal 2: Students will acquire skills to carry out programs of independent research at a research laboratory or as a university faculty member.

Goal 3: Students will acquire skills in oral presentations and acquire experience in writing research papers.

Goal 4: Students will develop analytical skills needed as a professional physicist.

Admission Requirements

Applicants who are seeking admission to Graduate School must meet all of the minimum general graduate school admission requirements identified in the Graduate School Catalog. In addition, prospective students must fulfill the requirements for admission to the graduate program in Physics.

1. Successful completion of a master’s degree (Some programs permit bypassing the master’s degree and allow for direct admission to the Ph.D. degree. Check specific department requirements for admission.)
2. An overall GPA of 3.0 for all graduate work.
3. Completed all undergraduate preparation.
4. Presentation of scores on the GRE General Test and advanced physics test is recommended.
5. Be recommended for doctoral work by the department.
**Degree Requirements**

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Physics Department.

The degree is a research degree and is conferred only in recognition of high achievement in independent scientific research and scholarship.

1. Completion of 90 semester credits beyond the baccalaureate degree.
2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate.
3. With approval of a student’s Faculty Advisory Committee, up to one-half of the work beyond a master’s degree (maximum of 30 semester credit hours) may be transferred from another institution that offers post-master’s degrees in the discipline.
4. In addition to Physics 590, Research, the coursework will amount to approximately 36 hours.
5. Completion of a regular core of courses which includes:
   - PHYS 509 and 510, Methods of Theoretical Physics
   - PHYS 539 and 540, Quantum Mechanics
   - PHYS 541 and 542, Theory of Electricity and Magnetism
   - PHYS 543, Statistical Physics
   - PHYS 545, Analytical Mechanics
   - PHYS 549, Seminar
6. Completion of several specialized graduate level courses in physics in order to obtain the in-depth training essential for the development of their research interest.
7. Completion of at least nine semester hours of graduate work, (400 level or above) in a single related field.
8. After successful completion of the first two semesters of coursework, students who entered the program with a bachelor’s degree will take a written qualifying examination, which covers undergraduate and first-year graduate level courses. Students with a master’s degree will take this examination in the second semester of enrollment.
9. A student who fails to perform satisfactorily in this examination may be re-examined after waiting one semester. In general, no student will be allowed to take the qualifying examination more than twice.
10. No student may proceed formally toward the Ph.D. degree until this examination has been passed.
11. Written doctoral comprehensive examination in physics will normally be taken in the fifth semester of graduate enrollment. This must be completed before advancement to candidacy is granted.
12. Candidates for the Ph.D. must complete a research investigation. Upon satisfactory completion of the research investigation, the student is required to prepare a dissertation covering the research.

At the final oral examination, the candidate presents and defends the dissertation.

**Courses (Phys)**

509. Methods of Theoretical Physics. 3 credits. 3 hours per week. An introduction to the mathematical methods currently used in physics.

510. Methods of Theoretical Physics. 3 credits. 3 hours per week. A continuation of Physics 509.

535. Solid State Physics. 3 credits. 3 hours per week. The crystal lattice, electron theory of metals and semiconductors, and transport phenomena in solids.

536. Solid State Physics. 3 credits. 3 hours per week. Lattice vibrations, phonon-electron interactions, and cooperative phenomena in solids.

539. Quantum Mechanics. 3 credits. 3 hours per week. The Schroedinger equation, perturbation methods, and simple quantum mechanical systems.

540. Quantum Mechanics. 3 credits. 3 hours per week. Matrix methods, spin, and scattering phenomena.

541. Theory of Electricity and Magnetism. 3 credits. 3 hours per week. Electrostatics, magnetostatics, electromagnetic waves.

542. Theory of Electricity and Magnetism. 3 credits. 3 hours per week. Special theory of relativity, scattering of charged particles, and radiation.

543. Statistical Physics. 3 credits. 3 hours per week. The Maxwell-Boltzmann, Bose-Einstein, and Fermi-Dirac statistics, and their application to the description of physical systems.

545. Analytical Mechanics. 3 credits. 3 hours per week. Variational methods. Lagrange’s equations, oscillations, Hamilton equations, and special relativity.

549. Seminar. 1 credit. Repeatable to a maximum of 3 credits

550. Special Topics. 1 to 3 credits. Prerequisite: Consent of department. Investigation of special topics in advanced physics; the subject matter determined by student-faculty interest. May be repeated to a total of 6 credits.

590. Research. Credit arranged

998. Thesis. 1-9 credits, minimum 4 credits for thesis option.

402. Computers in Physics. 3 credits.

428. Advanced Physics Laboratory. 2 credits.

431. Introductory Quantum Physics. 3 credits.

432. Quantum Mechanics II. 3 credits.

434. Nuclear Physics. 3 credits.

437. Introductory Solid State Physics. 3 credits.

460. Introduction to Astrophysics. 3 credits.

461. Introduction to Astrophysics II. 3 credits.

492. Special Problems. 1 to 3 credits.

**Psychology**

http://www.und.edu/dept/psych/

**FACULTY:** Antes, Bradley, Derenne, Ferraro (Experimental Program Director), Grabe, Holm, King (Clinical Program Director), McDonald (INPSYDE Director), Miller, Peters (Forensic Director), Petros, Plumm, Ruthig, Terrance, Weatherly (Chair) and Wise

**DEGREES GRANTED:** Master of Arts and Doctor of Philosophy

**PROGRAM DESCRIPTION**

The master’s degree (MA) in Psychology is given only in General Psychology. The Ph.D. degree is given upon further specialization in the areas of General/Experimental or Clinical Psychology. The Clinical Psychology program is accredited by the American Psychological Association. The department also awards Masters of Science and Masters of Arts (MS/MA) in Forensic Psychology.

**MASTER OF ARTS**

**Admission Requirements**

1. A four-year bachelor’s degree from a recognized college or university.
2. Eighteen (18) hours of undergraduate work in psychology including a course in General Psychology, Developmental, Abnormal, Statistics, and Experimental Psychology.
3. A cumulative Grade Point Average (GPA) of at least 3.0 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A= 4.00).
4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IETLS scores of 6.5.
*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

5. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

6. A year of biological science (biology, physiology, etc.).

7. A semester of college algebra.

8. General background in other social and natural sciences also recommended.

9. Graduate Record Examination—Verbal, Quantitative, Analytic Writing and Subject.

Degree Requirements

Students seeking the Master of Arts degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Psychology Department.

The Psychology Department does not admit students who wish to earn only a Master of Arts degree in general psychology without continuation on to the Ph.D. degree in either clinical or general-experimental psychology. Students enrolled in the Ph.D. program in clinical or general-experimental psychology will be awarded a Master of Arts degree in general psychology upon completion of the following requirements:

1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.

2. A maximum of eight credit hours required for the degree may be transferred from another institution.

3. Completion of “Scholarly Tool” coursework to develop skills in research design including:
   - PSYC 541 - 3 cr
   - PSYC 542 - 3 cr
   - PSYC 543 - 3 cr

4. Completion of an empirical thesis (PSYC 998, 6 credits)

5. Completion of a minimum of 15 elective PSYC course credits at the 500-level or above which are approved by the respective advisory committee and documented in the Program of Study. Fifteen credits must be completed on campus through UND.

DOCTOR OF PHILOSOPHY

MISSION STATEMENT

CLINICAL PH.D. PROGRAM

Mission Statement and Program Goals

The mission of the Ph.D. program in clinical psychology is to train scientist-practitioners. The scientist-practitioner model of education and training in psychology is an integrative approach to science and practice wherein each must continually inform the other. This model represents more than a summation of both parts. Scientist-practitioner psychologists embody a research orientation in their practice and practice relevance in their research. Thus, a scientist-practitioner is not defined by a job title or a role, but rather by an integrated approach to both science and practice. The model entails development of interlocking skills to foster a career-long process of psychological investigation, assessment, and intervention.

Goal 1: The clinical program will recruit qualified and capable students who are committed and prepared to complete program requirements in a timely manner.

Goal 2: Graduates of our program will demonstrate a base of knowledge regarding the field of psychology, which extends beyond specialized clinical areas.

Goal 3: Graduates of our program will demonstrate an ability to design, conduct, analyze, and disseminate research that advances knowledge regarding the practice of clinical psychology.

Goal 4: Graduates of our program will demonstrate knowledge in psychopathology and competency in the delivery of a wide range of clinical assessment and psychotherapy services that are theory based and empirically-supported.

Goal 5: Graduates of our program will display ethical and professional conduct with sensitivity to the importance of cultural diversity and individual differences in understanding human psychological functioning.

Admission Requirements

1. A four-year bachelor’s degree from a recognized college or university.

2. Eighteen (18) hours of undergraduate work in psychology including a course in General Psychology, Developmental, Abnormal, Statistics, and Experimental Psychology.

3. A cumulative Grade Point Average (GPA) of at least 3.2 for all undergraduate work.

4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

   *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

5. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

6. A year of biological science (biology, physiology, etc.).

7. A semester of college algebra.

8. General background in other social and natural sciences also recommended.

9. Graduate Record Examination—30th percentile or higher for both (Verbal, Quantitative), 2.5 or higher (Analytic Writing) and Subject.

Degree Requirements

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Psychology Department.

1. Minimum of 60 credit hours beyond 30 credits from M.A. degree work is required for the Ph.D. (minimum of 90 credit hours total).

2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.

3. Completion of “Scholarly Tool” coursework to develop skills in research design including:
   - PSYC 541 - 3 cr
   - PSYC 542 - 3 cr
   - PSYC 543 - 3 cr

4. Completion of an empirical dissertation;

5. Graduate students in the clinical psychology Ph.D. program are required to meet a number of eligibility criteria to take comprehensive exams and establish candidacy for the Ph.D. degree. An assessment will be conducted after the student successfully completes all of the requirements for...
the Master of Arts degree in general psychology. To remain in the Ph.D. program and proceed on to comprehensive exams, practicum assignments, dissertation research, and remaining coursework, the student must have:
  a. earned a cumulative graduate grade point average of at least 3.5;
  b. completed his or her M.A. degree within three years of enrollment;
  c. gained the approval of a majority of the core and associated faculty of the clinical psychology doctoral program.
Students failing to meet one or more of these requirements will be terminated from the Ph.D. program in clinical psychology.

6. Completion of the comprehensive examination for the Ph.D. in Clinical Psychology.

7. Completion of the following for the Ph.D. in Clinical Psychology:
   a. One calendar year of full-time internship (usually during the fifth year).
   b. Practicum experience which includes:
      - PSYC 580 - 8 cr
      - PSYC 587 - 13 cr
   c. Clinical coursework:
      - PSYC 570 - 4 cr
      - PSYC 571 - 4 cr
      - PSYC 573 - 3 cr
      - PSYC 574 - 3 cr
      - PSYC 575 - 3 cr
      - PSYC 579 - 3 cr
      - PSYC 594 - 1-3 cr
   d. Foundation coursework in:
      - History of Psychology
        - PSYC 505 - History of Psychology, 3 cr
      - Social Bases of Behavior
        - PSYC 560 - Advanced Social Psychology, 3 cr
      - Biological Bases of Behavior
        - PSYC 533 - Physiological Psychology, 3 cr
        - Or
        - PSYC 539 - Psychophysiology, 3 cr
      - Cognitive/affective bases of behavior
        - PSYC 533 - Theories of Learning, 3 cr
        - Or
        - PSYC 539 - Cognitive Psychology, 3 cr
      - Developmental Basis of Behavior
        - PSYC 576 - Behavior Pathology, 3 cr
        - Or
        - PSYC 551 - Advanced Developmental Psychology, 3 cr
      - Diversity Elective
        - PSYC 521 - Diversity Psychology, 3 cr
   Total, 60-62 cr

DOCTOR OF PHILOSOPHY
GENERAL/EXPERIMENTAL

Mission Statement and Program Goals

The mission of the Ph.D. program in clinical psychology is to train scientist-practitioners. The scientist-practitioner model of education and training in psychology is an integrative approach to science and practice wherein each must continually inform the other. This model represents more than a summation of both parts. Scientist-practitioners psychologist embodies a research orientation in their practice and a practice relevance in their research. Thus, a scientist-practitioner is not defined by a job title or a role, but rather by an integrated approach to both science and practice. The model entails development of interlocking skills to foster a career-long process of psychological investigation, assessment, and intervention.

Goal 1: Students of the G/E program will demonstrate a base of knowledge regarding the field of experimental psychology, which will extend beyond specialized experimental areas.

Goal 2: Students of the G/E program will demonstrate ability to design, conduct, analyze, and report/disseminate research that advances the scientific study of psychology.

Admission Requirements
1. A four-year bachelor’s degree from a recognized college or university.
2. Eighteen (18) hours of undergraduate work in psychology including a course in General Psychology, Developmental, Abnormal, Statistics, and Experimental Psychology.
3. A cumulative Grade Point Average (GPA) of at least 3.20 for all undergraduate work.
4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
5. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL
6. A year of biological science (biology, physiology, etc.).
7. A semester of college algebra.
8. General background in other social and natural sciences also recommended.
9. Graduate Record Examination—30th percentile or higher on both (Verbal, Quantitative), 2.5 or higher (Analytic Writing and Subject).

Degree Requirements

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Psychology Department.
1. Minimum of 60 credit hours beyond 30 credits from M.A. degree work is required for the Ph.D. (minimum of 90 credit hours total).
2. Maintenance of at least a 3.0 GPA for all classes completed as a graduate student.
3. Completion of “Scholarly Tool” coursework to develop skills in research design including:
   - PSYC 541 - 3 cr
   - PSYC 542 - 3 cr
   - PSYC 543 - 3 cr
5. Graduate students in the general-experimental psychology Ph.D. program are required to meet a number of eligibility
criteria to take comprehensive exams and establish candidacy for the Ph.D. degree. An assessment will be conducted after the student successfully completes all of the requirements for the Master of Arts degree in general psychology. To remain in the Ph.D. program and proceed on to comprehensive exams, dissertation research, and remaining coursework, the student must have:

a. earned a cumulative graduate grade point average of at least 3.5;

b. completed his or her M.A. degree within three years of enrollment;

c. gained the approval of a majority of the core and associated faculty of the clinical psychology doctoral program.

Students failing to meet one or more of these requirements will be terminated from the Ph.D. program in general-experimental psychology.

6. Completion of the comprehensive examination for the Ph.D. in Experimental Psychology.

Minor in Psychology

Graduate students taking major work in other departments and graduate minor work in psychology for a master’s degree should have the equivalent of an undergraduate minor in psychology with the following specific courses: Introduction to Psychology, Developmental Psychology, Abnormal Psychology (or the equivalent). Any of the psychology courses, which carry graduate credit, are acceptable for the graduate minor.

Graduate students taking major work in another department and minor work in psychology for a doctoral degree, in addition to having the undergraduate preparation noted in the paragraph above, must also have completed a course in statistics and an undergraduate laboratory course in Experimental Psychology. No specific courses are required for the graduate minor except that all credits for the minor must be 500-level credits.

Courses (Psyc)

501. Psychological Foundations of Education. 3 credits. Prerequisite: Graduate standing in Psychology or Education. A study of the learning process with secondary emphasis on how the learning process is affected by individual differences, growth, development, and personality.

505. History of Psychology. 3 credits. Prerequisite: Graduate standing in Counseling or Psychology. Historical development of modern psychology with an emphasis on experimental and systematic phases of early psychological thought, on important issues during the growth of psychology, and on current trends.

521. Diversity Psychology. 3 credits. The purpose of this course is to provide students with an advanced consideration of the major issues in the study of diversity as it applies to the field of psychology.

533. Theories of Learning. 3 credits. Prerequisite: Graduate standing in Psychology or Counseling or consent of instructor. Examination of the evidences in support of the various systematic theories of learning.

535. Physiological Psychology. 3 credits. Physiological basis of psychological functions.

537. Psychophysiology. 3 credits. Prerequisites: Graduate status in psychology. Examination of the anatomy and physiology of several physiologic systems, the relationships between behavior and physiology, and the importance of individual differences in physiological responses.

539. Cognitive Psychology. 3 credits. Prerequisite: Graduate status in psychology or permission of instructor. An in-depth analysis and discussion (including laboratory work) of topics covering issues related to memory, attention, problem solving, comprehension, and thinking.

541. Advanced Univariate Statistics. 3 credits. Prerequisite: Graduate standing, college algebra, and elementary statistics. Theory of univariate statistics; application to quantitative data in psychology.

542. Multivariate Statistics for Psychology. 3 credits. Prerequisites: Graduate standing and Psychology 541. The appropriate use and interpretation of multivariate data analytic techniques in psychology.

543. Experimental Design. 3 credits. Prerequisite: Psychology 541 or consent of instructor. Application of statistics and probability theory to the design and analysis of experiments.

551. Advanced Developmental Psychology. 3 credits. Prerequisites: Graduate status in Psychology or permission of instructor. In-depth analysis and integration of theories and theorists relevant for current issues in lifespan developmental psychology.

560. Advanced Social Psychology. 3 credits. Prerequisites: Graduate status in Psychology. In-depth examination of the theoretical and empirical literature in social psychology focusing on attitudes, stereotyping and prejudice, interpersonal relationships, social cognition, personality and the self, and group behavior. Also includes additional course readings and written work beyond the requirements for Psychology 460.

565. Multicultural Psychology. 3 credits. Prerequisites: Graduate status in psychology. Examinations of cross-cultural work in psychology with attention to race, ethnicity, and culture. Special emphasis is given to research, training, and treatment issues with minority groups, including the American Indian and other cultural groups.

570. Clinical Assessment I: Basic Issues in Clinical Assessment. 4 credits. One-hour lecture, four-hour laboratory. Prerequisites: Clinical psychology graduate status or consent of instructor. Provides the conceptual and practical frameworks upon which to build expertise in the assessment and prediction of human behavior in relation to intellectual indices and interviewing skills. Serves as a graduate foundation to explore, analyze, and discuss basic and applied issues relevant to psychological testing, the administration and interpretation of widely-used intellectual assessment instruments, and the opportunity to develop structured clinical interviewing techniques.

571. Clinical Assessment II. Advanced Issues in Clinical Assessment. 4 credits. Prerequisites: Psychology 570, and/or consent of instructor. Provides the conceptual and practical framework from which to build expertise in the assessment and prediction of human behavior in relation to personality assessment, behavioral assessment, neuropsychological assessment, and the assessment of high incidence behavioral disorders. Skills in report writing and case conference presentation will also be developed.

572. Community Psychology. 3 credits. Prerequisites: Psychology 571, 573, and graduate standing in Psychology. Theories and practice in community mental health consultation. Credits in 587 may be earned in conjunction with this course.

573. Theories of Psychotherapy. 3 credits. Prerequisites or corequisites: Psychology 371 and/or consent of instructor. Theory and practice in individual psychotherapy, with emphasis on systematic comparison of major theoretical viewpoints.

574. Advanced Therapeutic Interventions. 3 credits. Prerequisites: Psychology 573 or permission of instructor. An in-depth study of the key issues of psychotherapy research with a focus on critical evaluation of the psychotherapy research literature and the development of knowledge of empirically supported approaches to psychotherapy with specific problems.

575. Behavior Pathology. 3 credits. Prerequisites: Psychology 270 and consent of instructor. A survey of the various forms of behavior pathology with emphasis upon current research and theories relating to pathology.

576. Child Psychopathology and Treatment. 3 credits. Prerequisites: Psychology 570 and 573 or instructor permission. An overview of child and developmental psychopathology including discussion of pertinent treatments for disorders such as conduct disorders, attention-deficit, substance abuse, and developmental disabilities.

579. Professional Issues and Ethics in Psychology. 3 credits. Prerequisites: Graduate standing in Psychology or consent of instructor. An exploration of ethical issues pertinent to the science and practice of psychology and discussion of current professional issues facing psychology.

580. Clinical Practice. 1 to 3 credits. Prerequisites: Psychology 571, graduate standing in Psychology, and consent of instructor. Supervised individual practice in techniques of individual psychotherapy, marital therapy, counseling, and guidance of parents and children, administration of psychological examinations, behavior modification, community mental health procedures, consultation, and other professional practices of the clinical psychologist. May be repeated to fifteen credits. S/U grading only.

587. Supervised Field Work. 1 to 3 credits. May be repeated. Prerequisites: graduate standing in Psychology and consent of instructor. Used primarily for individualized field placement so that the student may acquire practicum experiences in clinical settings, community psychology, and group methods. S/U grading only.

593. Readings in Psychology. 1 to 3 credits. Prerequisites: advanced standing in psychology and consent of instructor. May be repeated.

594. Special Topics in Psychology. 1 to 3 credits. Prerequisite: consent of instructor. Topics courses in Psychology organized on a semester-by-semester basis.

595. Seminar in Psychology. 1 to 3 credits. Prerequisite: consent of instructor.

596. Individual Research. Credits to be arranged.

988. Thesis. 1-9 credits, minimum of 4 credits for thesis option.

Public Administration

http://business.und.edu/dept/pols/

FACULTY: Harsell, Hultquist, Jendrysik (Chair), Jensen (Graduate Program Director), Light, Scheurer, Sum and Wood

DEGREES GRANTED: Master of Public Administration

PROGRAM DESCRIPTION

The purposes of the M.P.A. program are to prepare students for positions in the public service and the non-profit and health sectors and to increase the skills of persons already in those areas. The program achieves these purposes through a multidisciplinary curriculum which requires the students to have a basic understanding of the American political system, instructs the students on the fundamental concepts of public administration, and prepares the students to apply basic administrative principles in public management. The department offers a joint MPA/JD with the School of Law, three certificate programs, and a combined BSPA/MPA or a BA/MPA program for students who meet the admission criteria.

Admission Requirements

1. A four-year bachelor’s degree from a recognized college or university.
2. A cumulative Grade Point Average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A=4.00).
3. Graduate Record Examination (GRE) General test or, the Graduate Management Admission Test (GMAT) or the Law School Admission Test (LSAT).
4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
5. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
6. Minimum competence in public administration, administrative sciences, and methodology. This competence is normally demonstrated by at least one course in each of five fields (Political Science, Accounting, Economics, Management, and Statistics), by special exams in the fields, or by practical experience.
7. Twenty hours in the social sciences, business administration, and related fields.
8. Students who do not meet requirements, 6 and 7, will be given the opportunity to fulfill them.

Degree Requirements

Students seeking the Master degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Master of Public Administration Program.
advisor, who will certify completion of the report to the Graduate School by the deadline specified in the Academic Calendar and submit a grade for 997-Independent Study to the Office of the Registrar.

**Candidacy for the Degree**

Admission of a student to the Graduate School as a degree student in Approved Status implies only that the student has met minimum entrance requirements and will be permitted to take graduate courses, which normally may be expected to lead to a degree. The student has not been admitted as a candidate for a degree. Advancement to candidacy can be granted only after the student has met certain academic requirements in approximately the following sequence:

1. Completion of 12 semester credits.
2. A GPA of at least 3.00 for all work attempted.
3. The appointment of an advisor. The advisor, who must be a member of the Graduate Faculty, will be appointed by the Dean upon the written recommendation of the M.P.A. program director. The advisor is responsible to the department and the Graduate School for the supervision of the student’s work.
4. Approval of a Program of Study on a form available from the Graduate School. The program, which should be developed in consultation with the advisor normally early in the second semester, must carry the signature of the student, the advisor, and the program director and must be submitted to the Dean of the Graduate School for approval.
5. Approval of a topic for the independent study by having the advisor sign the Proposal of Independent Study and submitting the Proposal and three copies to the Graduate School.

The student and the advisor will be notified in writing of the advancement to candidacy. Students must complete all requirements for advancement to candidacy prior to the semester in which they plan to graduate.

**Final Examinations**

Candidates must pass a written final comprehensive examination, which must cover the coursework included in the program of study. The results will be certified to the Graduate School by the advisor and the program director on the form Final Report on Candidate by the deadline specified in the Academic Calendar. The appropriate comprehensive examination(s) required for the degree will be arranged for by the advisor and given and evaluated by the department no earlier than the semester preceding the semester in which the candidate intends to graduate. Comprehensive examinations which are failed may be repeated only with the approval of the advisor, the program director, and the dean, but in no event earlier than at the next regularly scheduled offering.

**JOINT MPA/JD PROGRAM**

**Admission Requirements**

1. Students are required to apply to both the Law School and the Graduate School and indicate that they wish to be admitted to the joint MPA/JD track. This admission will be determined by the Director of the M.P.A. Program and the Dean of the Law School or their designees.
2. Acceptance to the joint program track requires a minimum overall undergraduate GPA of 3.00 or a GPA of 3.25 in the last two academic years.

**Sample Curricular Plan**

**Year One—Law School**

**Year Two—Law School w/two MPA courses**

**Year Three—Law School w/two MPA courses**

**Year Four—Six MPA courses + Independent Study**

or

**Year One—Seven MPA courses**

**Year Two—Law School**

**Year Three—Law School w/two MPA courses**

**Year Four—Law School w/one MPA course + Independent Study**

*2 MPA course requirements could be met with law courses as cognates.

Six credits (approved by the Law School) from the MPA Program will count toward the Law Degree. Six of the 32 required credits in the MPA program can be law courses used as a cognate for the MPA degree (with the approval of the department and the Dean of the Graduate School).

The total credits required for each degree will be unchanged, because each program will accept six credits toward the other degree. This will save the student one semester (12 credits) and make the program more appealing.

Normally, the joint program will be completed in only four years. With summer school classes it may be possible to obtain both degrees even more quickly. Students must be enrolled in the Law School for at least three years; therefore, students wishing to receive both degrees in less than four years should enroll first in the Law School.

Below is a list of Law School courses, which can be used as cognates in the MPA program, and MPA courses, which can be used as electives in the JD program.

**Joint MPA/JD Complementary Courses**

**Law**

LAW 150 Constitutional Law I
LAW 152 Constitutional Law II
LAW 201 Agriculture Law
LAW 203 Employment Discrimination Law
LAW 206 Law of Politics
LAW 210 Administrative Law
LAW 263 Environmental Law
LAW 277 Land Use Planning
LAW 281 Legislation
LAW 289 State and Local Government Law
LAW 291 Poverty Law
LAW 291 Civil Rights
LAW 291 State Constitutional Law

Or other courses with the approval of the MPA Director and Graduate Dean

**Political Science and Public Administration**

POLS 308 Intergovernmental Relations
POLS 404 Urban Politics and Administration
POLS 405 Political Behavior
POLS 502 Problems in State and Local Government
POLS 508 Legislative Executive Processes
POLS 531 Public Administration
POLS 532 Public Policy
POLS 535 Public Organizations
POLS 536 Public Personnel Administration
POLS 538 Public Budgeting and Financial Management
POLS 539 Administrative Law

Or other courses with the approval of the Dean of the Law School.
5-YEAR BA IN POLITICAL SCIENCE OR BSPA IN PUBLIC ADMINISTRATION/MPA

Admission Requirements

1. 3.25 GPA overall and in major.
2. Graduate Record Examination or the Graduate Management Admission Test.
3. Completion of 90 credit hours prior to year four.
4. Minimum competence in publication administration, policy, administrative services, and methodology. This competence is normally demonstrated by at least one course in each of the five fields (Political Science, Accounting, Economics, Management, and Statistics), by special exams in the fields, or by practical experience.
5. Twenty hours in social sciences, business administration and related fields.
6. Students who do not meet requirements 4 and 5 will be given the opportunity to fulfill them.

Degree Requirements

1. A minimum of 32 semester credits (6 credits may be part of undergraduate degree program but taken for graduate credit).
2. A minimum of 23 credits in public administration and up to 9 credits in cognate fields to total 32 credits.
3. At least one-half must be at the 500-level.
4. A maximum of 8 credits may be transferred to UND from other institutions.

Certificate Programs in Public and Health Administration

Three certificate programs are also offered. Each program consists of four three-credit courses that must be taken for a grade and the GPA must be at least 3.0. These programs are open to anyone with an undergraduate degree in any area of study. The certificate programs are offered to those who do not wish to make the initial commitment to the master’s degree program but wish to update or upgrade their skills. All courses taken may be applied to a MPA if a student decides to pursue the degree.

Certificate in Health Administration

This program seeks to provide the management core needed by professionals from many academic backgrounds who have risen to positions of authority in the public and not-for-profit sector without benefit of formal management training.

Take four of the following courses:

- POLS 531 Seminar: Public Administration 3 cr
- POLS 533 Administrative Ethics in the Public Sector 3 cr
- POLS 536 Public Personnel Administration 3 cr
- POLS 538 Public Budgeting & Financial Administration 3 cr
- POLS 539 Administrative Law 3 cr

Certificate in Policy Analysis

This program seeks to provide the analytic skills needed by professionals from many academic backgrounds who are required to do or understand policy analysis and program planning in the public and not-for-profit sector. Even managers who do not do research themselves must understand the work of others if they are to make informed decisions based on the information provided in research reports.

Take four of the following courses:

- POLS 500 Research Methods 3 cr
- POLS 501 Political and Public Policy Analysis 3 cr
- POLS 532 Public Policy 3 cr
- POLS 502 Seminar: Problems in State & Local Government 3 cr
- POLS 508 Legislative and Executive Processes 3 cr

Courses (POLS)

500. Research Methods. 3 credits. Prerequisite: A statistics course or consent of instructor. This course will first focus on various approaches to analyzing political phenomena with the goal of developing students’ ability to think analytically and to distinguish between empirical and normative analysis. The course will then introduce techniques of empirical research including research design, measurement, data gathering, and data analysis.

501. Political and Public Policy Analysis. 3 credits. Prerequisite: Political Science 500 or consent of instructor. This course focuses on the use of empirical data both to develop empirical theory and to make policy choices. Topics to be discussed include hypothesis testing, public choice, and policy evaluation. Students will be required to complete an original research project.

502. Seminar: Problems in State and Local Governments. 3 credits. Directed in-depth inquiry into contemporary structural and policy problems of state and local governments. During the course, each student will prepare a research paper relevant to a current problem suitable for publication and distribution to an identifiable body of public officials and citizens for problem-solving purposes.

503. Government and Business. 3 Credits. This course is designed to make students aware of the interrelationship of business and government in our society and the importance of this interrelationship in an era of globalization. It introduces public and business administration students to the role of government in advancing, as well as regulating, business. Further it discusses ways that business can and does influence government decisions. It also looks at the ethical responsibilities of business and government in our society. A component of the course involves travel to Washington, D.C. to meet with political officials, e.g., the Congressional delegation; Legislative staff; government regulatory agencies, e.g., the Federal Communications Commission; government advocacy agencies, e.g., Department of Commerce; and national and international business representatives, e.g., Cargill.

508. Seminar: Legislative and Executive Processes. 3 credits. Description, analysis, and evaluation of the structures, processes, procedures, and positions of the legislative and executive offices in government.

531. Seminar: Public Administration. 3 credits. An extensive overview of Public Administration stressing the basic concepts and trends in the discipline as well as the classic scholars.

532. Public Policy. 3 credits. A discussion of the initiation, formulation, adoption, implementation, and evaluation of American public policy. Various policy areas such as agriculture, education, environment, and welfare will be analyzed.

533. Administrative Ethics in the Public Sector. 3 credits. This course examines the challenges faced by public administrators in establishing personal standards of conduct in the administrative environment. Issues such as moral versus political accountability, social justice and whistle blowing are among the topics that will be explored in this course.

535. Public Organizations. 3 credits. Description and analysis of bureaucratic organizations with particular emphasis on concepts and characteristics common to public bureaucracies.
The goal of the MSW Foundation program is to provide curriculum content that provides students with social work values, skills, and knowledge so they are prepared to complete MSW Concentration classes. The goals of the MSW Concentration program are to prepare advanced generalist practitioners who are self-critical, can differentiate practice situations and interventions, and can apply social work interventions to situations in a discriminating manner.

Social Work courses were first offered at the University of North Dakota in 1905; the Social Work program was formally established in 1939. The Council on Social Work Education (2002) states, “The purposes of social work education are to prepare competent and effective professionals, to develop social work knowledge, and to provide leadership in the development of service delivery systems. Social work education is grounded in the profession’s history, purposes, and philosophy and is based on a body of knowledge, values, and skills. Social work education enables students to integrate the knowledge, values, and skills of the social work profession for competent practice.”

The Master of Social Work program at the University of North Dakota is accredited by the Council on Social Work Education. All MSW students must complete Foundation and Advanced Generalist Concentration social work courses. Foundation courses may be completed either through a CSWE accredited Bachelor of Social Work program or the part-time Distance MSW Program. Advanced Generalist Concentration courses may be completed through the Campus Program or the part-time Distance Program. The Campus Program can be completed in three semesters, and the Distance Program can be completed in two years for students with a BSW, or as few as three years for students without a BSW.

Mission Statement and Program Goals
It is the mission of the Department of Social Work to provide education to prepare professional service providers to develop knowledge through research, and to provide service, technical assistance, and advocacy that serves the region by addressing significant human needs and injustices that exist. The Department of Social Work contains and supports programs that provide personnel, knowledge and assistance for meeting the needs of the individuals, groups, families, organizations, and communities of the region. This includes educational programs and training programs that support research and service. In this frontier area, education, service, and assistance must be delivered flexibly, and the Department of Social Work has a long-established commitment to distance education and rural and reservation communities.

The Department of Social Work has established 12 Foundation Objectives and 13 Concentration Objectives for students in the MSW degree program:

### Foundation Objectives
1. Apply critical thinking skills within the context of professional social work practice.
2. Understand the value base of the profession and its ethical standards and principles, and practice accordingly.
3. Practice without discrimination and with respect, knowledge, and skills related to clients’ age, class, color, culture, disability, ethnicity, family structure, gender, marital status, national origin, race, religion, sex, and sexual orientation.
4. Understand the forms and mechanisms of oppression and discrimination and apply strategies of advocacy and social change that advance social and economic justice.
5. Understand and interpret the history of the social work profession and its contemporary structures and issues.
6. Apply the knowledge and skills of generalist social work practice to practice with systems of all sizes.

### Social Work

The Department of Social Work offers the following degrees: a Bachelor of Science in Social Work and a Master of Social Work. The mission of the Department of Social Work at the University of North Dakota is to prepare entry-level and advanced generalist Social Workers within the region to advance practice knowledge, values and skills consistent with the highest ideals of the profession by:

- empowering vulnerable, oppressed, disadvantaged, and rural populations;
- maximizing opportunities for every individual to realize his or her highest potential; and
- promoting respect, awareness, and appreciation for culture and social justice at every level of society.

### Reading Education

(See Education: Reading Education)

### Social Work

http://www.und.edu/dept/socialwo/

**FACULTY:** Barkdull (Graduate Director), Gjesfjeld, Haga, Heitkamp (Chair), Quinn, Reeves and Schneweis (Distance MSW Program Coordinator)

**DEGREES GRANTED:** Master of Social Work

**PROGRAM DESCRIPTION**

The Department of Social Work offers the following degrees: a Bachelor of Science in Social Work and a Master of Social Work. The mission of the Department of Social Work at the University of North Dakota is to prepare entry-level and advanced generalist Social Workers within the region to advance practice knowledge, values and skills consistent with the highest ideals of the profession by:

- empowering vulnerable, oppressed, disadvantaged, and rural populations;
- maximizing opportunities for every individual to realize his or her highest potential; and
- promoting respect, awareness, and appreciation for culture and social justice at every level of society.
7. Use theoretical frameworks supported by empirical evidence to understand individual development and behavior across the life span and the interactions among individuals and between individuals and families, groups, organizations, and communities.
8. Analyze, formulate, and influence social policies.
9. Evaluate research studies, apply research findings to practice, and evaluate their own practice interventions.
10. Use communication skills differentially across client populations, colleges, and communities.
11. Use supervision and consultation appropriately as part of social work practice.
12. Function within the structure of organizations and service delivery systems and seek necessary organizational change.

**Concentration Objectives**

1. Differentially articulate and discriminatingly apply critical thinking to practice across all levels of systems.
2. Differentially identify and analyze ethical issues in practice, and apply social work values and ethical decision-making strategies in a discriminating manner.
3. Practice without discrimination and with respect, for and differential understanding of diversity related to age, class, color, culture, ability, ethnicity, family structure, gender, marital status, national origin, race, religion, sex, and sexual orientation and be able to critically examine own biases.
4. Differentially understand the forms and mechanisms of oppression and discrimination and take leadership in the application of strategies of advocacy and social change that advance social and economic justice.
5. Differentially understand practice in relation to particular contexts and issues, and use that understanding in practice with individual, families, groups, communities, and organizations.
6. Conduct practice with individuals, families, groups’ communities, and organizations, choosing, synthesizing and prescribing evidence-based interventions in a discriminating manner.
7. Articulate and apply theories and models regarding development and change of system, and critically evaluate theories using research.
8. Interpret and critique the differential impact of organizational and community policy, and take leadership in the creation and modification of social policies in practice.
9. Engage in program and practice evaluation, and in the discriminating application of research skills to the development of practice knowledge.
10. Use communication skills to lead change efforts differentially across client populations, with colleagues, and in organizations and communities.
11. Use supervision and consultation self-critically as part of practice and ongoing professional development.
12. Demonstrate leadership across various levels of social systems.
13. Engage in synthesis of knowledge learned across the curriculum and apply synthesized knowledge in various practice settings.

**Admission Requirements**

Admission requirements for the Foundation courses offered through the part-time Distance Program are:

1. Satisfactory completion of a bachelor’s degree from a regionally accredited institution.
2. At least 30 credit hours of liberal arts courses in such fields as biology, music, languages, anthropology, economics, political science, history, literature, sociology, psychology, and philosophy.
3. A course with human biology content.
4. A grade of C or higher in a statistics course prior to entering the Advanced Generalist Concentration portion of the MSW program.
5. Willingness to abide by the National Association of Social Worker’s Code of Ethics and the University of North Dakota Code of Student Conduct.
6. An undergraduate GPA of 2.75 overall or a GPA of 3.00 in the last two years of the undergraduate program.
7. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5. *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
8. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

**Admission Requirements for Advanced Standing**

Applicants for advanced standing must meet the following standards:

1. BSW from a CSWE accredited program.
2. An undergraduate GPA of 2.75 overall or a GPA of 3.00 in the last two years of the undergraduate program.
3. A course with human biology content.
4. A grade of C or higher in a statistics course.
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5. *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
6. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
7. Willingness to abide by the National Association of Social Worker’s Code of Ethics and the University of North Dakota Code of Student Conduct.
Admission Schedule

- Campus Program: Application deadline is January 15. Classes begin the following Fall Semester (August). New cohorts are admitted every year.
- Distance Program Foundation Courses: For current information, please visit the Online and Distance Education website.
- Distance Program Concentration Courses: Students who have a BSW are considered “Advanced Standing” students and only need to take the Concentration courses. Applicants must apply by November 15. For current information, please visit the Online and Distance Education website.

After the review process is complete, the Department of Social Work will continue to accept applications if the cohort is not full.

Degree Requirements

Students seeking the Master degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Social Work Department.

Degree Requirements for Students Completing Both Foundation and Concentration Courses:

1. Successful completion of 60 credit hours of courses approved by the social work faculty with at least a 3.00 grade point average. The number of electives required is dependent on whether a student selects the independent study or the thesis option.
2. Satisfactory completion of Foundation courses (24 credit hours).

Foundation Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWK 501</td>
<td>Human Behavior and the Social Environment</td>
<td>2 cr</td>
</tr>
<tr>
<td>SWK 502</td>
<td>Human Behavior and the Social Environment II</td>
<td>2 cr</td>
</tr>
<tr>
<td>SWK 503</td>
<td>Generalist Practice with Individual and Families</td>
<td>2 cr</td>
</tr>
<tr>
<td>SWK 504</td>
<td>Generalist Practice with Treatment &amp; Task Groups</td>
<td>2 cr</td>
</tr>
<tr>
<td>SWK 505</td>
<td>Generalist Practice with Communities &amp; Organizations</td>
<td>2 cr</td>
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<tr>
<td>SKW 506</td>
<td>Social Policy</td>
<td>2 cr</td>
</tr>
<tr>
<td>SKW 507</td>
<td>Research Methods/Analysis</td>
<td>2 cr</td>
</tr>
<tr>
<td>SWK 515</td>
<td>Generalist Practice Field Instruction</td>
<td>3 cr</td>
</tr>
<tr>
<td>SWK 516</td>
<td>General Practice Field Seminar</td>
<td>1 cr</td>
</tr>
<tr>
<td>SWK 517</td>
<td>General Practice Field Seminar II</td>
<td>5 cr</td>
</tr>
<tr>
<td>SWK 518</td>
<td>Field Seminar I</td>
<td>1 cr</td>
</tr>
</tbody>
</table>

3. Satisfactory completion of the Advanced Generalist Concentration courses (36 credit hours).
4. Completion of SWK 997, an independent study and comprehensive exam, or SWK 998, a thesis.
5. Completion of at least 24 semester credits at UND. Transfer credits must be obtained in a CSWE accredited program, and a maximum of 9 credits will be allowed for transfer.
6. The development of a program of study in the semester in which the full-time student first enrolls in concentration courses, or the second semester in which the part-time student enrolls in concentration courses.

Thesis Option:

1. Full-time students select a Faculty Advisory Committee by the end of the first semester of enrollment in Concentration courses. Part-time students select a Faculty Advisory Committee during the second semester of enrollment in Concentration courses.
2. A proposal must be submitted no later than the semester prior to the student’s final semester.

Non-Thesis Option:

1. Full-time students select a faculty adviser by the end of the first semester in Concentration courses. Part-time students select a faculty adviser by the second semester they are enrolled in Concentration courses.
2. A proposal must be submitted no later than the semester prior to the student’s final semester.
3. The final comprehensive examination is completed in the last semester of enrollment.

Courses

501. HBSE I. 2 credits. Prerequisite: Admission to the MSW program. Prerequisite or corequisite: SWK 507. Social work theory and research, with ecological/social systems theory as the conceptual framework. Bio-psycho-socio-cultural aspects of individual and family development.

502. HBSE II. 2 credits. Prerequisite: Admission to the MSW program. Prerequisite or corequisite: SWK 507. Social work theory and research, with ecological/social systems theory as the conceptual framework. Psycho-socio-cultural aspects of group, community, and organizational development.

503. GP with Individuals and Families. 2 credits. Prerequisite: Admission to the MSW program. Prerequisite or corequisite: SWK 501. Generalist social work practice with individuals and families, in the context of the ecological systems perspective, using the problem solving process with a strengths perspective. Evaluation of practice.

504. GP with Treatment and Task Groups. 2 credits. Prerequisites or corequisites: SWK 501, SWK 502. Generalist social work practice with treatment and task groups, in the context of ecological systems perspective, using the problem solving process with a strengths perspective. Evaluation of practice.

505. GP with Communities and Organizations. 2 credits. Prerequisite or corequisite: SWK 502. Generalist social work practice with communities and organizations, in the context of ecological systems perspective, using the problem solving process with a strengths perspective. Evaluation of practice.

506. Social Policy. 2 credits. Prerequisite: Admission to the MSW program. The history of social work and social policy. Foundation social policy analysis.
The mission of the sociology masters program is to prepare students for advanced academic training, for university teaching careers, or for professional careers that allow them to apply their advanced sociological training. Using a problem based learning format, the program will provide each cohort of students with advanced theoretical, methodological and analytical tools and skills with which to examine, explore, advance, and apply sociological knowledge to a common sociological question. Each course in the core curriculum will focus on different aspects of the common sociological question, and the output of that course will be exploration of the common sociological question from epistemological, theoretical, methodological, and analytical viewpoints.

**Mission Statement and Program Goals**

**Goal 1**: Develop a professional identity and adhere to a set of ethical standards in their professional endeavors.

**Goal 2**: Further develop their sociological imaginations through practical application. Understand how sociologists perceive, understand, and study social phenomenon.

**Goal 3**: Use sociological theories, concepts and propositions to explain or interpret sociological questions.

**Goal 4**: Describe the basic differences in the purposes and procedures of multiple method research designs including both quantitative and qualitative methods. Formulate and articulate answerable research questions and develop appropriate empirical procedures, both quantitative and qualitative, to answer them, so as to successfully conduct and report research for these.

**Goal 5**: Determine a sociological question and its associate theoretical methodological, and analytical dimensions as well as judgments concerning the merit and value of the findings examined published research (papers, reports, monographs, articles and books). Demonstrate ability to conduct sociological research, culminating in the successful completion of a Master’s thesis under the mentorship of program faculty.

**Admission Requirements**

1. A four-year bachelor’s degree from a recognized college or university.
2. A minimum of twenty semester hours of undergraduate sociology or related fields with an overall grade point average of 3.00 (A=4.0), a GPA of at least 3.25 for the last two years of undergraduate study; and 3.25 GPA in their major.
3. A minimum TOEFL score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a minimum score of 23/30 (speaking); 19/30 (Listening); 19/30 (Reading); 15/30 (Writing) for applicants whose native language is not English.
4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
5. Approved status presupposes some undergraduate training in methods of social research, statistics, sociological theory and social psychology with a minimum grade of B in each.

The mission of the sociology masters program is to prepare students for advanced academic training, for university teaching careers, or for professional careers that allow them to apply their advanced sociological training. Using a problem based learning format, the program will provide each cohort of students with advanced theoretical, methodological and analytical tools and skills with which to examine, explore, advance, and apply sociological knowledge to a common sociological question. Each course in the core curriculum will focus on different aspects of the common sociological question, and the output of that course will be exploration of the common sociological question from epistemological, theoretical, methodological, and analytical viewpoints.

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**Admission Requirements**

1. A four-year bachelor’s degree from a recognized college or university.
2. A minimum of twenty semester hours of undergraduate sociology or related fields with an overall grade point average of 3.00 (A=4.0), a GPA of at least 3.25 for the last two years of undergraduate study; and 3.25 GPA in their major.
3. A minimum TOEFL score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a minimum score of 23/30 (speaking); 19/30 (Listening); 19/30 (Reading); 15/30 (Writing) for applicants whose native language is not English.
4. Students who have received a bachelor’s degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.
5. Approved status presupposes some undergraduate training in methods of social research, statistics, sociological theory and social psychology with a minimum grade of B in each.

**Degree Requirements**

**Thesis Option**

1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.
4. The program may include just the major, the major and a minor, or the major and a cognate area. The major must include 20 credits from the major department, and a minor or cognate area must include at least nine credits.
5. Program must include a systematic treatment of the field of sociological theory plus sufficient training in research methods and statistical techniques to assure understanding and competence in their use.
6. Required Courses: (Grade of “B” or better is required for all of the following)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soc 510</td>
<td>Sociological Inquiry</td>
<td>3</td>
</tr>
<tr>
<td>Soc 511</td>
<td>Contemporary Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>Soc 520</td>
<td>Advanced Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>EFR 516</td>
<td></td>
<td>3</td>
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<tr>
<td>Soc 528</td>
<td>Seminar in Research Methods</td>
<td>2-4</td>
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<tr>
<td>Cognates</td>
<td></td>
<td>7-9</td>
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<tr>
<td>Soc 998</td>
<td>Thesis</td>
<td>4</td>
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<tr>
<td></td>
<td>Total</td>
<td>30</td>
</tr>
</tbody>
</table>

**Courses (Soc)**

500. Professional Seminar. 1 credit. Prerequisites: Admission to the graduate program in Sociology. The course is intended as an introduction to graduate studies, the university and to the opportunities in the discipline of Sociology.

510. Sociological Inquiry. 3 credits. This course focuses on the processes by which sociologists perceive, understand, and study social phenomena.

511. Contemporary Sociological Theory. 3 credits. An examination and comparison of the major current sociological theories.

520. Advanced Sociological Theory. 3 credits. Prerequisite: Sociology 511. A critical look at problems of theory development and construction, emphasizing historical social theorists.

521. Advanced Analytical Methods. 3 credits. Prerequisites: Sociology 323, 326, and 520. An in-depth examination and application of the following topics as they relate to survey research in sociology: data processing; quantification and analysis of data; analytical design; and procedures. The student will apply the various analytical methods to available data.

528. Seminar in Research Methods. 2 to 4 credits. Prerequisite: Sociology 323. An examination of special topics in the field of research methods.

537. Graduate Cooperative Education. 3 credits. Prerequisites: Program of study committee and Director of Graduate Studies approval. A practical work experience with an employer closely associated with the student’s cognate area.

538. Seminar in Social Organization. 2 to 4 credits.

558. Seminar in Social Psychology. 2 to 4 credits. Prerequisite: Sociology 361.

598. Individual Research. 1 to 4 credits. Maximum of six credits.

998. Thesis. 4 to 9 credits.

407. Political Sociology. 3 credits.

431. Organizations and Behavior. 3 credits.

435. Racial and Ethnic Relations. 3 credits.

436. Social Inequality. 3 credits.

437. Population. 3 credits.

450. Deviant Behavior. 3 to 4 credits.

492. Practicum in Sociology. 3 credits

494. Readings in Sociology. 1 to 5 credits.

**Space Studies**

http://www.space.edu/aerospace/home.php

**FACULTY:** Casler, Fevig, Gaffey, Hardersen, Rygalov, Seelan (Graduate Program Director) and Whalen (Chair)

**DEGREES GRANTED:** Master of Science

**PROGRAM DESCRIPTION**

The Department of Space Studies offers graduate studies leading to the Master of Science degree. Non-thesis and thesis options are available. The all-encompassing nature of space exploration requires people who possess broad backgrounds that link policy, business, law, science and engineering. The Department of Space Studies seeks to train this vital segment of the community through the non-thesis option. The goal is to integrate, rather than separate, traditional disciplines related to space. Specialized training is also an essential part of the space community and this is achieved through the thesis option that gives students the opportunity to specialize in an area of faculty research.

Our programs are designed to prepare students for futures in the academic, commercial, and governmental sectors of the rapidly growing field of space exploration and development.

**Facilities for Graduate Research**

The department is located on the fifth floor of the 71,500 square-foot Clifford Hall constructed in 1992 as part of the John D. Odegard School of Aerospace Sciences complex on the west end of the UND campus. Our facilities include lab space for the investigation of terrestrial rocks and meteorites, reduction and analysis of terrestrial remote sensing and planetary reflectance spectral data, research into life support technologies and human factors in space, and an astronomical observatory.

The department manages the UND Observatory complex, which is located on the campus. The Observatory currently includes three remotely-controllable optical telescopes (two 16-inch and one 10-inch aperture, respectively) and one remotely-controllable radio telescope (2.1-meter aperture). The UND Observatory is the founding member of the Space Grant Internet Telescope Network, which is a geographically-distributed network of small, Internet-controllable observatories for research and education. UND Observatory telescopes support student thesis and non-thesis astrometric, broadband photometric, and stellar spectrographic research. The site also includes secure, wireless Internet access and an EarthCam, which is used to monitor observatory activities remotely.

A SuomiNet GPS station links UND to a global network focused on geodetic and atmospheric research.

**Mission Statement and Program Goals**

The mission of the Department of Space Studies is to provide a comprehensive world-class education in the academic area of space. Key elements of this education are interdisciplinary and multidisciplinary breadth and disciplinary depth, delivered on-campus, and through innovative distance delivery methods. Our objectives focus on producing students that will become the decision and policy makers, managers, negotiators, engineers, technicians, educators and scientists of the space arena.
Admission Requirements
The requirements for admission to the Space Studies degree program are as follows:

1. Bachelor’s degree from an accredited college or university with an overall grade point average (GPA) of 2.75 or better, or a GPA of at least 3.0 for the junior and senior years of undergraduate work.
2. One semester of coursework in statistics or algebra or calculus or computer science.
3. Two semesters of coursework in the physical sciences, life sciences, or engineering.
4. Two semesters of coursework in the social sciences, history, business, or law.
5. One semester of coursework in English composition or technical writing.
6. Pre-requisite courses from 2 to 5 above must have been completed at college level, preferably with a grade of B or higher.
7. The Graduate Record Examination (GRE) General Exam if you plan on seeking funding (GRAs, tuition waivers) via the department or a faculty member. Otherwise, it is not required for admission to the MS program.
8. Submission of a written statement of interest highlighting the candidate’s interest in space studies and motivation to undertake this program.

Financial Assistance
Graduate assistantships (GTA/GRA) are available from a variety of internal and external sources. These are awarded on the basis of academic merit and students’ abilities to contribute to departmental research and teaching. Students desiring graduate assistantships must take the GRE. Students seeking assistantships are advised to apply early, preferably by February. Funding is renewable if progress toward the degree, research goals and teaching are satisfactory. Support is typically for two years on a nine-month basis. Summer funding may also be available.

Degree Requirements
All students are required to complete a minimum of 33 credits. The following plan should be used:

1. SpSt 501 and SpSt 502 (6 credits).
2. Students select either the non-thesis or thesis option and declare which social or technical area is their area of specialization. This is the area in which they do their SpSt 997 Independent Study or SpSt 998 Thesis.
3. Two (2) courses from designated social area courses outside the student’s area of specialization (6 credits).
4. Two (2) courses from designated technical area courses outside the student’s area of specialization (6 credits).
5. One credit of SpSt 590 (1 credit).
6. At least half of total credit hours must be from classes at the 500-level and above.

Non-Thesis Option:

1. SpSt 997 (2 credits).
2. Comprehensive Examination.
3. At least 4 elective courses (for distance students, the required Capstone course will count as one elective, so they only need 3).

Distance students must also complete SpSt 595, Capstone (3 credits).

Thesis Option:
1. SpSt 593 (1 to 3 credits).
2. SpSt 998 Thesis (6 credits).
3. At least 2 elective courses.

Approval of the thesis option will only be granted if a clear alignment of research interests between a faculty member and a student is demonstrated, and a faculty adviser has been identified and is available to supervise the research. Distance students who wish to complete the thesis option must satisfy the residence requirement. Interested students should consult the Graduate School or department.

Cognate/Minor
The Department of Space Studies invites students from other programs who wish to expand their program of study to include a space-related focus. Our program includes a multidisciplinary set of course offerings that integrate well with other graduate programs. Students interested in space engineering, space business, space law, space policy, space science, space life sciences, space history, or military space can be accommodated. To complete a cognate or minor at the master’s level, students must take three courses for nine semester hours of credit. Our department will work with those doctoral students whose department requires additional credits for a minor degree.

Courses (SpSt)
Check http://www.space.edu for course updates

500. Introduction to Orbital Mechanics. 3 credits. Prerequisites: SpSt 200 undergraduate, SpSt 501 graduate. This course introduces students without much background in either mathematics or physics to the problems faced everyday by orbital analysts as they track the 7000 satellites which orbit the earth. The course gives the student an ability to converse, as managers and co-workers, to those individuals who are calculating these difficult orbits. This appreciation is important in both the civilian and military sides of the space program.

501. Survey of Space Studies I. 3 credits. A broad, multidisciplinary survey of human and robotic exploration of space. The course will introduce the student to the key policy, history, military, economic, management, planetary science, life science, and engineering issues that characterize today’s space ventures. Emphasis is on building up the fundamental knowledge base that will form the basis for interdisciplinary analysis later in the program. While focus is on the U.S. space program, international space activities are prominently featured in terms of cooperation and competition for the United States. SpSt 501 is a prerequisite/co-requisite to all other 500 level courses and should be taken at the first available opportunity.

502. Survey of Space Studies II. 3 credits. Prerequisite: SpSt 501. Readings, discussion and integrative analysis of past and current issues in Space Studies. Emphasis is on a case study approach to develop an interdisciplinary understanding of space programs and initiatives. An individual project will build integrative and critical analysis skills and an appreciation for the interdisciplinary approach, while a team project will engender the interdisciplinary team work typical of the real world. Must be taken only after completing SpSt 501 and at least two other courses in the program.

505. Spacecraft Systems Engineering. 3 credits. Prerequisite: SpSt 405 or consent of instructor. This course will guide the students through the spacecraft design and proposal process for an actual mission. In this course the students will work in teams on individual spacecraft subsystems, participate in an engineering design review, and create a document which can be submitted for funding for a small satellite project. Lectures will provide an overview of the separate spacecraft subsystems involved in a typical mission, the systems engineering approach to spacecraft development, and the grant writing process. Distance students will interact with on-campus students via conferencing software.

506. Advanced Orbital Mechanics. 3 credits. Prerequisites: SpSt 500 and Math 266 or equivalent. This course provides a working knowledge of the field of orbital mechanics including the use of appropriate mathematical and computational techniques, the analysis of professional papers in orbital mechanics, and applying the appropriate techniques to solve orbital mechanics problems. Topics covered include orbital elements, perturbations, coordinate systems, orbit determination, and multi-body gravitational problems.

512. Human Performance in Extreme Environments. 3 credits. This course introduces the area of human performance in extreme environments, highlights differences and similarities between extreme environments, and demonstrates the lessons learned from one extreme environment can be effectively applied to others—though settings like space, mountains, or the ocean’s depths, etc. pose unique characteristics, the human physiological and psychological reactions and adaptations to these extreme settings stay similar.
151. Human Factors in Space. 3 credits. A review of the major stresses experi-
enced by humans in the space environment. The focus will be on the psychologi-
tical and physiological effects experienced by U.S. and Soviet crews with emphasis on longer flights. How to avoid and/or overcome these stresses will be
examined as an essential and growing need in the future development and settle-
ment of the space frontier. Key areas include launch stress, in space stress, stress on astronauts, Earth, and the space environ-
ment. Specific attention is paid to the limits of stability for closed manned cycles functioning during long-term confined missions; and the importance of
the human factor as a target link, main sensor, and main integrator and control element for the systems providing significant self-sustainability under proper motivation. Advanced scenarios for space life support based on ecological and in situ resource utilization approaches are discussed.

152. Asteroids, Meteors and Comets. 3 credits. Prerequisites: SpSt 501 or
permission of instructor. The small bodies of the solar system are clues to its origin. All
planets and larger moons have been chemically transferred, but many asteroids, meteor-
ites and comets are apparently little modified from the time of their origin. 4.5 billion
years ago. Each of these classes of objects is investigated separately, and relationships between them are examined.

153. The Planet Mars. 3 credits. Prerequisites: SpSt 220 and GEOL 101 and 102
or permission of instructor. This course provides an in-depth review of the present state
of our knowledge of Mars. Topics to be covered include: the origin and evolution of the planet, surface characteristics and geology, current major geophysical properties of the Martian interior, the origin and evolution of the Martian atmosphere, the present
and past climates of Mars, the Martian moons, and the possibility of past or present life on Mars. The American and Soviet/Russian Mars exploration programs are reviewed and the course incorporates the most recent results from spacecraft missions such as Mars Global Surveyor and Mars Odyssey, and upcoming missions such as Mars Express/Beagle (ESA), Mars Exploration Rovers (NASA), and Nozomi/Planet B (Japan). Potential fu-
ture missions are also discussed.

154. Remote Sensing Principles. 3 credits. This course covers the basic concepts
and foundations of remote sensing, a review of major Earth observing satellite and air-
craft platforms, and an investigation of flow of data from satellite to Earth, what it repre-
sents, and how to interpret it, using both visual and digital image processing tech-
niques. A field visit to the EROS Data Center in Sioux Falls may also be arranged.

155. Remote Sensing Applications. 3 credits. Prerequisite: SpSt 552. This course
covers the use of advanced image processing algorithms and information extraction
techniques for various Earth resource applications such as land cover/land use, envi-
ronmental change detection, geology, oceanography, agriculture, forestry, rangeland
water resources, urban planning, natural disaster management, etc.

156. Current Topics in Astrobiology. 3 credits. Prerequisites: SpSt 460 and
SpSt 501. This is a multi-disciplinary, literature-intensive examination of astrobiology,
which is the study of life in the universe. Students will read scientific research and
review papers from a variety of disciplines including astronomy, planetary science, chem-
istry, biology, and geology. Course goals include: developing proficiency at reading/
analyzing diverse scientific papers, developing the ability to incorporate knowledge from other disciplines, and research in the study of astrobiological research, and developing the ability to effectively write summary papers to show basic understanding of course ma-
terial.

157. Technical Issues in Space. 3 credits. An examination of the highly devel-
oped technological base required for the exploration and development of space. An
understanding of this technology and of its impact upon humans is essential to an apprecia-
tion of many of the issues and problem areas that are and will be associated with our
continuing efforts to explore and settle this new frontier. May be repeated if the topic is different.

158. Advanced Observational Astronomy. 3 credits. Prerequisites: SpSt 425,
501 and Math 165. This course is a follow-up to SpSt 425 and will focus on observa-
tional techniques, data reduction, and analysis of astronomical spectroscopic data. The
first half of the semester will focus on understanding low-resolution, near-infrared spec-
troscopic data as it relates to observations of atmosphere-less terrestrial objects, such as asteroids, and the identification of the major surface mineral phases that aid in under-
standing an object's geology. The structure of each asteroid will also be examined. Students will also learn about asteroids and meteorites, their laboratory spectra, and chemistry. Students will reduce and analyze asteroid data obtained from the NASA Infrared Telescope Facility (IRTF) in Hawaii. The second half of the course will study visible-wavelength stellar spectroscopic data and its applications, reduction, and analysis. The course will be reviewed as students will reduce, analyze, and interpret existing stellar data and learn how to classify stars, which is a fundamental effort to understand their basic physical properties.

159. Extraterrestrial Resources. 3 credits. Prerequisite or corequisite: SpSt 220
and SpSt 501 or SpSt 560 or permission of instructor. This course covers the exis-
tory, accessibility, acquisition, processing and utilization of extraterrestrial resources
to celestial bodies such as the Moon, Mars, asteroids and comets. Consideration will be
given to extraterrestrial resources for in situ utilization (such as a Lunar or Martian base), for space operations (such as supporting large scale near Earth
city activity in a Space Station mission), and for terrestrial markets. The course will focus on
the interplay between the scientific, technical, and economic aspects of acquiring and utilizing the new and alien resource. The course also explores the legal and political ramifications and limitations of claiming and recovering space resources.

160. Space Environment and the Sun. 3 credits. Prerequisites: SpSt 501, Math
165. This course will provide an in-depth study of the science and observations of the Sun, its effect on, and interaction with the Earth, including life on Earth, and the space environ-
ment. Topics that will be covered include the solar photosphere and active surface phe-
nomena such as sunspots, flares, and coronal mass ejections; the nature of the quiet Sun; the solar interior and heliosphere; solar weather and impact of solar particles on the space environment and Earth; the hazards posed to astronauts by solar eruptions; common techniques of solar observations; and a review of the primary types of solar instrumentations and the observatories that currently study the Sun. Students will be able to observe the Sun using the UND Observatory’s small solar telescopes; all stu-
dents will have the opportunity to analyze solar datasets to aid their understanding of the Sun.

161. Introduction to Radio Astronomy. 3 credits. Prerequisites: SpSt 501, Math
165. This course will discuss the science, operation, and characteristics of both single-
and multiple-aperture radio telescopes, which will include both theoretical and practi-
cal considerations for radio astronomical research. Course topics will include antenna characteristics, signal detection and noise, the use of Fourier Transforms in radio re-
search, interferometry, aperture synthesis, and propagation of radio waves. In addition, radio science of the Sun, planets and small bodies, interstellar medium, stars, pulsars, radio galaxies, and cosmology will be reviewed in detail. Both campus and distance students will conduct H I, i.e., neutral hydrogen, solar observations with the UND Observatory’s Small Radio Telescope (SRT) and attempt to detect active solar outbursts and compare their data with other data of the Sun.

162. Space Economics and Commerce. 3 credits. Pre- or corequisite: SpSt 501. A study of the economic aspects of space activities, with analysis of the possibilities and the barriers. Key areas include launch services, satellite communications, remote sens-
ing, and the interaction with the geological, political, and economic conditions in the space competition against subsidies or government-sponsored entities is examined.

163. Management of Space Enterprises. 3 credits. Pre- or corequisite: SpSt 501. This course investigates the management of space organizations. These include organiza-
tions that are part or private, R&D and operations, profit and non-profit. You will
learn the basics of management theory, the history of systems management, and the tech-
nical issues that must be considered in the management of space R&D and operations.

164. Space and the Environment. 3 credits. Prerequisites: SpSt 501 and SpSt 430 or
SpSt 552. This course is an advanced graduate-level course on the current state of the
tories theories as applied to the international implications of global commons. The course
introduces the concept of global commons, examines the theories and practices concern-
ning management of global commons, and analyzes the global commons dealing with the
problems of collective action as applied to global environmental change and the uses of
 outer space.

165. History of the Space Age. 3 credits. This course introduces students to the
history of human endeavors in space. These include the development of rocketry, the
influence of amateur societies and science fiction, the military development of ballistic
missiles, and human and robotic spacecraft.

166. History of Astronomy and Cosmology. 3 credits. Prerequisite: SpSt 501 or
consent of instructor. This course investigates the history of human endeavors to under-
stand the stars, planets, and cosmos from a scientific perspective. It covers the early
observations and theories of the Babylonians and Greeks through the European
Scientific Revolution, and finally to the development of astrophysics and modern cos-

167. Advanced Administration of Space Technology. 3 credits. Pre- or corequisite:
SpSt 501, and SpSt 560 or 541. This course is a graduate-level course on the current state

168. Space Politics and Policy. 3 credits. Pre- or corequisite: SpSt 501 or consent of
instructor. This course serves as a graduate-level introduction to the field of Public
Policy as applied to Space Policy. The course surveys the evolution of Space Policy at
several levels of analysis including context, political actors and institutions, public
processes, and policy outcomes, and assesses the symbiotic relationship between policy,
technology, and science.

169. Public Administration of Space Technology. 3 credits. Prerequisites: SpSt
501, and SpSt 560 or 541. This course is an advanced graduate-level review of Public
Administration theories as applied to the implementation of space technology pro-
grams. In this course, the political, organizational, and technical variables that affect the
management of space technologies are examined.

170. Space and the Environment. 3 credits. Pre- or corequisite: SpSt 501 or consent of
instructor. This course serves as a graduate-level introduction to the field of Law as applied to
Space Law. The course examines the origins and evolution of the laws of outer space from the
beginnings of the space age to the present. Information from a governing access and use of
space, and national laws regulating governmental and commercial activities in
space are reviewed and analyzed.

171. Advanced Topics in Space Studies. 1 to 3 credits. Lecture, discussion and
reading materials of interest. May be repeated if the topic is different.

172. Remote Sensing in Developing Countries. 3 credits. Prerequisites: SpSt 501
or SpSt 522, or Geog 475 or permission of instructor. This course will introduce stu-
dents to remote sensing programs in developing countries and typical remote sensing
applications in developing countries such as: potable water, forest fires, vector diseases, environmental degradation, food security, forests, floods, droughts, crop pests, etc., with case studies.

University of North Dakota
575. Remote Sensing Law and Policy. 3 credits. Corequisite: SpSt 501. This course focuses on the evolving laws, policies, and institutions that have long-term ramifications for earth observations. Some topics addressed are the United Nations Principles on Remote Sensing; the United Kingdom’s 1984 National remote sensing policy; the Montreal Protocol; and, the United States Land Remote Sensing Policy Act of 1992. Ground segment institutions considered are the Landsat Ground Stations Operations Working Group and the Global Land 1-KM AVHRR Project. Remote sensing litigation that has begun to address various applications of remote sensing will also be considered. Cases include Dow vs US and EROSAT vs NASA and NOAA.

581. Field Visit to Space Centers. 1 to 3 credits, may be repeated up to a maximum of 3 credits. Prerequisites; SpSt 501 or SpSt 450, or SpSt 574 or permission of instructor. This course will provide a first-hand knowledge of selected space centers in the U.S. and/or abroad through an organized field visit. The field visit will be lead by a space studies faculty and will include prior preparation through readings, class seminars, lectures and written assignments. S/U

590. Space Studies Colloquium. 1 credit. A series of lectures presented by visiting lecturers and faculty. May be repeated for up to 2 credits. Graded as pass/fail.

593. Individual Research in Space Studies. 1 to 3 credits. Individual student projects designed to develop advanced knowledge in a specific area of expertise. A written report is required. May be repeated for up to 6 credits.

595. Space Studies Capstone. 3 credits. Prerequisites: SpSt 501 and 502. The capstone course integrates, extends and applies knowledge gained in earlier Space Studies courses and reading. The major component of this course is a collaborative team project inter-relating policy, technology and science. This course is required for distance students who select the non-thesis option and can be taken after completing at least 21 credits in the program, or with the permission of the instructor. The course begins in the fall semester and concludes with an intensive seven-day capstone experience on the UND campus in the spring.


998. Thesis. 6 credits. S/U grading only. Prerequisites: Graduate standing in Space Studies, completion and approval of a thesis proposal. An original research project approved by and completed under the supervision of a thesis committee.

405. Space Mission Design. 3 credits.

410. Life Support Systems. 3 credits.

425. Observational Astronomy. 3 credits.

430. Earth System Science. 3 credits.

435. Global Change. 3 credits.

450. International Space Programs. 3 credits.

460. Life in the Universe. 3 credits.

Course Designations
Policy area courses: 450, 540, 541, 545, 551, 552, 555, 560, 561, 565, 574, 575, 581.
Technical area courses: 405, 410, 425, 430, 435, 460, 500, 505, 506, 512, 515, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529.

570 may count towards either policy or technical area depending on the contents.

Special Education
(See Education: Special Education)

Speech-Language Pathology
(See Communication Sciences and Disorders)

Teaching and Learning
(See Education: Teaching and Learning)

Technology
http://business.und.edu/dept/technology/
FACULTY: Huang, Kenney and Yearwood (Chair and Program Director)

DEGREES GRANTED: Master of Science

Program Description
The Department of Technology offers two program options (thesis and non-thesis) leading to the Master of Science. The program for the degree is designed on an individual basis to serve students who desire to go on to college, technical institute, or secondary level teaching, administration, or to technical/managerial careers in business, government or industry.

Mission Statement and Program Goals
The purpose of the Department of Technology shall be to contribute to the mission of the University of North Dakota as an accredited professional program of study offering undergraduate and graduate degrees that:

a. Provide a diverse, comprehensive, and professional education to prepare graduates for careers in education and industry.

b. Preserve, create, demonstrate, and disseminate knowledge applicable to Electronics and Control Systems, Manufacturing, and Graphic Communication.

c. Contribute to the interdisciplinary studies within the University.

d. Advance technology transfer for economic development through educational and industrial partnerships. At present, our faculty members represent the emphasis areas of Manufacturing, Graphic Communication, Electronics and Control, Safety, and Teacher Certification.

The Master of Science in Industrial Technology (MSIT) graduate program enrolls qualified students for postgraduate education and prepares them to be advanced technical, management, or education professionals. By graduation, students should be able to:

Goal 1: Think critically and creatively.

Goal 2: Conduct research in industrial technology.

Goal 3: Prepare, present, and discuss research.

Goal 4: Discuss and apply technical management tools to solve problems.

Goal 5: Produce a body of research deemed publishable in appropriate contexts.

Admission Requirements
1. Bachelor’s degree from an accredited university or college.

2. An overall GPA of 2.75 (A=4.0) or GPA of at least 3.0 for the last two years of undergraduate study.

3. A minimum of 20 semester hours of undergraduate coursework in technology education or industrial technology or related field of study.

4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.

*Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

5. International applicants who have received their bachelor’s or master’s degree in the United States or English-speaking Canada are not required to submit the TOEFL or IELTS.

An applicant who fails to meet these admission requirements may be admitted under provisional status. Students who do not meet requirement #3 will be required to satisfactorily complete undergraduate courses to make up their deficiency before advancement to approved status.

Degree Requirements
Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by
the Graduate School as well as particular requirements set forth by the Technology Department.

A. Thesis Option:
1. A minimum of 30 credits including 9 semester credits for approved minor or cognate courses.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.

EFR 515 Statistics I ................................................................. 3 cr
Or
EFR 516 Statistics II ................................................................. 3 cr
TECH 590 Introduction to Graduate Studies ................................ 1 cr
TECH 525 Research Design in Technology ............................ 3 cr
TECH 545 Seminar in Technology ............................................. 1 cr
TECH 550 Technology Management ....................................... 3 cr
TECH 591 Readings in Technology ........................................... 1 cr
Minor/Cognate ........................................................................ 9 cr
Electives .................................................................................. 6 cr

B. Non-Thesis Option:
1. A minimum of 32 credits including 9 credits for approved minor or cognate courses.
2. At least one-half of the credits in the student’s Program of Study must be at or above the 500-level.
3. A maximum of one-fourth (usually 8-9 semester credits) of the credit hours required for the degree may be transferred from another institution.

EFR 515 Statistics I ................................................................. 3 cr
Or
EFR 516 Statistics II ................................................................. 3 cr
TECH 590 Introduction to Graduate Studies ................................ 1 cr
TECH 525 Research Design in Technology ............................ 3 cr
TECH 545 Seminar in Technology ............................................. 1 cr
TECH 550 Technology Management ....................................... 3 cr
TECH 591 Readings in Technology ........................................... 1 cr
Minor/Cognate ........................................................................ 9 cr
Electives .................................................................................. 8 cr

C. Elective courses for Thesis or Non-Thesis Options:

TECH 510 Historical Impact of Technology ............................. 3 cr
TECH 537 Graduate Cooperative Education ............................. 1-3 cr
TECH 540 Supervision and Industrial Training ......................... 3 cr
TECH 555 Lean: Ideas and Practice ......................................... 3 cr
TECH 560 Quality Planning and Analysis ................................. 3 cr
TECH 565 Product Safety and Liability .................................... 3 cr
TECH 575 Technical Problem Solving ..................................... 3 cr
TECH 590 Special Topics ......................................................... 1-4 cr
TECH 591 Readings in Technology ......................................... 1 cr

D. General:
1. Degree requirements identified by the Graduate School must be met.
2. The approved Program of Study must be completed.

Courses (TECH)

500. Introduction to Graduate Studies. 1 credit. An overview of graduate studies to provide students with information about various areas of research, resources, and related topics in industrial technology. F
510. Historical Impact of Technology. 2 credits. A study of the people, activities, inventions, innovations, inputs, processes, and outputs of the systems integral to the technological development of our industrial society and the effects on and implications for contemporary society. F/V
525. Research Design in Technology. 3 credits. An introduction to research methodologies used in technology. Theoretical and practical issues associated with qualitative and mixed methods of research will be covered, with the major focus to explore and develop research. S
537. Graduate Cooperative Education. 1 to 3 credits. A relevant field experience in government, industry, or business. Students must have their internships approved by the department.

540. Supervision and Industrial Training. 3 credits. Study and investigation of principles and techniques involved in supervision and technical training for industry and education. The application of supervisory techniques with emphasis on the analysis of industrial operations and the design, implementation, and evaluation of training programs through total quality management.
545. Seminar in Technology. 1 credit. Prerequisite: IT 525 and consent of adviser. A series of presentations on research pertaining to technology. Students will prepare, present, and discuss a professional research paper. S
550. Technology Management. 3 credits. Expectations of managerial responsibilities of the typical technology career. Strategic and systems approaches to product and process technologies. The role of changing technology in manufacturing function. F
555. Lean: Ideas and Practice. 3 credits. Introduces and discusses the concept of lean, including its past and present practice in industry and associated theories. Projects are designed to include various aspects of lean concepts.
560. Quality Planning and Analysis. 3 credits. Advances in quality planning and design, measurement, quality assurance, process control, supplier quality, and improvement concepts in business and industry. Administrative, functional and logistics aspects of statistical quality control with computer applications.
575. Technical Problem Solving. 3 credits. Research and experimentation relating to contemporary problems, issues, and application of electronics, production, or graphics techniques. S/V
590. Special Topics. 1 to 4 credits. Investigation of special topics dictated by individual student and faculty interests related to industrial technology and/or education. This course may be repeated to a total of 4 credits.
591. Readings in Technology. 1 credit. Prerequisite: consent of adviser. Examination of the professional literature in technology as part of an area of specialization or interest. F/S/SS
997. Independent Study. 2 credits.
998. Thesis. 1-4 credits.

Theatre Arts

http://www.und.edu/dept/dtheater/

FACULTY: Burgess, McLennan (Chair) and Reissig

DEGREES GRANTED: Master of Arts

PROGRAM DESCRIPTION

The Department of Theatre Arts offers graduate study leading to a Master of Arts degree. The Master of Arts program is designed to prepare students for either a Master of Fine Arts degree or a Ph.D. The program is individualized so that the student may select a special area of emphasis such as acting, directing, design and technical theatre, playwriting, dramatic literature, feminist theatre, cultural studies, or history. Coursework emphasizes both the practical and theoretical aspects of the discipline. An active production schedule provides students with opportunities in all areas.

The Master of Arts program has been designated a Western Regional Graduate Program by the Western Interstate Commission on Higher Education (WICHE) because of its uniqueness and strength. It is, therefore, open to residents of the thirteen western states at resident tuition rates.

Mission Statement and Program Goals

The mission of the Department of Theatre Arts Master of Arts program is to provide quality educational experiences approved and recognized by the National Association of Schools of Theatre to prepare students for advanced degrees, professional careers, and/or development as teachers. Graduates will demonstrate critical thinking, creative expression, and social responsibility as artists and scholars of Theatre.

Goal 1: The student shall be prepared for continuing graduate study in an MFA or Ph. D. program

Goal 2: The student shall be prepared for a career in professional theatre markets.

Goal 3: The graduate shall be prepared to apply the art and scholarship of theatre art in productions within educational and community settings.
Goal 4: The graduate will be committed to life-long learning and serve the civic good with artistic distinction.

Admission Requirements

1. A four-year bachelor’s degree from a recognized college or university.
2. Twenty-three credits of undergraduate coursework in theatre, drama, or a related discipline.
3. A cumulative Grade Point Average (GPA) of at least 2.75 for all undergraduate work or a GPA of at least 3.0 for the junior and senior years of undergraduate work (based on A= 4.00).
4. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet-based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IELTS scores of 6.5.
5. Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

Degree Requirements

Students seeking the Master of Science degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Theatre Arts Department.

1. A minimum of 30 semester credits in a major field, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.
4. Required Courses:
   - Thea 500 ... Introduction to Graduate Research ................. 2 credits
   - Thea 501 ... Seminar in Dramatic Literature .................... 6 credits
   - Thea 503 ... Dramatic Theory and Criticism I ................. 3 credits
   - Thea 504 ... Dramatic Theory and Criticism II ............... 3 credits
   - Electives ........................................................................... 6 credits
   - Thesis ................................................................................ 4 credits
5. Minimum of six credit hours in the production areas, i.e., Acting, Directing, and Design and Technical Theatre courses.
6. All students must take a written comprehensive examination before enrolling in Theatre Thesis 998. The content of the examination will be determined by the Graduate Faculty of the department and will be given at a time announced by the department. The examination shall cover the field of knowledge in Theatre Arts and coursework completed by the student.

Courses

500. Introduction to Research in Theatre Arts. 2 credits. Bibliography, research methods, academic writing, and resource materials for graduate work in Theatre Arts.
501. Seminars in Theatre Arts. 1 to 3 credits, repeatable. Seminars in Dramatic Theory, Theatre History, Dramatic Literature, Performance Theory and topics of special interest to faculty and students on the graduate level.
502. Seminar in Dramatic Production and Criticism. 3 credits. Prerequisite: consent of instructor.
503. Dramatic Theory and Criticism I. 3 credits. Historical survey of critical thinking of the drama as performance from Aristotle to late 19th century. Emphasizes differing perspectives on dramatic theory and criticism through time. F/2
525. Period and Style in Dramatic Production. 3 credits. Prerequisite: Theatre 425 or equivalent. Study of a wide variety of production styles in the staging of dramatic literature from Aeschylus to the present.
537. Graduate Co-op Education. 1-6 credits.
595. Research Problems in Theatre. 1 to 3 credits. Prerequisite: consent of instructor. Individual study under the direction of the graduate faculty.
998. Theatre Thesis. 4 credits.
309. History of the Theatre: Seventeenth Century to the Present. 3 credits.
320. Voice and Movement II. 2 credits.
321. Voice and Movement I. 2 credits.
322. Lighting for Stage II. 2 credits.
335. Production Design. 3 credits.
372. Advanced Acting II. 3 credits.
404. Acting for the Music Theatre. 3 credits.
415. Selected Problems in Theatre Arts. 1 to 3 credits.
420. Voice and Movement IV. 2 credits.
421. American Theatre History. 3 credits.
435. History of the Theatre: Classical, Medieval, and Renaissance. 3 credits.
436. History of the Theatre: Seventeenth Century to the Present. 3 credits.
425. Play Direction II. 3 credits.
426. Scene Design for the Stage. 3 credits.
427. Costume Design. 3 credits.
471. Advanced Acting Styles. 3 credits.
487. Playwriting. 3 credits.

University Courses

Courses

529. Study Abroad. 1 to 12 credits in any one semester (repeatable with permission of the student’s academic department); course required of students studying abroad to maintain full-time status; required prior approval from Graduate School; prior to registration, students will be involved in study abroad procedures inclusive of study abroad application, pre-departure orientation, credit transfer, and related study abroad processes outlined in the Study Abroad Handbook; courses to be taken during the study abroad semester must have pre-approval of the Graduate School, and grades earned will replace this marker course upon completion of credit transfer back to UND. F, S, SS
994. Professional Internship. 1 credit, repeatable up to 3. Prerequisite: Graduate standing in major department and consent of the Graduate School. Students are placed in approved sites and are engaged in full-time professional practice to acquire knowledge and skills related to their area of study. Supervision must meet criteria established by the Program and the Graduate School. May be repeated up to three consecutive semesters. Enrolled students are granted full-time equivalent student status by the University. SP/UP grading except for the last semester of enrollment which is S/U grading only.
Administration and Faculty

STATE BOARD OF HIGHER EDUCATION

The University of North Dakota is a part of the North Dakota University System consisting of ten publicly supported colleges and universities and one branch campus. The State Board of Higher Education is constitutionally responsible for the management of the University and is final authority in all matters affecting the University, exercising jurisdiction over its financial, educational, and other policies, and its relations with the state and federal governments. Certain administrative responsibilities of the Board have been delegated to the Chancellor of Higher Education. The Board entrusts the execution of its plans and policies, together with the internal governance and administration of the University, to the President and the faculty and such other officers as it may select. Board members are appointed for four-year terms.

Board Members

SUSAN ANDREWS, Mapleton; term expires June 30, 2010
JON BACKES, Minot; term expires June 30, 2011
DUANE ESPEGARD, term expires June 30, 2010
MAURICE HAUGEN, Fargo, term expires, June 30, 2012
PAM KOSTELECKY, Dickinson; term expires June 30, 2009
GRANT STOLTZ, Grand Forks; term expires June 30, 2011
RICHARD SMITH, Wahpeton, term expires June 30, 2009
STUDENT MEMBER, named annually to one-year term
NON-VOTING FACULTY MEMBER, named annually to one-year term
WILLIAM G. GOETZ, Chancellor, North Dakota University System

ADMINISTRATION

ROBERT KELLEY, Ph.D., President

PATRICIA BOHNET, Executive Assistant to the President

JULIE EVANS, J.D., General Counsel

BRIAN FAISON, B.A., Director, Athletics

GERALD H. GROENEWOLD, Ph.D.; Director, Energy and Environmental Research Center

PETER JOHNSON, B.A., B.S.Ed., Executive Associate Vice President for University Relations

TIM O’KEEFE, B.S.Ed., Executive Vice President, UND Alumni Association & Foundation

SALLY PAGE, M.B.A., Affirmative Action Officer

TIMOTHY RERRICK, J.S.B.A., Internal Auditor

PAUL LEBEL, J.D., Provost and Vice President for Academic Affairs

Deans reporting to the Provost:

JOSEPH N. BENNET, Ph.D., Dean, Graduate School
DENNIS ELBERT, Ph.D., Dean, College of Business and Public Administration

HESHAM EL-REWINI, Ph.D., Dean, School of Engineering and Mines

HELEN MILLAND, Ph.D., Interim Dean, College of Nursing

MARSHA POTVIN, Ph.D., Dean, College of Arts and Sciences

KATHRYN RAND, J.D., Dean, School of Law

DAN RICE, Ph.D., Dean, College of Education and Human Development

BRUCE SMITH, Ph.D., Dean, John D. Odberg School of Aerospace Sciences

Other administrators reporting to the Provost:

SUZANNE ANDERSON, Ph.D., University Registrar

VICTORIA BEARD, Ph.D., Associate Provost

ELLEN ERICKSON, B.A., Assistant Provost for Budget & Administration

DIANE HADDEN, Director, Summer Sessions

JOAN HAWTHORNE, Ph.D., Assistant Provost for Assessment & Achievement

ANNE KELSCH, Ph.D., Director, Instructional Development

RAY LAGASSE, STB, Director, International Programs

KRISTINE PARANICA, J.D., Director, Conflict Resolution Center

SALLY PYLE, Ph.D., Coordinator, Honors Program

LANA RAKOW, Ph.D., Director, Center for Community Engagement

JOSHUA RIEDY, Ed.D., Chief Information Officer

THOMAS STEEN, Ph.D., Director, Essential Studies

WILBUR STOLT, M.L.S., Director of Libraries

CARMEN WILLIAMS, M.S., Director, Institutional Research

JOSHUA WYNNE, M.D., M.B.A., M.P.H., Senior Executive Vice President for Health Affairs and Executive Dean, School of Medicine and Health Sciences

JON ALLEN, M.D., Associate Dean, Northeast Campus, Grand Forks

JULIE A. BLEHM, M.D., Associate Dean, Southeast Campus, Fargo

STEFFEN P. CHRISTENSEN, M.D., Assistant Dean for Students, Southeast Campus, Fargo

CHARLES CHRISTIANSON, M.D., Associate Dean for Clinical Education

EUGENE L. DELORME, J.D., Director, Indians Into Medicine (INMED)

JUDY L. DEMERS, M.Ed., Associate Dean, Student Affairs and Admissions

RANDY S. EKEN, M.P.A., Associate Dean, Administration and Finance

BRAD GIBBENS, M.P.A., Interim Co-Director, Center for Rural Health

NASSER HAMMAMI, M.S., Chief Information Officer

TOM HILL, M.D., Director, Medical Education

PAMELA D. KNUDSON, B.A., Director, Public Affairs

MARLENE MILLER, LCSC, Interim Co-Director, Center for Rural Health

NICHOLAS H. NEUMANN, M.D., Associate Dean, Southwest Campus, Bismarck

WILLIAM P. NEWMAN, M.D., Assistant Dean for Veterans Affairs

LILA PEDERSEN, M.A.L.S., Director, Harley French Library of the Health Sciences

MARTIN L. ROTHBERG, M.D., Assistant Dean, Northwest Campus, Minot

EDWARD SAUTER, M.D., Ph.D., Associate Dean for Research

DAVID THEIGE, M.D., Assistant Dean, Graduate Medical Education

DIANE WALTERS, B.A., Director of Development for Health Sciences

ALICE BREKEKE, M.Acc., C.M.A., C.R.A., Vice President for Finance and Operations

MARISA HAGGY, B.S., Coordinator of Special Projects/Assistant to the Vice President

PAT HANSON, B.S.B.A.; Director, Payroll

GINNIE KROOKMO, Administrative Officer, Assistant to the Vice President for Finance and Operations

PEGGY LUCKE, B.S.B.A., Associate Vice President

MARGARET MYERS, B.S.B.A., Associate Vice President

DIANE NELSON, B.A., Director, Human Resources

JUDY SARGENT, M.A., Director, Residence Services

RICK TONDER, B.F.A., Director, Capital Projects and Planning

JASON UHLIR, M.S., Director of Campus Safety and Security/Risk Manager

LARRY ZITZOW, Director, Facilities Management

ROBERT BOYD, Ed.D., Vice President for Student and Outreach Services

AMANDA BENTOW, M.B.A., Director, Wellness Operations

LAURIE BETTING, D.P.T., Assistant Vice President for Wellness

DAWN BOTSFORD, M.S., Special Projects Coordinator, Office of Ceremonies and Special Events

BARRY BRODE, M.S., Director, Television Center and UND Radio

LISA BURGER, M.A., Director, Student Success Center

GALEN CARVEAU, B.S., Director, Professional Services

M. C. DIOR, Ed.D., Director, Multicultural Student Services

LILLIAN ELSENS, M.A., Associate Vice President for Student Services and Dean of Students

MICHELLE ESLINGER, M.B.A., Director, Student Health Services

ODELLA FUQUA, M.B.A., CPA, Assistant Dean, Relations and Operations

DEB GLENNEN, M.Ed., Director, Disability Services for Students

CARA HALGREN, Ed.D, Director, Judicial Affairs and Crisis Programs

YETTE HALVERSON, B.S., Associate Director for Wellness Facilities

ALICE HOFFERT, Ph.D., Associate Vice President for Enrollment Management

ROBIN HOLDEN, M.A., Director, Student Financial Aid

LEIGH JEANOTTE, Ed.D., Director, American Indian Student Services

LYNETTE KRENELKA, Ph.D., Director, Academic Planning

TERI MACHART, Administrative Secretary, Vice President for Student and Outreach Services Office

DEBORAH MELBY, Ed.D., Director, Admissions

KAY MENDICK, Director, Women’s Center

ELAINE METCALFE, M.A., Director, TRIO Programs

JILL NOVOTNY, B.S., Administrative Officer, Vice President for Student and Outreach Services Office

PHILLIP PARNELL, Ph.D., Director, Enrollment Management, Outreach Services

KENTON PAULS, M.B.A., Director, Enrollment Services

JOSHUA RIEDY, Ph.D., Associate Vice President for Outreach Services and Dean of Outreach Programs

JENNIFER SWANGLER, B.A., Director, Marketing, Outreach Services

MARK THOMPSON, M.S., Director, Career Services

TONY TRIMARCO, B.S., Director, Memorial Union

MYRON VEENSTRA, Ph.D., Director, Counseling Center

FRED WITTMANN, M.S., Director, Ceremonies and Special Events

BARRY MILAVETZ, Ph.D., Vice President for Research

LINDA HURST-TORGERSON, B.Acc., Program Manager, Grand Forks Human Nutrition Research Center

MARK HOFFMANN, Ph.D., Associate Vice President for Research and Co-Project Director, ND EPSCoR

KAP J. LEE, DVM, M.S., DACLAM, Director, Center for Biomedical Research

JOHN LA DUKE, Ph.D., Associate Vice President for Research, Research Development and Compliance

DAVID SCHMIDT, B.S.B.A., Manager, Grants and Contracts Administration

RICHARD SCHULTZ, Ph.D., Interim Director, Computational Research Center
**FACULTY**

This list is intended for general public information purposes only and must not be construed as an official or definitive list of faculty members and their tenure or other status. Also, because the number and locations of clinical faculty in the School of Medicine vary with the departmental appointments, only full-time medical faculty are listed. A listing of clinical faculty may be obtained from the school on request.

* associate graduate faculty status
** full graduate faculty status
*** assistant graduate faculty status
# adjunct graduate faculty status

A

ABBOTT, DAVID W., Associate Professor of Clinical Neuroscience; M.D., Tulane University **ABRAHAMSON, HARMON B., Professor of Chemistry; Ph.D., Massachusetts Institute of Technology**

**ABRAHAMSON, JULIE,** Assistant Professor of Chemistry; Ph.D., University of Oklahoma

ADAMS, DARLA, Clinical Associate Professor of Nursing; M.S., University of North Dakota

ALLEN, JON W., Assistant Dean for Medical School, Northeast Campus at Grand Forks, Associate Professor of Internal Medicine; M.D., University of North Dakota

ALLEVA, PATTI A., Professor of Law; J.D., Hofstra University School of Law

**AMES, FORREST E., Professor of Mechanical Engineering; Ph.D., Stanford University**

AMUNDSON, MARY, Assistant Professor of Family and Community Medicine; M.A., University of North Dakota

**ANDERSON, CINDY,** Associate Professor of Nursing and Adjunct Assistant Professor of Pharmacology, Physiology and Therapeutics; Ph.D., University of North Dakota

**ANDERSON, ERNEST,** Assistant Professor of Aviation; J.D., Hamline University School of Law

**ANDERSON, JULIE,** Associate Professor of Nursing; Ph.D., University of North Dakota

ANDERSON, SHAUNA C., Adjunct Instructor of Pathology; Ph.D., University of Washington

**ANTES, JAMES R., Professor of Psychology; Ph.D., Iowa State University**

ANTENKO, DAVID R., Professor of Surgery; Ph.D., M.D., University of Alberta

ASKELSON, MARK, Associate Professor of Atmospheric Sciences; M.S., University of Oklahoma

ASKIM-LOVESETH, MARY KAY, Associate Professor of Marketing; Ph.D., Purdue University

**ATKINSON, MICHAEL,** Associate Professor of Occupational Therapy; Ph.D., University of Minnesota

BADAHDAH, ABDALLAH, Assistant Professor of Sociology; Ph.D., Iowa State University

**BAGHERI, FATHOLLAH, Professor of Economics; Ph.D., University of Pennsylvania**

**BAKER, MARY ELIZABETH,** Assistant Professor of Teaching and Learning; Ph.D., University of North Dakota

**BALDWIN, GAYLE,** Associate Professor of Philosophy and Religion; Ph.D., Marquette University-Milwaukee

**BANDYOPADHYAY, BISWANATH P., Professor of Mechanical Engineering; Ph.D., People’s Friendship University, Moscow**

**BANERJEE, ANAMITRO,** Assistant Professor of Chemistry; Ph.D., University of Maryland

**BARKDULL, CARENLEE,** Assistant Professor of Social Work; Ph.D., University of Utah

**BARKHOUSE, WAYNE,** Assistant Professor of Physics; Ph.D., University of Toronto

**BARRETTINE, CARL,** Associate Professor of Humanities; D.A., Idaho State University

**BARRETTINE, SHELBY,** Professor of Teaching and Learning; Ed.D., University of California-Los Angeles

**BASS, GAIL S.,** Assistant Professor of Occupational Therapy; Ph.D., University of North Dakota

**BATEMAN, CONNIE RAE,** Associate Professor of Marketing; D.B.A., University of North Dakota

**BEAL, ERL,** Assistant Professor of Counseling Psychology and Community Services; Ph.D., University of North Dakota

**BEAL, JAMES R.,** Associate Professor of Family and Community Medicine; Ph.D., University of North Dakota

**BEARD, MICHAEL,** Chester Fritz Distinguished Professor of English; Ph.D., Indiana University

**BEARD, VICTORIA,** Professor of Accounting and Business Law; Ph.D., University of North Dakota

BEATTIE, ROBERT, Verill J. and Ruth Fischer Clinical Professor and Chair of Family and Community Medicine; M.D., University of North Dakota

BECK, PAMELA, Assistant Professor of Teaching and Learning; M.Ed., University of North Dakota

BECKER, WILLIAM K., Professor of Surgery; Ph.D., M.D., University of Minnesota

BENADA, NANCY L., Associate Professor of Finance; Ph.D., St. Louis University

**BENOIT, JOSEPH N.,** Graduate Dean and Professor of Pharmacology, Physiology and Therapeutics, Ph.D., University of South Alabama

**BENOIT, VIRGIL,** Professor of Languages; Ph.D., University of Minnesota

**BENSON, STEVE,** Professor of Chemical Engineering; Ph.D., Pennsylvania State University

**BERGER, ALBERT,** Associate Professor of History; Ph.D., Northern Illinois University

**BERNE, JANE,** Associate Professor of Languages; Ph.D., University of Illinois at Urbana-Champaign

**BERRY, COLLEEN,** Assistant Professor of Languages; Ph.D., Indiana University

BERWALD, OLA F., Associate Professor of Languages; Ph.D., University of North Carolina

**BETTING, LAURIE A.,** Adjunct Assistant Professor of Physical Therapy; DPT, University of North Dakota

**BEVELACQUA, ANTHONY,** Associate Professor of Mathematics; Ph.D., University of Kentucky

**BIBEL, GEORGE,** Professor of Mechanical Engineering; Ph.D., Case Western Reserve University-Cleveland

BIBERDORF, PEGGY, Clinical Instructor of Communication Sciences and Disorders; M.S., Minot State University

**BIEDERMAN, DANIEL,** Professor of Economics; Ph.D., University of Kansas

BIRGER, C. JUDITH, Clinical Instructor of Statewide Psychiatric Nursing Education Program at Jamestown, College of Nursing; M.S., University of North Dakota

BJERKE, ELIZABETH I., Associate Professor of Aviation; M.B.A., University of North Dakota

BJERKE, MARIelyn R., Clinical Assistant Professor of Nursing; M.S., University of North Dakota

BLACKBURN, ROYCE, Assistant Professor of Music; M.M., University of Northern Texas

**BLACKWELL, J. LLOYD III,** Professor of Economics; Ph.D., Georgia State University

**BLAKE, MICHAEL J.,** Professor of Music; M.Ed., University of North Dakota

BLEHIM, JULIE A., Associate Professor of Internal Medicine and Clinical Associate Professor of Family and Community Medicine; M.D., University of North Dakota

BORCHARDT, STEPHANIE M., Research Assistant Professor of Internal Medicine; Ph.D., University of Michigan

**BORG, KURT E.,** Assistant Professor, Director, Academic Learning Center; Ph.D., North Carolina State University

BORIO, ALAN, Instructor of Atmospheric Sciences; B.S., University of North Dakota

**BOWMAN, FRANK,** Assistant Professor of Chemical Engineering; Ph.D., California Institute of Technology

BOYD, AMANDA, Assistant Professor of Languages; Ph.D., University of Massachusetts

**BRAATHERN, SANDY,** Associate Professor of Information Systems and Business Education; Ph.D., University of Minnesota-St. Paul

**BRACE, LARRY,** Adjunct Associate Professor of Pathology; Ph.D., University of Illinois

**BRADLEY, APRIL,** Assistant Professor of Psychology; Assistant Professor of Psychology; M.S., University of Texas

**BRADLEY, DAVID S.,** Associate Professor of Microbiology and Immunology; Ph.D., University of South Dakota School of Medicine

**BRAUN, SEBASTIAN,** Assistant Professor of Indian Studies; Ph.D., Indiana University

BRIDEWELL, JOHN, Associate Professor of Aviation; MDIV, Southwestern Baptist Theological Seminary

BRIGGS, BRIAN, Adjunct Assistant Professor of Physical Therapy; M.D., University of Saskatchewan

**BRINKERT, RONALD,** Professor of Physical Education, Exercise Science and Wellness; Ph.D., University of Oregon
• BROEDEL, HANS, Assistant Professor of History; Ph.D., University of Washington
• BRONFMAN, JOSHUA, Associate Professor of Music; M.A., Oregon State University
• BROWN, ANN, Assistant Professor of Pathology; M.D., University of North Dakota
• BROWN, MICHAEL, Assistant Professor of Surgery; M.D., Ph.D., University of North Dakota
• BROWN-BORG, HOLLY, Associate Professor of Pharmacology, Physiology and Therapeutics; Ph.D., North Carolina State University
• BRUNN, IRIS M., Research Associate Professor of Clinical Neuroscience; B.S., Justus Liebig University
• BURD, CHRISTINE, Assistant Professor of Nursing; Ph.D., University of North Dakota
• BURD, LARRY J., Professor of Pediatrics and Clinical Neuroscience; Ph.D., University of Minnesota
• BURGESS, GAYE, Associate Professor of Theatre Arts; M.F.A., University of Toronto
• BURIN, ERIC, Associate Professor of History; Ph.D., University of Illinois-Champaign
• BYARS, BRUCE, Associate Professor of Accountancy; J.D., University of North Dakota

C

• CAINE, DENNIS, Professor and Chair, Physical Education, Exercise Science and Wellness; Ph.D., University of Oregon
• CAMPBELL, KATHERINE, Associate Professor of Accountancy; Ph.D., University of Washington
• CARAHER, WILLIAM R., Assistant Professor of History; Ph.D., Ohio State University
• CARLSON, DAVID L., Associate Professor of Clinical Neuroscience; M.D., University of North Dakota
• CARLSON, EDWARD C., Chester Fritz Distinguished Professor and Chairperson of Anatomy and Cell Biology; Ph.D., University of North Dakota
• CARLSON, STEVEN J., Professor of Accounting and Business Law; Ph.D., University of Arkansas
• CARMICHAEL, JEFFREY, Associate Professor of Biology; Ph.D., University of Georgia
• CARMICHAEL, TAMIA, Associate Professor of English; Ph.D., University of Georgia
• CARR, PATRICK, Associate Professor of Anatomy and Cell Biology; Ph.D., University of Manitoba
• CARSON, PAUL, Associate Professor of Internal Medicine; M.D., University of North Dakota
• CARSON, SHARON, Professor of English; Ph.D., University of Washington
• CASLER, JAMES, Associate Professor of Space Studies; Ph.D., North Dakota State University
• CAVALLI, MATTHEW, Associate Professor of Mechanical Engineering; M.S., University of Michigan
• CHALMERS, LYNNNE, Professor of Teaching and Learning; Ph.D., University of North Dakota
• CHEN, XUESONG, Research Assistant Professor of Pharmacology, Physiology and Therapeutics; M.D., Ph.D., University of North Dakota
• CHIASSON, KARI, Assistant Professor of Teaching & Learning; Ph.D., University of North Dakota
• CHRISTENSEN, STEFFEN, Assistant Dean of Students at Southeast Campus, Fargo and Associate Professor of Obstetrics and Gynecology; M.D., University of Iowa
• CHRISTIAN, STEPHANIE J., Clinical Associate Professor of Nursing; B.S.N., University of North Dakota
• CHRISTIANSON, CHARLES, Associate Professor of Family and Community Medicine; M.D., John Hopkins University School of Medicine
• CHRISTOPHERSON, ANNE, Associate Professor of Music; D.M.A., Ohio State University
• CLARENS, RICHARD D., Associate Professor of Family and Community Medicine and Pharmacology, Physiology and Therapeutics; Pharm. D., University of Minnesota
• CLAYBURGH, TRISH, Clinical Assistant Professor of Nursing; Ph.D., University of California-San Francisco
• CLAYMORE-LAHAMMER, VICKIE, Adjunct Assistant Professor, Center for Rural Health; Ph.D., University of South Dakota
• COCKAYNE, SUSAN, Adjunct Assistant Professor of Pathology; Ph.D., Brigham Young University

D

• COLEMAN, MARY L., Assistant Professor of Pathology; M.S., University of North Dakota
• COLLINS, JOHN, Associate Professor of Mathematics; Ph.D., Washington State University
• COMBS, BARBARA, Professor of Teaching and Learning; Ph.D., Syracuse University
• COMBS, COLIN K., Associate Professor of Pharmacology, Physiology and Therapeutics; Ph.D., University of Rochester
• COMBS JR., GERALD F., Adjunct Professor of Biochemistry and Molecular Biology; Ph.D., Cornell University
• CONWAY, KYLE, Assistant Professor of Communication; Ph.D., University of Wisconsin-Madison
• CONWAY, PATRICIA, Associate Professor of Rural Health; Ph.D., University of Texas
• COSTES, THERESE, Associate Professor of Music; M.A., Texas Women’s University
• CRAWFORD, TRUDY, Clinical Assistant Professor of Nursing; M.S., South Dakota State University
• CROSSLEY, DANE, Assistant Professor of Biology; Ph.D., University of North Texas
• CUOZZO, FRANK P., Assistant Professor of Anthropology; Ph.D., University of Colorado
• CUSHING, ANNE, Adjunct Instructor of Clinical Neuroscience; R.N., North Dakota State University
• CZEHERWIEC, HEIDI, Assistant Professor of English; Ph.D., University of Utah

E

• DAHLEN, BARBARA, Clinical Assistant Professor of Nursing; M.S., University of North Dakota
• DANELSON, BYRON D., Professor of Internal Medicine; M.D., University of Minnesota
• DANKS, MERIDEE, Assistant Professor of Physical Therapy; D.P.T., University of North Dakota
• DARDIS, PATRICIA, Clinical Assistant Professor of Nursing; M.S., University of North Dakota
• DARLAND, DIANE, Assistant Professor of Biology; Ph.D., Oregon Health Sciences University
• DARLAND, TRISTAN, Assistant Professor of Biology; Ph.D., Oregon Health Science University
• DA SILVA, PERI A., Associate Professor of Economics; Ph.D., University of Illinois
• DAUGHNAIS, KIRSTEN, Associate Professor of Law; J.D., Columbia Law School
• DAUKS SAVAGE, RACHEL, Clinical Instructor of Nursing; M.S., University of North Dakota
• DAVIDSON, MICHELLE, Assistant Professor of Theatre Arts; MFA, University of South Dakota
• DEARDEN, BRUCE G., Professor of Mathematics; Ph.D., Washington State University
• DECKER, SCHAWNN, Assistant Professor of Physical Therapy; D.P.T., University of North Dakota
• DELANE, DAVID, Research Assistant Professor of Atmospheric Sciences; Ph.D., University of Wyoming-Laramie
• DELHOMMELLE, JEROME, Assistant Professor of Chemistry; Ph.D., University of Paris-France
• DELORME, EUGENE, Director of Indians into Medicine Program (INMED), and Associate Professor of Family Medicine; J.D., University of North Dakota
• DE MAGALHAES, ROBERTO, Assistant Professor of Accountancy; Ph.D., University of Mississippi
• DEMERS, JUDY L., Associate Dean for Student Affairs and Admissions, and Associate Professor of Family and Community Medicine; M.Ed., University of Washington, Seattle
• DENNIS, STEVEN, Professor of Accountancy; Ph.D., University of Kentucky
• DERENNE, ADAM, Associate Professor of Psychology; Ph.D., University of Wisconsin, Madison
• DETHKE, SIEGFRIED, Associate Professor of Biochemistry and Molecular Biology; Ph.D., Colorado State University
• DEWAr, GRAEME, Professor of Physics; Ph.D., Simon Fraser University
• DICRISTINA, BRUCE, Associate Professor of Criminal Justice; Ph.D., State University of New York-Albany
• DIXON, KATHLEEN, Professor of English; Ph.D., University of Michigan
• DONALDSON, SANDRA M., Professor of English; Ph.D., University of Connecticut
• DONEhower-WENSTEIN, KIMBERLY, Associate Professor of English; Ph.D., University of Minnesota-Twin Cities
**DONG, Xiquan**, Associate Professor of Atmospheric Sciences; Ph.D., Pennsylvania State University

**DOSCH, Robert**, Associate Professor of Accounting and Business Law; Ph.D., University of Iowa

**DOZE, Van A.**, Associate Professor of Pharmacology, Physiology and Therapeutics; Ph.D., Stanford University

**DRAGO, Alejandro**, Assistant Professor of Music; D.M.A., University of Southern Mississippi

**Drechsel, Paul**, Assistant Professor of Aviation; M.S., University of North Dakota

**Driscoll, Timothy G.**, Assistant Professor of Sociology; Ph.D., University of North Dakota

**Drøgg, Kimberley**, Instructor of Pathology; B.S., University of North Dakota

**DU, Goudong**, Assistant Professor of Chemistry; Ph.D., Iowa State University

**Dubois, Gene W.**, Associate Professor of Language—Spanish; Ph.D., University of California

**Dunlevy, Jane R.**, Associate Professor of Anatomy and Cell Biology; Ph.D., University of Alabama at Birmingham

**Dunning, Gerrr**, Associate Professor of Mathematics; Ph.D., Iowa State University

**Dye, Sara K.**, Adjunct Assistant Professor of Rural Health; M.D., Dartmouth Medical School

**Eggebrecht, Echo**, Assistant Professor of Art; M.F.A., CUNY Hunter College

**Ekanger, Deboriah**, Clinical Instructor of Nutrition and Dietetics; B.S., South Dakota State University

**Elbert, Dennis**, Dean, College of Business and Public Administration and Professor of Marketing; Ph.D., University of Missouri-Columbia

**Ellingson, Dee Ann**, Associate Professor of Accounting and Business Law; Ph.D., Virginia Polytechnic Institute and State University

**El-Rewin, Hesham**, Associate Professor of Pharmacology, Physiology and Therapeutics; Ph.D., University of North Dakota

**El-Ber, Dennis**, Dean, College of Business and Public Administration and Professor of Marketing; Ph.D., University of Missouri-Columbia

**Elingston, Dee Ann**, Associate Professor of Accounting and Business Law; Ph.D., Virginia Polytechnic Institute and State University

**El-Rewin, Hesham**, Dean, School of Engineering & Mines and Professor of Computer Science; Ph.D., Oregon State University

**Engel, Scott**, Research Assistant Professor of Clinical Neuroscience; Ph.D., North Dakota State University

**Ericksen, Daniel**, Assistant Professor of Languages-Classical Studies; D.A., Syracuse University

**Evans, Julie**, Adjunct Assistant Professor of Family and Community Medicine; J.D., University of North Dakota

**Evanson, Tracy**, Associate Professor of Nursing; Ph.D., University of Minnesota

**Eglich, Echo**, Assistant Professor of Art; M.F.A., CUNY Hunter College

**Ekanger, Deboriah**, Clinical Instructor of Nutrition and Dietetics; B.S., South Dakota State University

**Faruque, Saleh Muhammad**, Associate Professor of Electrical Engineering; Ph.D., University of Waterloo-Ontario

**Fazel-Rezai, Reza**, Assistant Professor of Electrical Engineering; Ph.D., University of Manitoba

**Ferraro, F. Richard**, Chester Fritz Distinguished Professor of Psychology; Ph.D., University of Kansas

**Fershée, Josh**, Assistant Professor of Law; J.D., Tulane Law School

**Fershée, Kendra**, Assistant Professor of Law; J.D., Tulane Law School

**Fevig, Ronald**, Assistant Professor of Space Studies; Ph.D., University of Arizona

**Fink, Kim W.**, Professor of Art; M.F.A., Temple University

**Fiorro, Richard**, Professor of Communication; Ph.D., University of Illinois—Urbana

**Flatt, John**, Instructor of Family and Community Medicine—Sport Medicine; M.S., ATC, North Dakota State University

**Fleshman, Sherrie**, Associate Professor of Languages—French; Ph.D., University of Oregon

**Flom-Meland, Cynthia**, Assistant Professor of Physical Therapy; Ph.D., University of North Dakota

**Flover, Ann M.**, Associate Professor of Microbiology and Immunology; Ph.D., University of Colorado Health Sciences Center

**Flynn, David T.**, Associate Professor of Economics; Ph.D., Indiana University

**Flynn, Michael**, Assistant Professor of English; Ph.D., Washington University

**Fogarty, Edward F.**, Clinical Assistant Professor and Chair of Radiology; M.D., University of Nebraska-Omaha

**Foltz, Kenneth**, Assistant Professor of Aviation; M.S., Central Missouri State University

**Fontaine, Cordell**, Director of Social Science Research Institute; M.A., University of North Dakota

**Forsman, Nels F.**, Assistant Professor of Geology and Geological Engineering; Ph.D., University of North Dakota

**Foster, James D.**, Research Assistant Professor of Biochemistry and Molecular Biology; Ph.D., University of North Dakota

**Fox, Laronne**, Assistant Professor of Occupational Therapy; Ph.D., University of North Dakota

**Francis, Clare**, Assistant Professor of Occupational Therapy; Ph.D., University of North Dakota

**Frazier, Alan**, Assistant Professor of Aviation; M.P.A., University of Southern California

**Fugere, Robert M.**, CPT, United States Army and Assistant Professor of Military Science and Leadership; B.A., University of North Dakota

**Gaffney, Michael**, Professor of Space Studies; Ph.D., Massachusetts Institute of Technology

**Gagnon, Gregory**, Associate Professor of Indian Studies; Ph.D., University of Maryland

**Gaines-Stoner, Kelly**, Clinical Instructor of Law; J.D., University of Oklahoma

**Ganie, Lucy A.**, Professor of Communication; M.F.A., Academy of Art College—San Francisco

**Garrett, Scott**, Associate Professor of Pathology; Ph.D., University of South Dakota

**Geiger, Jonathan**, Chester Fritz Distinguished Professor and Chair of Pharmacology, Physiology and Therapeutics; Ph.D., University of North Dakota

**Gerla, Philip**, Associate Professor of Geology and Geological Engineering; Ph.D., University of Arizona

**Gershman, Kathleen**, Professor of Teaching and Learning and Educational Foundations and Research; Ed.D., Harvard University

**Ghribi, Othman**, Assistant Professor of Pharmacology, Physiology & Therapeutics; Ph.D., Rene Descartes University

**Gibbens, Brad**, Assistant Professor of Family and Community Medicine, Associate Director, Center for Rural Health; M.P.A., University of North Dakota

**Gilmore, Matthew**, Assistant Professor of Atmospheric Sciences; Ph.D., Texas A&M University

**Gilsdorf, Thomas**, Professor of Mathematics; Ph.D., Washington State University

**Gjellsstad, Melissa**, Assistant Professor of Languages; Ph.D., University of Washington

**Gjesfeld, Christopher**, Assistant Professor of Social Work; Ph.D., University of Pittsburgh

**Goenner, Cullen**, Associate Professor of Economics; Ph.D., University of Wisconsin

**Golovko, Mikhail**, Research Assistant Professor of Pharmacology, Physiology and Therapeutics; Ph.D., Tver State University

**Gonzalez, Suzanne**, Assistant Professor of Art; M.F.A., University of Kentucky

**Goodwin, Brett**, Associate Professor of Biology; Ph.D., Carleton University, Ottawa

**Goodwin, Janice K.**, Associate Professor of Nutrition and Dietetics; Ph.D., Iowa State University

**Gordon, Gregory**, Assistant Professor of Law; J.D., University of California

**Gosnold, William D. Jr.**, Chester Fritz Distinguished Professor of Geology and Geological Engineering; Ph.D., Southern Methodist University

**Gottschalk, Martin**, Associate Professor of Criminal Justice; Ph.D., State University of New York-Albany

**Gourneau, Bonni**, Assistant Professor of Teaching and Learning; Ed.D., University of North Dakota

**Grabe, Mark**, Professor of Psychology; Ph.D., Iowa State University

**Gragert, Marcia**, Associate Professor of Adult Health Nursing; Ph.D., University of Texas at Austin

**Granger, Cedric A.**, Tony, Professor of Atmospheric Sciences; Ph.D., State University of New York

**Grandbois, Donna**, Clinical Instructor of Nursing; M.S., University of North Dakota

**Grant, Emanuel**, Associate Professor of Computer Science; Ph.D., State University of New York

**Gray, Jacqueline**, Assistant Professor of Rural Health; M.S., Florida Atlantic University

**Graziano, Richard**, Assistant Professor of Aviation; M.B.A., University of North Dakota
**HASKINS, ANNE**, Clinical Supervisor, Teaching and Learning; Ph.D., University of North Dakota

**GRIFFIN, MICHELLE**, Clinical Supervisor, Teaching and Learning; Ph.D., University of Illinois-Chicago

**GRIALVA, JAMES**, Professor of Law; J.D., Northwestern School of Law

**GROENEWOULD, GERALD H.**, Director of the Energy and Environmental Research Center and Associate Professor of Geology and Geological Engineering; Ph.D., University of Illinois-Chicago

**GROVE, BRYON D.**, Associate Professor of Anatomy and Cell Biology; Ph.D., Clemson University

**GULLICKS, HARVEY**, Associate Professor of Civil Engineering; Ph.D., Iowa State University

**GUY, MARK**, Associate Professor of Teaching and Learning; Ph.D., University of Georgia

**H**, Associate Professor of Social Work; Ph.D., University of Minnesota

**HALCROW, CHERYL LYNN**, Assistant Professor of Mathematics; Ph.D., University of North Dakota

**HALL, JUDITH**, Assistant Professor of Nutrition and Dietetics; M.S., Kansas State University

**HAMMAMI, NASSER**, Assistant Professor, Information Resources; M.S., University of North Dakota

**HAMMERSTRAND, JAMES**, Assistant Professor of Languages; M.A., Purdue University

**HANLEY, YVONNE M.**, Assistant Professor of Teaching and Learning; M.S., University of North Dakota

**HANS, BIRGIT**, Professor of Indian Studies; Ph.D., University of Arizona

**HANSEN, DEVON**, Associate Professor of Geography; Ph.D., University of Utah

**HANSEN, KENNETH**, Professor of Accounting and Business Law; J.D., Indiana University of Law

**HANSON, DARLENE**, Clinical Associate Professor of Nursing; M.S., University of North Dakota

**HANSON, DEBRA J.**, Assistant Professor of Occupational Therapy; M.A., University of North Dakota

**HARDERSEN, PAUL**, Associate Professor of Space Studies; Ph.D., Rensselaer Polytechnic Institute

**HARDY, REBECCA**, Clinical Instructor of Nursing; B.A., University of North Dakota

**HARGREAVES, JAMES**, Associate Professor of Internal Medicine and Clinical Associate Professor of Community Medicine; D.O., College of Osteopathic Medicine and Surgery, Des Moines

**HARIS-BEHLING, ELIZABETH**, Associate Professor of English; M.F.A., University of Arkansas

**HARNESSON, PHILLIP**, Associate Professor of Accounting and Business Law; J.D., University of North Dakota

**HARSELL, CHRISTINE**, Clinical Instructor of Nursing; M.S., Syracuse University

**HARSELL, DANA M.**, Assistant Professor of Political Science; Ph.D., Syracuse University

**HARRIS, JOSEPH H.**, Professor of Geology and Geologic Engineering; Ph.D., University of Minnesota

**HARWELL, TODD S.**, Adjunct Instructor of Family and Community Medicine; M.P.H., University of Pittsburgh

**HASELTON, JAMES R.**, Assistant Professor of Pharmacology, Physiology and Therapeutics; Ph.D., University of Miami at Coral Gables

**HASKINS, ANNE**, Assistant Professor of Occupational Therapy; M.A., College of Saint Catherine

**HASKINS, JAMES P.**, Assistant Professor of Finance; Ph.D., Colorado State University

**HEALY, MARGARET**, Professor of Educational Leadership; Ph.D., Iowa State University

**HEGGIE, TRAVIS**, Assistant Professor of Counseling Psychology and Community Services; Ph.D., Texas A&M University

**HEITZ, LUCY**, Clinical Instructor of Nursing; M.S., University of North Dakota

**HEITKAMP, THOMASINE**, Professor of Social Work; M.S.W., University of Wisconsin-Madison

**HELGESON, LARS**, Professor of Teaching and Learning; Ph.D., University of California-Los Angeles

**HELLELOID, DUANE**, Associate Professor of Management; Ph.D., University of Washington

**HENRY, L. KEITH**, Assistant Professor of Pharmacology, Physiology and Therapeutics; Ph.D. University of Tennessee-Knoxville

**HEUSER, LORETTA**, Professor of Nursing; Ph.D., University of North Dakota

**HILL, MICHAEL**, Professor, Center for People & Environment; Ph.D., University of Sydney, Australia

**HILL, MICHAEL S.**, Professor of Microbiology and Immunology; Ph.D., University of Colorado Health Sciences Center

**HJELMSTAD, KENT**, Assistant Professor of Educational Leadership; Ed.D., University of North Dakota

**HOFFMAN, KATHERINE**, Associate Professor of Pathology; M.M., University of Mary

**HOFFMANN, MARK R.**, Chester Fritz Distinguished Professor of Chemistry; Ph.D., University of California

**HOLDMAN, LINDA**, Assistant Professor of Teaching and Learning; Ph.D., University of North Dakota

**HOLEN, JODI**, Assistant Professor of Teaching and Learning; Ph.D., University of North Dakota

**HOLLINGWORTH, DAVID**, Associate Professor of Management; Ph.D., University of Minnesota

**HOLM, JEFFREY E.**, Professor of Psychology; Ph.D., Ohio University

**HOMANDBERG, GENE**, Professor and Chair of Biochemistry and Molecular Biology; Ph.D., University of South Dakota-Vermillion

**HONG, DOOJIN**, Assistant Professor of Mathematics; Ph.D., University of Iowa

**HOROSEWSKI, MARY LEE**, Assistant Professor of Communication; M.A., University of Kentucky

**HOSFORD, CHARLES C.**, Assistant Professor; Office of Medical Education; Ph.D., University of North Dakota

**HOSSTER, JEFFERY**, Assistant Professor of Family and Community Medicine; M.D., University of Washington

**HOUDEK, SHERRYL**, Associate Professor of Educational Leadership; Ed.D., University of North Dakota

**HU, WEN-CHEN**, Associate Professor of Computer Science; Ph.D., University of Florida

**HUANG, LUKE HAMMING**, Associate Professor of Industrial Technology; M.S., Iowa State University

**HUANG, XIAOZHOA**, Associate Professor of English; Ph.D., Ball State University

**HUBER, JAY**, Assistant Professor of Family and Community Medicine; D.O., Texas College of Osteopathic Medicine

**HULTQUIST, ANDY**, Assistant Professor of Political Science; Ph.D., Ohio State University

**HUME, WENDELIN**, Associate Professor and Chair of Criminal Justice; Ph.D., Sam Houston State University

**HUNG, WOEL**, Associate Professor of Teaching and Learning; Ph.D., University of Missouri-Columbia

**HUNT, ERICA**, Instructor of Family and Community Medicine and Athletic Training; M.S., University of North Dakota

**HUNTER, SUSAN L.**, Associate Professor of Nursing; M.S., University of Texas at Austin

**HURLEY, ROXANNE**, Clinical Associate Professor of Nursing; M.S., University of North Dakota

**IDE, BETTE**, Professor of Nursing; Ph.D., University of Arizona

**IAMS, JOEL**, Associate Professor of Mathematics; Ph.D., Colorado State University

**IAMS, MICHELE**, Associate Professor of Mathematics; Ph.D., University of North Dakota

**INGLE, RONNIE**, Assistant Professor of Music; D.M.A., University of North Carolina

**INGWALSON, GAIL**, Associate Professor of Teaching and Learning; Ph.D., University of North Dakota

**ISEMINGER, GORDON L.**, Chester Fritz Distinguished Professor of History; Ph.D., University of Oklahoma

**ISZLER, DONNA**, Clinical Associate Professor of Statewide Psychiatric Nursing Education Program at Jamestown, College of Nursing; M.A., North Dakota State University

**JACKSON, JON A.**, Assistant Professor of Anatomy and Cell Biology; Ph.D., University of North Dakota

**JACKSON, MARGARET MOORE**, Associate Professor of Law; J.D., University of San Francisco
**NAM, SEONG-HYUN**, Associate Professor of Management; Ph.D., University of Wisconsin-Milwaukee

**NELSON, CHRISTOPHER**, Assistant Professor of English; Ph.D., University of Illinois

**NELSON, DAVID C.**, Assistant Professor of Languages–German; M.A., University of North Dakota

**NELSON, SUSAN L.**, Professor of Marketing; Ph.D., Georgia State University

**NEUBERT, JEREMIAH**, Assistant Professor of Mechanical Engineering; Ph.D., University of Wisconsin

**NEUMANN, NICHOLAS**, Assistant Dean of Medical School Southwest Campus at Bismarck; and Professor of Internal Medicine; M.D., Wayne State University

**NEWMAN, ROBERT**, Associate Professor of Biology; Ph.D., University of Pennsylvania

**NEWMAN, WILLIAM P.**, Professor and Chairperson of Internal Medicine; M.D., University of Texas

**NIELSON, FORREST**, Adjunct Associate Professor of Biochemistry and Molecular Biology; Ph.D., University of Wisconsin

**NILLES, MATTHEW**, Associate Professor of Microbiology and Immunology; Ph.D., Washington State University

**NOGHIANIAN, SIMA**, Assistant Professor of Electrical Engineering; Ph.D., University of Manitoba

**NORMAN, KATHERINE**, Associate Professor of Music; Ph.D., University of Michigan

**NOVIKOV, ALEXEL**, Assistant Professor of Chemistry; Ph.D., Emory University

**ODERMAN, BONNIE**, Clinical Assistant Professor of Nursing; M.S., University of North Dakota

**O’DONNELL, SHERYL**, Professor of English; Ph.D., University of Arizona

**OFFUTT, SUSAN**, Assistant Professor of Rural Health; Ph.D., University of North Dakota

**OHM, JOYCE**, Assistant Professor of Biochemistry and Molecular Biology; Ph.D., Vanderbilt University-Nashville

**O’KEEFE, TIMOTHY**, Professor and Chair of Information Systems and Business Education, MBA Program Director; Ph.D., University of Arkansas–Fayetteville

**OLSEN, GLENN W.**, Professor of Teaching and Learning; Ph.D., University of Wisconsin-Madison

**OLSON, DEBRA K.**, Adjunct Instructor of Family and Community Medicine; M.P.H., University of Minnesota

**OLSON, LINDA M.**, Associate Professor of Family and Community Medicine; Ed.D., University of North Dakota

**OLSON, MYRNA**, Chester Fritz Distinguished Professor of Teaching and Learning; Ed.D., University of North Dakota

**OLSON, STACIE**, Clinical Instructor of Nursing; B.S., University of North Dakota

**OMMEN, BRETT**, Assistant Professor of Communication; Ph.D., Northwestern University

**ONCHWARI, GRACE**, Assistant Professor of Teaching and Learning; Ph.D., Indiana State University

**O’NEILL, THOMAS E.**, Associate Professor of Computer Science; Ph.D., Iowa State University

**O’NEILL, PATRICK**, Professor of Economics; Ph.D., Boston College

**OPRINDAHE, J. DONALD**, Professor of Surgery; M.D., University of Kansas School of Medicine

**OSBORNE, LEON F.**, Chester Fritz Distinguished Professor of Atmospheric Sciences; M.S., Oklahoma University

**OSELES, ROBERT J.**, LTC, United States Army and Professor of Military Science and Leadership; Masters of Information Management, University of Denver

**PARK, JAESUN**, Professor of Management; Ph.D., Northwestern University

**PARKER, REGINALD**, Assistant Professor of Chemical Engineering; Ph.D., Georgia Institute of Technology

**PATE, LARRY**, Professor of Entrepreneurship; Ph.D., University of Illinois

**PAUL, RUTH A.**, Assistant Professor of Pathology; M.S., University of North Dakota

**PAWLOWSKA, MONIKA**, Assistant Professor of Communication Sciences and Disorders; Ph.D., Adam Mickiewicz University

**PEARSON, DONNA**, Instructor of Teaching & Learning; M.S., Mississippi State University

**PERKINS, DEXTER**, Professor of Geology and Geological Engineering; Ph.D., University of Michigan

**PERRY, DAVID C.**, Professor of Rehabilitation and Counseling Psychology and Community Services; Ph.D., University of North Dakota

**PETERS, DOUGLAS**, Professor of Psychology; Ph.D., Southern Illinois University

**PETERSON, KAREN M.**, Instructor of Pathology; M.S., University of North Dakota

**PETERSON, LAWRENCE**, Associate Professor of Mathematics; Ph.D., University of Iowa

**PETROS, THOMAS**, Chester Fritz Distinguished Professor of Psychology; Ph.D., Kent State University

**PHILLIPS, KATHERINE AMY**, Assistant Professor of Social Work; Ph.D., University of North Dakota

**PIERCE, DAVID**, Professor of Chemistry; Ph.D., University of Vermont

**PINTERITS, E. JANIE**, Assistant Professor of Counseling Psychology and Community Services; Ph.D., University of California

**PITTS, BRUCE G.**, Associate Dean for Medical School Southeast Campus at Fargo and Professor of Internal Medicine; M.D., University of Pennsylvania

**POELLLOT, MICHAEL R.**, Professor of Atmospheric Sciences; M.S., Colorado State University

**POLTAVSKI, DIMITRI**, Assistant Professor of Clinical Neuroscience; Ph.D., University of North Dakota

**POOCHIGIAN, DONALD V.**, Professor of Philosophy and Religion; Ph.D., Claremont Graduate School

**POOLMAN, MARK**, Instructor of Family and Community Medicine; M.S., University of North Dakota

**POPEJOY, JAMES**, Associate Professor Music; D.M.A., Central Missouri State University

**PORTER, JAMES E.**, Associate Professor of Pharmacology, Physiology and Therapeutics; Ph.D., Creighton University

**PORTER, KIMBERLY**, Professor of History; Ph.D., University of Iowa

**PORTER, ROBERT J.**, Instructor of Pathology; B.S., University of North Dakota

**POTVIN, MARTHA A.**, Professor of Biology, Dean, College of Arts and Sciences; Ph.D., University of Nebraska-Lincoln

**POULIMAMAGHANI, IRAJ H.**, Associate Professor of Civil Engineering; D.Eng., Nagoya University

**PRESCOTT, CYNTHIA**, Assistant Professor of History; Ph.D., University of California

**PUTKONEN, JAAKKO**, Assistant Professor of Geology; Ph.D., University of Washington

**PYLE, SALLY**, Associate Professor of Biology; Ph.D., Duke University

**QIN, WENYI**, Research Assistant Professor; Research Affairs; M.D., West China University of Medical Sciences

**QUINN, ANDREW**, Assistant Professor of Social Work; Ph.D., University of Texas

**QUISNO, JACQUELINE**, Assistant Professor of Family and Community Medicine; M.D., University of Washington

**REID, JEFFREY**, Clinical Instructor of Law; J.D., University of North Dakota

**RAKOW, LANA**, Professor of Communication; Ph.D., University of Illinois

**RALPH, JODY**, Clinical Instructor of Nursing; Ph.D., University of British Columbia

**RALPH, STEVEN**, Assistant Professor of Biology; Ph.D., University of British Columbia

**RAMBROUGH, AUDREY**, Instructor of Family and Community Medicine and Athletic Training; M.S., University of North Dakota

**RAM, MANISH**, Associate Professor of Communication Sciences and Disorders; Ph.D., East Carolina University

**RAND, KATHRYN**, Professor of Law; J.D., University of Michigan

**RAND, THOMAS A.**, Associate Dean of College of Arts and Sciences and Associate Professor of Humanities; B.D., Harvard Divinity School

**RANGANATHAN, PRAKASH**, Distinguished Professor of Policy, Politics and Administration and Faculty

**RAPER, RALPH**, Clinical Instructor of Mathematics; Ph.D., University of North Dakota

**RAVINDRAKUMAR, PRACHAND**, Assistant Professor of Electrical Engineering; Ph.D., University of North Dakota

**RAY, LINDA**, Instructor of Pathology; B.S., University of North Dakota

**REESE, TY**, Associate Professor of History; Ph.D., University of Toledo

**REEVES, BRUCE**, Assistant Professor of Social Work; M.S.W., University of Utah

**REINHARDT, EDWARD**, Clinical Instructor of Law; J.D., University of North Dakota

**REISSIG, BRADFORD**, Assistant Professor of Theatre Arts; M.F.A., Illinois State University

**RELLING, DAVID P.**, Associate Professor of Physical Therapy; Ph.D., University of North Dakota
**REMER, FRED M.**, Associate Professor of Atmospheric Sciences; M.S., University of Wyoming

* RENDAH, STEPHEN E., Associate Professor of Communication; Ph.D., University of Minnesota

** REZA, HASSAN, Associate Professor of Computer Science; Ph.D., North Dakota State University

** RHEN, TURK, Associate Professor of Biology; Ph.D., University of Texas, Austin

** RHEUDE, ELIZABETH, Associate Professor of Music; M.M., Michigan State University

** RICE, DANIEL R., Dean of the College of Education and Human Development, Professor of Educational Leadership; Ph.D., University of North Dakota

** RICHARDS, THOMAS, Assistant Professor of Mathematics; Ph.D., Washington State University

RICHOTTE, KEITH, JR., Assistant Professor of Law; J.D., University of Minnesota

RICKERT, JULIE, Assistant Professor of Family and Community Medicine; Psy.D., Baylor University-Rixo

RISKE, MARY L., Assistant Professor of Pediatrics; M.S.N., University of North Dakota

ROBERTSON, CHARLES L., Associate Professor of Aviation; M.A., Ball State University

ROBINSON, SARAH, Clinical Assistant Professor of Communication Sciences and Disorders; M.S., University of North Dakota

** ROBISON, LORI, Associate Professor of English; Ph.D., Indiana University

ROERIG, JAMES L., Associate Professor of Clinical Neurosciences; Pharm.D., University of Minnesota

** ROMANICK, MARK A., Professor of Physical Therapy; Ph.D., University of North Dakota

ROMERO, FRANCINE C., Adjunct Assistant Professor of Family and Community Medicine; Ph.D., University of New Mexico

** ROMSDAHL, REBECCA, Assistant Professor; Center for People & Environment; Ph.D., George Mason University

ROSENBERGER, THAD A., Assistant Professor of Pharmacology, Physiology and Therapeutics; Ph.D., Ohio State University

ROTVOLD, GLENDA, Instructor of Information Systems and Business Education; M.S., University of North Dakota

ROUGHEAD, FARIBA, Adjunct Assistant Professor of Internal Medicine; Ph.D., Clemson University

** ROUTON, CLAUDIA, Associate Professor of Languages; Ph.D., University of Nebraska

RUDY, JAMES D., Assistant Professor of Family and Community Medicine; M.S., University of North Dakota

** RUT, KENNETH G., Associate Professor of Anatomy and Cell Biology; Ph.D., Loyola University of Chicago

** RUNDQUIST, BRADLEY, Associate Professor of Geography; Ph.D., Kansas State University

** RUTHIG, JOELLE, Associate Professor of Psychology; Ph.D., University of Minnesota

** RYGALOV, VADIM, Assistant Professor of Space Studies; Ph.D., Russian Academy of Sciences, Siberia

S

SAHMOUN, ABE, Assistant Professor of Internal Medicine; Ph.D., Mediterranean University

SAILER, FRANCES, Assistant Professor of Microbiology and Immunology; Ph.D., University of North Dakota

** SALEHAR, HOSSEIN, Professor of Electrical Engineering; Ph.D., Texas A&M University at College Station

SAND, ERIC, Instructor of Family and Community Medicine-Sport Medicine; M.S., Bemidji State University

** SAUER, MICHELLE, Associate Professor of English; Ph.D., Washington State University

SAUTER, EDWARD, Professor of Surgery; M.D., Ph.D., Louisiana State University

** SCHRIFT, ELIZABETH, Assistant Professor of Anthropology; Ph.D., University of Washington

SCHAUER, JANET, Clinical Associate Professor of Nursing; M.S., University of Minnesota

SCHAUER, ROGER W., Associate Professor of Family and Community Medicine and Director, Pre-doctoral Medical Education; M.D., Wayne State University School of Medicine, Detroit

** SCHEURER, KATHERINE, Assistant Professor of Political Science & Public Administration, M.A.; University of Wisconsin

** SCHILL, JANNA, Instructor of Pathology; M.S., University of North Dakota

** SCHILL, MARY JO, Clinical Assistant Professor of Communication Sciences and Disorders; M.A., Indiana University

** SCHLOSSER, ISAAC, Chester Fritz Distinguished Professor of Biology; Ph.D., University of Illinois

** SCHNEIDER, STUART, Assistant Professor of Information Systems and Business Education; Ph.D., University of North Dakota

** SCHNELLERT, GARY, Associate Professor of Educational Leadership; Ph.D., Iowa State University

** SCHNEWEIS, CAROL, Assistant Professor of Social Work; M.S.W., University of North Dakota

** SCHROEDER, TIM, Associate Professor of Recreation and Leisure Services; Re.D., Indiana University

** SCHULTZ, PATRICK, Assistant Professor or Management; M.S., Texas Tech University

** SCHULTZ, RICHARD, Professor of Electrical Engineering; Ph.D., University of Notre Dame

SCHUMACHER, PETER, Associate Professor of Aviation; M.S., Embry-Riddle Aeronautical University

** SCHWALM, WILLIAM, Professor of Physics; Ph.D., Montana State University

SCHWARTZ, RHONDA, Assistant Professor of Law; Director, Law Library; Ph.D., University of North Dakota

** SEAL, NUNANONG, Assistant Professor of Nursing; Ph.D., Case Western Reserve University-Cleveland

** SEAMES, WAYNE, Professor of Chemical Engineering; Ph.D., University of Arizona-Tucson

** SEDDADO, SAMUEL, Associate Professor of Communication Sciences & Disorders; Ph.D., University of Iowa

** SEECASTLE, SANTHOSH, Professor of Space Studies; Ph.D., Jawaharlal Nehru Technology University

** SEMKE, WILLIAM, Associate Professor of Mechanical Engineering; Ph.D., University of Wisconsin-Madison

** SENS, DONALD A., Professor of Pathology; Ph.D., University of South Carolina

** SENS, MARY ANN, Professor of Pathology; M.D., Ph.D. Medical College of South Carolina

** SHABB, JOHN B., Associate Professor of Biochemistry and Molecular Biology; Ph.D., West Virginia University

** SHERAF, RICHARD, Professor of Communication; Ph.D., University of Missouri

** SHERIDAN, WILLIAM F., Chester Fritz Distinguished Professor of Biology; Ph.D., University of Illinois

** SHOGREN, MARIDEE, Clinical Instructor of Nursing; M.S., Case Western Reserve University-Cleveland

** SHORT, MARTIN, Associate Professor of Physical Education, Exercise Science and Wellness; Ph.D., University of Florida

** SHORT, SANDRA, Professor of Physical Education, Exercise Science and Wellness; Ph.D., Michigan State University

** SIMLAI, PADMAS, Assistant Professor of Economics; Ph.D., University of Illinois

** SIMMONS, REBECCA, Assistant Professor of Biology; Ph.D., University of Minnesota

** SINGH, BRJ, Professor of Biochemistry and Molecular Biology; Ph.D., Bhopal University-Bhopal

SKRAMSTAD, LINDA, Clinical Assistant Professor of Nursing; M.S.N., University of North Dakota

** SMART, KATHY, Director of the Center for Instructional and Learning Technologies and Assistant Professor of Teaching and Learning; Ed.D., University of North Dakota

** SMITH, BRUCE, Dean, John D. Odegard School of Aerospace Sciences, and Professor of Aviation; Ph.D., Florida State University

** SMITH, WESLEY, Assistant Professor of Art; M.F.A., Texas Tech University

** SMITH, WILLIAM S., Associate Professor of Finance; Ph.D., University of Alabama

** SMOLIASKOVA, IRINA, Professor of Chemistry; Chemical Sciences Degree, Zelinsky Institute of Organic Chemistry, Russian Academy of Science

** SMYER, GERARD, Adjunct Associate Professor of Anatomy and Cell Biology and Clinical Associate Professor of Radiology; Ph.D. and M.D., Temple University

** SOLBERG, BROOKE, Instructor of Pathology; M.S., University of North Dakota

** SOMPI, SEEMA, Research Assistant Professor of Pathology; Ph.D., George Washington University

** STAHL, HEIDI, Instructor of Nursing; M.S.N., University of North Dakota

** STAHL, LOTHAR, Professor of Chemistry; Ph.D., University of Utah

** STAMP, JEFFREY, Assistant Professor of Entrepreneurship; Ph.D., University of Minnesota
**STOFFERAHN, CURTIS W.,** Associate Professor of Educational Leadership; J.D., Ohio State University

**SWISHER, WAYNE E.,** Assistant Professor of Computer Science; M.S., University of North Dakota

**SUM, PAULINE,** Assistant Professor of Educational Leadership; M.Ed., St. Cloud State University

**STAPLES, CLIFFORD L.,** Professor of Sociology; Ph.D., Western Michigan University

**STEEN, THOMAS B.,** Associate Professor of Physical Education, Exercise Science and Wellness; Ph.D., Ohio State University

**TAKAHASHI, SHUZO,** Professor of Chemistry; Ph.D., Iowa State University

**TANDE, BRIAN,** Assistant Professor of Chemical Engineering; Ph.D., University of Delaware

**TALLEY, WADE**, Assistant Professor of Family and Community Medicine; M.D., Northeastern University

**TANG, SUSAN,** Assistant Professor of Music; D.M.A., Manhattan School of Music

**TANGSRUD, ROBERT JR.,** Assistant Professor of Marketing; MBA, University of North Dakota

**TIGHT, ROBERT R.,** Professor of Internal Medicine; M.D., University of Rochester

**TILLEY, JEFFREY,** Research Scientist, Regional Weather Information Center; Ph.D., Pennsylvania State University

**TINGUELY, STEPHEN,** Associate Professor and Chairperson of Pediatrics; M.D., University of North Dakota

**TOKACH, VASYL,** Research Associate Professor of Biology; Ph.D., Polish Academy of Sciences

**TODD, RITA,** Professor of Geography; Ph.D., University of California-Los Angeles

**TOWNE, GARY,** Professor of Music; Ph.D., University of California

**TRACY, ROBIN,** Instructor of Family and Community Medicine; D.P.T., Massachusetts General Hospital

**TRAPPELL, BENJAMIN,** Associate Professor of Aviation; M.S., Embry-Riddle Aeronautical University

**TREALY, SHELBY A.,** Assistant Professor of Marketing; MBA, University of North Dakota

**TREGO, DAVID J.,** Clinical Instructor of Nutrition and Dietetics; M.S., University of North Dakota

**TRENCH, ROBERT E.,** Assistant Professor of Counseling Psychology and Administration; M.A., University of North Dakota

**TRENCH, ROBERT R.,** Professor of Psychology; Ph.D., Washington State University

**TRENCH, ROBERT W.,** Professor of Psychology; Ph.D., California State University, Fullerton

**TRENTHAM, JOHN R.,** Assistant Professor of Family and Community Medicine; M.D., University of North Dakota

**TRENTHAM, JOHN R.,** Clinical Instructor of Nutrition and Dietetics; M.S., University of North Dakota

**TREVINO, RAQUEL,** Assistant Professor of Management; Ph.D., University of North Dakota

**TREVELIN, MARCO,** Associate Professor of Rural Health; Ph.D., University of Minnesota

**TREVEDE, JOHN R.,** Adjunct Assistant Professor of Counseling Psychology; M.A., University of North Dakota

**TREVILLION, JANE,** Clinical Instructor of Nutrition and Dietetics; M.S., University of North Dakota

**TREVILLO, RICHARD J.,** Clinical Instructor of Nutrition and Dietetics; M.S., University of North Dakota

**TREVITZ, ROBERT,** Professor of Anatomy and Cell Biology; Ph.D., University of North Dakota

**TREVOR, GEORGE R.,** Assistant Professor of Chemistry; Ph.D., Iowa State University

**TREVOR, GEORGE R.,** Clinical Instructor of Nutrition and Dietetics; M.S., University of North Dakota

**TREVOR, GEORGE R.,** Adjunct Assistant Professor of Anatomy and Cell Biology; M.S., University of North Dakota

**TREVOR, GEORGE R.,** Assistant Professor of Counseling Psychology and Administration; M.A., University of North Dakota
WILLIS, KARIN, Assistant Professor of Family and Community Medicine; M.D., University of North Dakota

WILLISNACK, RICHARD W., Professor of Clinical Neuroscience; Ph.D., Harvard University

WILSON, H. DAVID, Associate Professor of Men's Track Coach; M.S., University of North Dakota

WOLFE, ERIC, Professor of English; Ph.D., Indiana University

WONDERLICH, STEPHEN, Chester Fritz Distinguished Professor of Clinical Neuroscience; Ph.D., Harvard University

WOOD, ROBERT, Associate Professor of Political Science; Ph.D., University of Washington

WORLEY, DEBORAH, Assistant Professor of Educational Leadership; M.S., University of Mississippi

WU, MIN, Assistant Professor of Biochemistry and Molecular Biology; Ph.D., University of Leeds School of Medicine

WYNN, JOSHUA, Executive Dean of the School of Medicine and Health Sciences and Professor of Internal Medicine; M.D., Boston University

XI, BAIKE, Associate Professor of Atmospheric Sciences; Ph.D., Pennsylvania State University

YARDROUGHT, LANCE, Assistant Professor of Geology; Ph.D., University of Mississippi

YEARWOOD, DAVID, Associate Professor of Teaching and Learning; Ph.D., University of North Dakota

YOUNG, TIMOTHY R., Associate Professor of Physics; Ph.D., University of Oklahoma

YOUNGS, LINDA F., Clinical Instructor of Nursing; M.A., University of North Dakota

YURKOVICH, ELEANOR E., Professor of Community and Family Nursing; Ed.D., Montana State University

ZAHU, ZULACRIN, Associate Professor of Mechanical Engineering; Ph.D., Western Michigan University

ZENG, HUAWEI, Adjunct Assistant Professor of Biochemistry and Molecular Biology; Ph.D., University of Wyoming

ZENG, ZHENGWEN, Assistant Professor of Geology; Ph.D., University of Oklahoma

ZERR, RYAN J., Associate Professor of Mathematics; Ph.D., Iowa State University

ZHANG, JIANLONG, Assistant Professor of Atmospheric Sciences, Ph.D., University of Alabama

ZHANG, XIAODONG, Associate Professor of Earth System Science and Policy; Ph.D., Dalhousie University

ZHANG, YILEI, Assistant Professor of Finance; Ph.D., University of Iowa

ZHAO, JIAOJUN, Associate Professor of Chemistry; Ph.D., Jinlin University, China

ZDITION, MARGARET, Associate Professor of Teaching and Learning; Ph.D., University of North Dakota

ZIEGLER, CATHY, Instructor of Family and Community Medicine; M.S., South Dakota State University

ZIEJEWSKI, MARIUSZ, Adjunct Associate Professor of Clinical Neuroscience; Ph.D., North Dakota State University

ZIKMUND, JULIE, Instructor of Nutrition and Dietetics; M.S., Tulane University

ZIMMERMAN, SONIA, Associate Professor of Occupational Therapy; Ph.D., University of North Dakota

ZUO, YANJUN, Assistant Professor of Information Systems & Business Education; Ph.D., University of Arkansas

OTHER PROFESSIONALS

AVERS, ELAINE M., Director, Central Legal Research, School of Law; J.D., University of North Dakota

BAUKOL, NATHAN, Head Strength and Conditioning Coach; M.S., University of North Dakota

BELMORE, TIM, Assistant Football Coach; M.S., Gustavus Adolphus College

BREITBACH, GREG, Assistant Football Coach; M.Ed., Portland State University

BREWER, J. TRAVIS, Assistant Men's Basketball Coach; B.A., Charleston Southern

BRODE, BARRY, Director, UND Television/Radio; M.S., Illinois State

CAREY, ROD, Assistant Football Coach; B.A., Indiana University

CLAY, RICHARD D., Head Women's Track Coach; M.S., St. Cloud State University

CUMMINS, CRISTAL, Assistant Track and Field Coach; B.A., North Dakota State University

DODSON, JEFFREY, Head Baseball Coach; M.S., Emporia State

DRUMMER, BRIDGET, Director of Athletic Academic Services; M.A., University of North Dakota

EADES, CARY, Assistant Men’s Hockey Coach; M.Ed., University of North Dakota

FAISON, BRIAN, Director of Athletics; B.A., University of Missouri

FIELD, JUSTIN C., Assistant Baseball Coach; B.A., University of Missouri

FONTAINE, CORDELL, Director, Social Science Research Institute; M.A., University of North Dakota

FREI, DANIEL, Head Golf Coach; B.A., University of North Dakota

GAY, KRISTEN, Head Soccer Coach; M.A., Indiana State University

GRANDALL, MICHAEL G., Men’s Track Coach; M.S., University of North Dakota

HAIN, BRYAN, Research Associate, Regional Weather Information Center; M.S., University of North Dakota

HAKSTOL, DAVE, Head Men’s Hockey Coach; B.S., University of North Dakota

HARDEE, WILLIAM A., Head Volleyball Coach; B.S., East Carolina University

HELMIG, KARA, Assistant Director of Athletics; J.D., Tulane University Law School

HERRING, E. SCOTT, Associate Director of Athletics; B.A., Grove City College

HOOVER, ROCHELLE, Assistant Soccer Coach; B.A., Weber State

HURLEY, PATRICK, Research Associate of Atmospheric Sciences; B.S., Pennsylvania State University

IDALSKI, BRIAN, Head Women’s Hockey Coach; B.S., University of Wisconsin-Stevens Point

IRLE, DANIELLA, Associate Director of Athletics; B.S., Lamar University

JACKSON, DANE, Assistant Men’s Hockey Coach; B.A., University of North Dakota

JOHNSON, SEAN, Associate Director of Athletics; B.A., University of Missouri

JONES, B.J., Director, Northern Plains Tribal Judicial Training Institute, School of Law; J.D., University of Virginia School of Law
KEMPER, GENE A., Associate Vice President Emeritus for Academic Affairs; Professor Emeritus, Mathematics
KEMPER, ROBERT W., Associate Professor Emeritus, Accounting and Business Law
KETTERLING, LA ROSE, Associate Professor Emerita, Family and Consumer Sciences
KHAETU, DOMINIQUE N., Professor Emerita, Economics
KING, ROBERT W., Professor Emeritus, Elementary Education and English
KJELMYR, HELEN, Associate Professor Emerita, Management
LINKHAMMER, ROBERT N., Associate Professor Emeritus, Social Work
KOHNS, DONALD, Professor Emeritus, Business and Vocational Education
KOLSTOE, RALPH, Professor Emeritus, Psychology
KORBACH, ROBERT J., Professor Emeritus, Economics
KOTCH, ALEX, Professor Emeritus, Chemistry
KRATF, LARRY, Professor Emeritus, Law
KREUTER, JACK N., P.E., Professor Emeritus, Electrical Engineering
KWEIT, MARY GRIZE, Professor Emerita, Political Science and Public Administration
KWEIT, ROBERT, Professor Emeritus, Political Science and Public Administration
LABUN, EVELYN, Associate Professor Emerita, Nursing
LAMBERT, DAVID O., Chester Fritz Distinguished Professor Emeritus, Biochemistry and Molecular Biology
LANG, GRETCHEN, Professor Emerita, Anthropology
LANG, JEFFREY W., Professor Emeritus, Biology
LANGEMO, DIANE, Chester Fritz Distinguished Professor Emerita, Nursing
LANGEMO, E. MARK, Professor Emeritus, Business and Vocational Education
LARSON, G. PAUL, Assistant Professor Emeritus, Economics
LARSON, JAMES H., Professor Emeritus, Sociology
LARSON, LINDA, Assistant Professor Emerita, Pathology
LARSON, OMER, Professor Emeritus, Biology
LAWRENCE, W. FRED, Dean Emeritus, College of Business and Public Administration and Professor Emeritus, Management
LEBUIGLE, ANDRE, Professor Emeritus, Languages
LEMON, DONALD, Chester Fritz Distinguished Professor Emeritus, Educational Leadership
LESER, ESTHER H., Professor Emerita, Languages
LEWIS, ROBERT, Chester Fritz Distinguished Professor Emeritus, English
LIND, AMY, Professor Emerita, Occupational Therapy
LINKLETTER, C. MONTE, Professor Emeritus, English
LUDTKE, RICHARD L., Chester Fritz Distinguished Professor Emeritus, Sociology
MANZ, OSCAR, Professor Emeritus, Civil Engineering
MARKOVICH, DENISE E., Professor Emerita, Finance
MARKOVICH, STEPHEN C., Professor Emeritus, Political Science and Public Administration
MARSHALL, DAVID, Professor Emeritus, English
MASON, EARL, Professor Emeritus, Civil Engineering
MAULAND, LYLE E., Professor Emeritus, Mathematics
MCCAFFREY, DONALD, Professor Emeritus, English
MCCLEARY, KATHRYN, Professor Emerita, Art
MCCORMACK, JOHN, Associate Professor Emeritus, Anatomy and Cell Biology
MCDEAN, EDWARDS, JACKIE, Professor Emerita, Visual Arts
MCINTYRE, SUSAN, Assistant Professor Emerita, Occupational Therapy
MCKENZIE, JAMES, Professor Emeritus, English
MEEK, MARTHA, Associate Professor Emerita, English
MEDALEN, RODNEY E., Associate Professor Emeritus, Accounting and Business Law
MELVOLD, ROGER W., Chester Fritz Distinguished Professor Emeritus, Microbiology and Immunology
MERRILL, LOIS, Dean Emerita, College of Nursing
MILLER, JACK L., Associate Professor Emeritus, Music
MOEN, DONALD, Associate Professor Emeritus, Mechanical Engineering
MOEN, JANET KELLY, Professor Emerita, Sociology
MURASKIN, MURRAY, Professor Emeritus, Physics
NAISSMITH, DONALD P., Professor Emeritus, Mechanical Engineering
NAVARA, JAMES L., Professor Emeritus, Business and Vocational Education
NELSON, EDWARD O., Professor Emeritus, Mathematics
NELSON, GENEVIEVE EILEEN SIMONSON, Assistant Professor Emerita, Pathology
NELSON, ROALD, Professor Emeritus, Medicine
NELSON, WILLIAM, Professor Emeritus, Internal Medicine
NORDLE, ROBERT, Chester Fritz Distinguished Professor Emeritus, Biochemistry and Molecular Biology
NORMAN, VIRGINIA L., Associate Professor Emerita, Nursing
OATFIELD, ROBERT, Professor Emeritus, Medicine
OBERPRILLER, JEAN, Professor Emerita, Anatomy and Cell Biology
OBERPRILLER, JOHN O., Professor Emeritus, Anatomy and Cell Biology
O‘CONNOR, ELLEN, Clinical Associate Professor Emerita, Nursing
OECHSLLE, LOIS, Associate Professor Emerita, Nursing
O‘KELLY, MARCIA, Professor Emerita, Law
OLAFSON, RICHARD, Professor Emeritus, Neuroscience
OLSON, BETTE, Associate Professor Emerita, Nursing
OLSON, MARK D., Associate Professor Emeritus, Anatomy and Cell Biology
OMDahl, LLOYD B., Professor Emeritus, Political Science and Public Administration
O‘REILLY, EDWARD J., Professor Emeritus, Chemistry
OWEN, JOHN B., Professor Emeritus, Biology
OWENS, THOMAS C., Dean Emeritus, School of Engineering and Mines, and Professor Emeritus, Civil Engineering
PALANCA, LOUIS, Professor Emeritus, Languages (Classics)
PARMAR, SURENDRAY A., Chester Fritz Distinguished Professor and Professor Emeritus, Physiology
PAULSEN, BRIAN, Chester Fritz Distinguished Professor Emeritus, Art
PEDELISKI, THEODORE B., Professor Emeritus, Political Science and Public Administration
PETERSON, MYRTLE, Professor Emerita, English
PENN, JOHN S., Dean Emeritus, Summer Sessions and Professor Emeritus, Speech
PETERTSON, MARIYANN, Associate Professor Emerita, Health, Physical Education and Recreation
PETSON, SUSAN, Professor Emerita, History
PHILLIPS, MONTE L., Professor Emeritus, Civil Engineering
PIPER, DONALD, Associate Vice President Emeritus and Professor Emeritus, Educational Leadership
POLOVITZ, MICHAEL F., Professor Emeritus, Music
PORTER, DONALD, Associate Professor Emeritus, Management
POTTER, GERALD, Associate Professor Emeritus, Philosophy and Religion
PRICE, NEIL, Associate Professor Emeritus, Library Science and Audivisual
PRIGGE, GLENN, Professor Emeritus, Mathematics
PRIGGE, LILA, Professor Emerita, Business Education
PYNN, RONALD E., Professor Emeritus, Political Science and Public Administration
QUEY, JOY, Professor Emerita, Clinical Neuroscience
RAMSETT, DAVID E., Professor Emeritus, Economics
RAY, PAUL D., Chester Fritz Distinguished Professor Emeritus, Biochemistry and Molecular Biology
READ, TAMAR, Professor Emerita, Music
REID, JOHN R., Professor Emeritus, Geology
RICHARD, DON, Professor Emeritus, Civil Engineering and Dean Emeritus, School of Engineering and Mines
ROBINSON, THOMAS, Professor Emeritus, Mathematics
ROWE, CLAIR, D., Dean Emerita, College of Business and Public Administration, and Professor Emeritus, Marketing
RUE, JAMES S., Professor Emeritus, Mathematics
SAINT CLAIR, FOSTER Y., Professor Emeritus, English
SAUMUR, JEAN HOLLAND, Associate Professor Emerita, Pathology
SCHAFFER, RONALD H., Professor Emeritus, Visual Arts
SCHMIESS, ELMER, Associate Professor Emeritus, Physics
SCHNEIDER, FRED, Professor Emeritus, Anthropology
SCHNEIDER, MARY JANE, Professor Emerita, Indian Studies
SCHUBERT, GEORGE, Professor Emeritus, Communication Disorders; Dean Emeritus, University College and Summer Sessions
SCOTT, RACHEL SHELDS, Associate Professor Emerita, Nursing
SCOTT, THOMAS, Professor Emeritus, Counseling
SEABOON, ROBERT, Professor Emeritus, Biology
SEIDWICK, CAROL, Associate Professor Emeritus, Music
SEVERSON, DONALD E., Chester Fritz Distinguished Professor and Professor Emeritus, Chemical Engineering
SHUR, AGNES G., Professor Emerita, Nursing
SKRAMSTAD, ALLAN, Associate Professor Emeritus, Aviation
SLOTNICK, HENRY, Professor Emeritus, Neuroscience
SOONPAA, HENN, Professor Emeritus, Physics
SOPHER, ROGER L., Professor Emeritus, Pathology
STEINMEIER, LYLE, Professor Emeritus, Accounting and Business Law
STENBERG, VIRGIL L., Chester Fritz Distinguished Professor Emeritus, Chemistry
STEWART, JAMES A., Professor Emeritus, History
STRACKBEIN, DEANNA L., Associate Professor Emerita, Teaching and Learning
SWENSON, JOHN, Associate Professor Emeritus, Internal Medicine
SWENSON, WAYNE M., Professor Emeritus, Surgery
THOMFORDE, CLIFFORD, Professor Emeritus, Electrical Engineering
THOMPSON, LOWELL, Professor Emeritus, Elementary Education
THOMS, WILLIAM E., Professor Emeritus, Law
THORSON, PLAYFORD V., Professor Emeritus, History
THUREEN, FAYTHE, Instructor Emerita, Languages
TOMASEK, HENRY J., Dean Emeritus, Human Resources Development; Professor Emeritus, Political Science
TWETON, D. JEROME, Chester Fritz Distinguished Professor Emeritus, History
TYLER, JOHN, Professor Emeritus, Psychology
UHHERKA, DAVID J., Professor Emeritus, Mathematics
UHLENBERG, BEVERLY, Associate Professor Emerita, Teaching and Learning
VENNES, JOHN W., Professor Emeritus, Microbiology and Immunology
VIVIAN, JAMES F., Professor Emeritus, History
VOLDEN, CECILIA, Professor Emerita, Nursing Practice and Role Development
WALLER, JAMES R., Professor Emeritus, Microbiology and Immunology
WARCUP, PATRICIA, Assistant Professor Emerita, Health, Physical Education and Recreation
WARNER, ROBERT, Professor Emeritus, Internal Medicine
WATSON, JOHN L., Dean Emeritus, School of Engineering and Mines
WEISSMAN, HENRY C. (Bud), Professor Emeritus, Physical Therapy
WESTBY, KENNETH L., Assistant Professor Emeritus, Management
WHALEN, C. J., Professor Emeritus, Accounting and Business Law
WHITCOMB, JOHN L., Associate Professor Emeritus, Mathematics
WILKINS, WYNONA, Associate Professor Emerita, Languages
WILLET, THELMA, Associate Professor Emerita, Music
WILLIAMS, JOHN DELANE, Professor Emeritus, Educational Foundations and Research
WINGER, MILTON E., Professor Emeritus, Mathematics
WINRICH, LONNY B., Professor Emeritus, Computer Science
WOEHLLE, RALPH, Professor Emeritus, Social Work
WOOLSEY, NEIL F., Professor Emeritus, Chemistry
WRENN, WILLIAM J., Professor Emeritus, Biology
WRIGHT, PAUL, Professor Emeritus, Psychology
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