<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALENDAR</td>
<td>iv</td>
</tr>
<tr>
<td>GENERAL INFORMATION</td>
<td>1</td>
</tr>
<tr>
<td>NEW STUDENT INFORMATION</td>
<td>9</td>
</tr>
<tr>
<td>ACADEMIC INFORMATION</td>
<td>27</td>
</tr>
<tr>
<td>UNIVERSITY SERVICES</td>
<td>53</td>
</tr>
<tr>
<td>UNIVERSITY COLLEGE</td>
<td>70</td>
</tr>
<tr>
<td>CENTER FOR AEROSPACE SCIENCES</td>
<td>74</td>
</tr>
<tr>
<td>COLLEGE OF ARTS AND SCIENCE</td>
<td>79</td>
</tr>
<tr>
<td>COLLEGE OF BUSINESS AND PUBLIC ADMINISTRATION</td>
<td>85</td>
</tr>
<tr>
<td>SCHOOL OF ENGINEERING AND MINES</td>
<td>90</td>
</tr>
<tr>
<td>COLLEGE OF FINE ARTS AND COMMUNICATION</td>
<td>98</td>
</tr>
<tr>
<td>GRADUATE SCHOOL</td>
<td>100</td>
</tr>
<tr>
<td>COLLEGE FOR HUMAN RESOURCES DEVELOPMENT</td>
<td>102</td>
</tr>
<tr>
<td>SCHOOL OF LAW</td>
<td>104</td>
</tr>
<tr>
<td>SCHOOL OF MEDICINE</td>
<td>106</td>
</tr>
<tr>
<td>COLLEGE OF NURSING</td>
<td>109</td>
</tr>
<tr>
<td>CENTER FOR TEACHING AND LEARNING</td>
<td>114</td>
</tr>
<tr>
<td>SUMMER SESSION</td>
<td>120</td>
</tr>
<tr>
<td>DIVISION OF CONTINUING EDUCATION</td>
<td>122</td>
</tr>
<tr>
<td>COURSES OF INSTRUCTION</td>
<td>127</td>
</tr>
<tr>
<td>ADMINISTRATION AND FACULTY</td>
<td>372</td>
</tr>
<tr>
<td>INDEX</td>
<td>400</td>
</tr>
</tbody>
</table>
University of North Dakota

THIS CATALOG was published by the University of North Dakota Office of Records, Alice Poehls, director. Preparation and production assistance by the Office of University Relations, James Penwarden, director. Composition and paging by the University Printing Center. Printing by Webcom Ltd., Scarborough, Ontario, Canada.

UND is a series of bulletins published five times a year in February, March, April, June, and October by the University of North Dakota, Room 411, Twamley Hall, Centennial Drive, Grand Forks, North Dakota 58202. Second class postage paid at Grand Forks, North Dakota. POSTMASTER: Send address changes to “UND,” Enrollment Services Office, Box 8135, Grand Forks, ND 58202-8135.

Vol. 86, Issue 4, June, 1994; USPS 476-010

Printed in Canada
Welcome to the University of North Dakota!

This catalog is a “snapshot,” one moment in the life of a vibrant, comprehensive university. This publication contains information about UND’S structure, curriculum, academic requirements, policies and procedures, and a wealth of other topics, including the names and credentials of our faculty members. This catalog is the indispensable guidebook for all who have chosen to develop their minds and lives at North Dakota’s flagship university.

Don’t be misled by the heft and detail of the publication you are reading. Although universities are among the most enduring of society’s institutions, they are alive, dynamic and changing continuously. This is true of every one of the 170 academic programs offered at UND. Here, you will grow in a challenging and exciting environment of excellence in scholarship and discovery.

The University of North Dakota is committed to preparing its graduates for a lifetime of change. Our students gain not only the specialized knowledge of a particular discipline but also the exposure to the liberal arts and sciences and the general body of knowledge that will prepare them for critical and creative thinking throughout their lives.

We welcome you as a full partner to the UND community — or “family,” as it is often described by those who know it best — as we anticipate the challenges of the 21st Century.

Sincerely,

Kendall L. Baker
President
### ACADEMIC CALENDAR (Subject to Change)

**FALL SEMESTER**

<table>
<thead>
<tr>
<th>Event</th>
<th>1994-95 (951)</th>
<th>1995-96 (961)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning of Instruction</td>
<td>August 30</td>
<td>August 29</td>
</tr>
<tr>
<td>Holiday, Labor Day</td>
<td>September 5</td>
<td>September 4</td>
</tr>
<tr>
<td>Last Day to Add a Full-Term Course</td>
<td>September 13</td>
<td>September 12</td>
</tr>
<tr>
<td>Last Day on Which Candidates May</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apply for a Degree</td>
<td>September 27</td>
<td>September 26</td>
</tr>
<tr>
<td>Last Day to Change to/from S/U</td>
<td>September 30</td>
<td>September 29</td>
</tr>
<tr>
<td>Last Day to Drop</td>
<td>November 4</td>
<td>November 3</td>
</tr>
<tr>
<td>Holiday, Veterans Day</td>
<td>November 11</td>
<td>November 10</td>
</tr>
<tr>
<td>Thanksgiving Recess</td>
<td>November 24-25</td>
<td>November 23-24</td>
</tr>
<tr>
<td>Reading and Review Day</td>
<td>December 13</td>
<td>December 12</td>
</tr>
<tr>
<td>Semester Examination Period</td>
<td>December 14-21</td>
<td>December 13-20</td>
</tr>
<tr>
<td>Winter Commencement and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Official Graduation Date</td>
<td>December 21</td>
<td>December 20</td>
</tr>
<tr>
<td>Grades Due</td>
<td>December 23</td>
<td>December 22</td>
</tr>
</tbody>
</table>

**SPRING SEMESTER**

<table>
<thead>
<tr>
<th>Event</th>
<th>1994-95 (953)</th>
<th>1995-96 (963)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning of Instruction</td>
<td>January 11</td>
<td>January 10</td>
</tr>
<tr>
<td>Holiday, Martin Luther King Jr. Day</td>
<td>January 16</td>
<td>January 15</td>
</tr>
<tr>
<td>Last Day to Add a Full-Term Course</td>
<td>January 25</td>
<td>January 24</td>
</tr>
<tr>
<td>Last Day on Which Candidates May</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apply for a Degree</td>
<td>February 8</td>
<td>February 7</td>
</tr>
<tr>
<td>Last Day to Change to/from S/U</td>
<td>February 10</td>
<td>February 9</td>
</tr>
<tr>
<td>Holiday, Presidents’ Day</td>
<td>February 20</td>
<td>February 19</td>
</tr>
<tr>
<td>Founders Day</td>
<td>February 23</td>
<td>February 29</td>
</tr>
<tr>
<td>Spring Recess Beginning at Close</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of Classes</td>
<td>March 11-19</td>
<td>March 9-17</td>
</tr>
<tr>
<td>Last Day to Drop</td>
<td>March 31</td>
<td>March 29</td>
</tr>
<tr>
<td>Holiday, Good Friday</td>
<td>April 14</td>
<td>April 5</td>
</tr>
<tr>
<td>Reading and Review Day</td>
<td>May 4</td>
<td>May 2</td>
</tr>
<tr>
<td>Semester Examination Period</td>
<td>May 5-12</td>
<td>May 3-10</td>
</tr>
<tr>
<td>Spring Commencement and Official Graduation Day</td>
<td>May 14</td>
<td>May 12</td>
</tr>
<tr>
<td>Grades Due</td>
<td>May 16</td>
<td>May 14</td>
</tr>
</tbody>
</table>

**SUMMER SESSION**

<table>
<thead>
<tr>
<th>Event</th>
<th>1995 (954)</th>
<th>1996 (964)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning of Instruction</td>
<td>May 22</td>
<td>May 20</td>
</tr>
<tr>
<td>Last Day to Add a Full-Term Course</td>
<td>June 1</td>
<td>May 30</td>
</tr>
<tr>
<td>Last Day on Which Candidates May</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apply for a Degree</td>
<td>June 12</td>
<td>June 10</td>
</tr>
<tr>
<td>Last Day to Change to/from S/U</td>
<td>June 16</td>
<td>June 14</td>
</tr>
<tr>
<td>Holiday, Independence Day</td>
<td>July 4</td>
<td>July 4</td>
</tr>
<tr>
<td>Last Day to Drop</td>
<td>July 14</td>
<td>July 12</td>
</tr>
<tr>
<td>Final Examination Period</td>
<td>August 10-11</td>
<td>August 8-9</td>
</tr>
<tr>
<td>Summer Commencement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and Official Graduation Day</td>
<td>August 11</td>
<td>August 9</td>
</tr>
<tr>
<td>Grades Due</td>
<td>August 15</td>
<td>August 13</td>
</tr>
</tbody>
</table>

*All academic deadline dates apply to full-term, on-campus courses.*
CATALOG CONTENT
NON-BINDING, SUBJECT-TO-CHANGE
STATEMENT

The State Board of Higher Education requires that the following announcement be published in all catalogs and bulletins of information issued by the state educational institutions of North Dakota: “Catalogs and bulletins of educational institutions are usually prepared by faculty committees or administrative officers for the purpose of furnishing prospective students and other interested persons with information about the institutions that issue the same. Announcements contained in such printed material are subject to change without notice; they may not be regarded as in the nature of binding obligations on the institutions, and the State. In times of changing conditions it is especially necessary to have this definitely understood.”

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 borrow. 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.

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 the Office of the Vice President for Students Affairs in Twamley Hall and at the Dean of Students Office in McCarmel Hall (to be located temporarily in the Medical Science South Building beginning in late 1994 while McCarmel Hall is being renovated).

UND STATEMENT ON INSTITUTIONAL DIVERSITY AND PLURALISM

Approved by University Senate February 4, 1993

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, and sexual orientation; of persons with disabilities; and of people from other countries. Of particular importance is the University’s longstanding commitment to support the cultures and traditions of the American Indian people while providing learning and teaching experiences which enhance their 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 disavows 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.

Also see the document titled “Diversity and Cultural Pluralism at the University of North Dakota,” a report to the UND President from the UND Diversity Steering Committee, dated September 10, 1993. That report summarizes ongoing University diversity-related activities and suggests new initiatives.

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, creed, 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 a 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. The Title IX, Section 504 coordinator and ADA coordinator is Sally J. Page. She is located in the Affirmative Action Office, 307 Twamley Hall. The mailing address is Box 7097, University Station, Grand Forks, ND 58202; telephone 701-777-4171. Concerns regarding Title IX, Title VI, Section 504, and ADA may be addressed to her or to the Office for Civil Rights, U.S. Department of Education, Federal Building, Suite 310, 1244 Speer Blvd., Denver, Co 80204-3582, as prescribed by Title IX, Education Amendments of 1972; Title VI of the Civil Rights Act of 1964; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975; and the Americans with Disabilities Act of 1991.
General Information

THE SCOPE OF THE UNIVERSITY

The University of North Dakota is a co-educational state-supported institution located in Grand Forks, a city with a population of approximately 49,000. The campus is in the center of the Red River Valley, one of the richest farming areas in the world. In addition, UND is responsible for free-standing branch campuses at Devils Lake and Williston.

The University is the oldest of the state’s 11 public institutions of higher education, enrolling more than 40 percent of all students attending state four-year colleges and universities. With about 12,000 students, UND is the largest post-secondary institution in the region of the Dakotas, Montana, Wyoming, and western Minnesota.

The University’s academic programs are offered in 170 fields through 13 major academic units: University College (freshman division), College of Arts and Sciences, Center for Aerospace Sciences, College of Business and Public Administration, School of Engineering and Mines, College of Fine Arts, College for Human Resources Development, College of Nursing, Center for Teaching and Learning, Graduate School, School of Law, School of Medicine and Division of Continuing Education.

Besides a wide array of undergraduate degrees, UND offers major work leading to the doctorate in 16 programs, to the specialist degree in one program, and to the master’s degree in 47 programs. The state’s only law degree and medical degree programs also are located at UND.

The campus itself includes 570 acres, 240 buildings, and 4.9 million square feet of space.

The full-time faculty and research staff numbers 687, non-instructional staff 1,681, and Rehabilitation Hospital staff 257 for a total of 2,625 full-time employees (excluding the U.S. Air Force bases, UND is North Dakota’s largest public or private employer).

The University’s operating budget for the fiscal year beginning July 1, 1993, was $221 million, of which about one-fourth was expected to come from the state treasury.

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 underway 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 of the 1990s 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. Through these eleven decades 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.

The full story of the University's first 100 years can be read in the book, “A Century on the Northern Plains,” available at the University Bookstore for $6.50.

THE STUDENT BODY

The fall 1993 enrollment, 12,029, included 9,979 undergraduate students, 1,553 graduate students (including 173 in off-campus extended degree programs), and 497 professional law and medical students, as well as 31 auditors. About 57 percent of the on-campus students identified themselves as North Dakotans, 25 percent as Minnesotans. Non-residents represented all of the states and 44 foreign countries. Nearly 65 percent of the students were older than age 21. Forty-eight percent were women and about 13 percent were married.

In the fall of 1993, the University enrolled 1,652 new freshmen, 762 new transfer students and 545 new graduate and graduate professional students, bringing the total number of students matriculated during its history to more than 175,000. Degrees granted during fiscal 1992-93 included 1,773 undergraduate degrees, 402 graduate degrees, and 127 graduate professional degrees in law and medicine. The number of degrees granted since the first commencement in 1889 total 76,454.

MISSION OF THE UNIVERSITY

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

The University of North Dakota 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 and its branch campuses, 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 North Central Association of Colleges and Schools since the Association was organized in 1913. UND received its
most recent NCA accreditation in 1994. Many individual colleges, schools and departments are members of accrediting associations in their respective fields.

THE ACADEMIC YEAR

The academic year is divided into two semesters, each approximately 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 four week pre-summer session begins in mid-May and ends in early June. A summer session of eight weeks begins in June and concludes in August. See the academic calendar on page iv.

PROGRAMS OF STUDY

The University of North Dakota’s academic programs are described elsewhere in this catalog. Please see the listings of the colleges and schools, beginning on page xx, and to the listings of the departments and program areas on page XXX. See also the fields of study summary and the index, both 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 weekends, when classes are in session.

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

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.

Event Information: Call the Info-Center at 777-4321, watch UND Television Cable Channel 3, stop at the Visitor information locations listed above, or write or call the Office of University Relations, 777-2731.

Tickets: Athletic tickets available at Hyslop Sports Center (fieldhouse) Ticket Office, hours 8:30-4:00 p.m., Monday-Friday (telephone 777-2236); tickets for all athletic events can also be purchased by using Ticketmaster, telephone 772-5151, or at any Ticketmaster outlet; Business Theatre (site of Theatre Arts Department and touring productions) Box Office open approximately two weeks prior to each production, 2:00 to 5:00 p.m., Monday through Friday (telephone 777-2587 for tickets; 777-3446 for information); Chester Fritz Auditorium Box Office open from 9 a.m. to 5 p.m., Monday through Friday (telephone 777-4090 for information, 772-5151 to purchase tickets);

Prospective Student Tours: Arrange by writing or calling the Office of Enrollment Services, telephone 777-4463 (also see section titled Tours of Campus.)

Campus Security and Emergency Services: Call 777-3491 for UND'S 24-hour a day police desk. For all emergencies, dial 9-911 from campus phone, 911 from other phones.

Eating facilities: The Centennial Dining Room in the UND Memorial Union offers continental breakfast and table service lunch, Monday through Friday. Snack bar and convenience store service is available from the West Bank Snack Bar & Convenience Store located in Wilkerson Hall, open 11 a.m. to 12 midnight, Monday-Sunday; the East Bank Convenience Store located in Johnstone Hall next to Gamble Hall, open 11 a.m. to 11 p.m., Monday-Sunday; the North Bank Convenience Store in the lower level of Walsh Hall, open 4 p.m. to 11 p.m., Monday-Sunday; the Union Comer Deli in the lower level of the Memorial Union, open 10:30 a.m. to 3 p.m. Monday-Friday; and the Twamley Snack Bar located in Twamley Hall, open 8 a.m. to 3:30 p.m., Monday-Friday. Parents are wel-
come to dine in any of the four dining centers with their student Guest meal prices are available or the student may use their Diner Bucks for guests. The residence dining centers are located in Wilkerson, Smith, Squires, and the Memorial Union (Terrace). Fast food service is available from Burger King in the Memorial Union, open 7 a.m. to 7 p.m. Summer and holiday hours may vary.

Parking: Visitors are always welcome on campus. You are encouraged to obtain a permit free of charge when you arrive on campus by stopping at the Traffic Division or at the “Union Station” traffic service center in the Memorial Union. The Traffic Division is located in the Auxiliary Services Building on the southwest end of the campus, with office hours of 7:30 a.m. to 4:30 p.m. Operating hours are 9 a.m. to 5 p.m. for the “Union Station” in the Memorial Union, which is located on University Avenue in the 2800 and 2900 blocks. The only parking restrictions that apply to visitors are those areas designated as Handicapped Zones, Service Vehicle Zones, Metered Areas and assigned residential parking in University Apartments. Vehicles without a visitor's permit will be ticketed; however, with the exception of the restricted areas listed above, those tickets will be forgiven. Simply sign your name on the ticket, indicate the department or person you were visiting, and mail it to the Traffic Division, Box 9035, Grand Forks, ND, 58202.

Books and Memorabilia: The University Bookstore in the UND Memorial Union, the largest in North Dakota, accepts Mastercard, Visa, and Discover.

Golf: The Ray Richards Golf Course, south of the main campus, 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 (telephone 777-2611, 1-800-543-8764 out-of-state).

TOURS OF CAMPUS 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 information. You can learn not only about the facilities, but also about 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 counselor, to faculty members, and to students, and you can eat in campus dining facilities. When you set up an appointment for a visit to UND we can assist you with arrangements to stay in town or on campus.

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 arrangements 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 the Office of Enrollment Services, (701) 777-4463, or write to: Office of Enrollment Services, Box 8135, Grand Forks, ND 58202.

UNIVERSITY 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 either of the following locations: Union Station (lower level of Memorial Union), Traffic Division (Auxiliary Services Building). 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, 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, is defined to include the following: the student’s name, home address, local address, telephone listing, date and place of birth, major field of study, class level, participation in officially recognized activities, weight and height of members of athletic teams, dates of attendance, degrees and awards received, and the most recent educational institution attended by the student.

The student may request that directory information not be made public by completing an appropriate form in the Office of the Registrar no earlier than the first day of class and no later than the 10th day of class in a semester (or fifth class day in the eight-week summer session). This request will remain in effect for one calendar year. In the event of such a request, these data will be treated as educational records information, and in response to public inquiries the University will verify only whether an individual is currently enrolled at the University.

Educational Records

Educational records are those documents, records, other materials and files, 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. 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.

EXTRACURRICULAR OPPORTUNITIES

General

As a complement to classroom instruction, individual colleges and departments, residence hall, fraternal organizations, Student Senate, 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. Recreational 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 170 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 is available from the Student Organization Center in the Memorial Union.
**Intramural-Recreational Sports**

Intramural-Recreational Sports offers a diverse array of competitive and non-competitive sports to all UND students, faculty, and staff, in men’s, women’s, co-recreational, and faculty-graduate divisions.

Sports include: aerobics, basketball, beach volleyball, basketball, flag football, golf, hockey, racquetball, softball, tennis, and volleyball. Intramural-Recreational Sports is administered and officiated by students, with facilities including the Engelstad Arena, Hyslop Sports Center, Intramural-Recreational Fields, Ray Richards Golf Course, and use of Grand Forks Parks and Recreations Apollo Park Softball Complex.

Intramural-Recreational Sports fosters a spirit of competition and sportsmanship within an avant-garde recreation program with activities to enhance personal physical and mental health. For information, call 777-4330 or come by Room 261, Hyslop Sports Center.

**Intercollegiate Athletics**

A program of men’s intercollegiate athletic competition is offered in football, baseball, basketball, hockey, track and field, golf, wrestling, cross country and swimming. The women’s program includes competition in basketball, cross country, golf, track, swimming, softball, 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.

**Native American Symbols**

For more than half a century, UND athletic teams have been known as the “Fighting Sioux” and have used an Indian head logo as their symbol. Since the University of North Dakota ranks among the top higher education institutions in the nation with respect to the number of Native American students in its student body, the variety and substance of its Native American programs, and the number and success of its Native American alumni, it is important that the nickname and logos be acceptable to UND’S Native American community, which includes many tribes. Surveys have indicated that the currently approved logos and the name “Fighting Sioux” are acceptable as long as stereotyped, racist or demeaning usages are avoided. The University community is committed to respect the past and present customs and traditions of the Native American population. Further information on this subject is available from the Native American Programs Office,’ the Vice President for Student Affairs, the Office of University Relations, or the Athletic Department.

**Religious Activities on the Campus**

A number of campus religious groups are available with a variety of individual and cooperative programs. The groups which have centers adjacent to the campus to serve the University community are: Evangelical Lutheran Church in America (Christus Rex Campus Center), the Lutheran Church Missouri Synod (Wittenberg Chapel), the Catholic Church (The Newman Center) and the United Campus Ministry (The Wesley Center) representing the American Baptist, Episcopal, Moravian, Presbytery (U.S.A.), United Church of Christ, and United Methodist Churches. All of these centers have at least one
full-time staff person, with programs including worship, fellowship, projects and discussions, and service to the community.

Some of the other groups active on campus are Inter-Varsity Christian Fellowship, Campus Crusade for Christ International, Baha’i, Chi Alpha, and Muslims. These groups have members of the University faculty as advisers. Community parishes afford the opportunity for worship to many other denominations.

Off-Campus Trips

Representatives of student organizations are allowed to be absent from classes for approved trips and activities. Each student must make satisfactory make-up arrangements with his or her instructors, before the event if possible.

No off-campus activities or performances by student organizations are permitted during the period of semester examinations. Unusual circumstances may cause persons to request a waiver of this restriction. Written documented requests, which must include reasons for requesting the waiver, will be considered by the Administrative Procedures Committee.

North Dakota Museum of Art

The North Dakota Museum of Art, founded in 1972, is the official art gallery of the State of North Dakota and the University of North Dakota Art Museum, with a primary focus on contemporary art by regional, national, and international artists. Exhibitions featuring an array of sculpture, painting, ceramics, photography, jewelry and other art forms change every six weeks. There is a Museum Shop and a Coffee Bar. Lectures and concerts are scheduled in the Museum on a regular basis. Located on Centennial Drive, south of Twamley Hall, the Museum and Museum Shop hours are Monday through Friday, 9 a.m. to 5 p.m., Thursday, 9 a.m. to 9 p.m., and Saturday and Sunday, 1 p.m. to 5 p.m. There is no admission charge.

UND Energy and Environmental Research Center

This self-supporting $22 million per year scientific and engineering research operation employs over 260 people and over 100 students annually. The Center, which is the leading low-rank coal research facility in the world, also conducts energy research focused on oil, gas, and geothermal resources, wind, solar, biomass, and oxygenated fuels. Specific environmental research topics include air emissions control technologies, hydrogeology and groundwater protection, waste management, waste-site cleanup, innovative analytical procedures, industrial process development, and mined-land reclamation. The Center services a wide range of clients, including industry state and federal agencies, and foreign entities.
New Student Information

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 at schools and college fairs, tours of the UND campus, and personal contact over the telephone or on a face-to-face basis. The necessary, consolidated application form for admission and housing may be obtained from the Enrollment Services Office. The mailing address is Enrollment Services Office, Box 8135 University Station, University of North Dakota, Grand Forks, ND 58202. The office telephone number is 701/777-4463. 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 and/or housing.

ADMISSION OF STUDENTS

Undergraduates may be enrolled at the University in one of four categories: as regular full-time students; regular part-time students; transient students or auditors. See below for definitions of these classifications. For provisions governing admission to the Graduate School, the Law School and medical studies in the Medical School, applicants should consult the respective bulletins of those schools.

Classification of Students

Regular Full-Time Student. A regular full-time student is one who has entirely satisfied the entrance requirements and is duly enrolled as a candidate for a degree in at least twelve semester hours of credit during a fall or spring semester. 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.

Regular Part-Time Student. A regular part-time student is one who has entirely satisfied the entrance requirements, is duly enrolled as a candidate for a degree, but is registered for fewer than twelve semester hours of credit during a fall or spring semester. (Students enrolled in Cooperative Education 337, see p. 42.) There is no specific minimum number of credits in which a student of this classification must be enrolled.

Transient Student. A transient student is a person who enrolls at the University for a summer session or one semester only and plans to transfer the credits earned to apply toward a degree at another institution. Credit earned as a transient student may be applied toward a degree if the student qualifies for transfer admission.

Auditor. Students enrolled in university classes as auditors have a status and responsibility in class distinctly different from that of those taking the course for credit. Students wishing to enroll in university classes as auditors must seek and receive the prior consent of the instructor concerned. Anyone enrolling without such consent may be cancelled from the class by the instructor. An auditor is not required to participate in the oral or written work of the class. He or she takes no examinations and receives no credit for the course. He or she is identified to the instructor concerned as an auditor 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 in residence to earn credit.
Admission of New Freshmen

Students applying for admission to UND are required to take one of the standardized college entrance exams. The American College Test (ACT) is preferred, though the SAT is also accepted. Standardized test scores at UND are used for scholarships and advisement, as well as admissions criterion. Students 25 years old or older are not required to have test scores. It is recommended that students take the ACT late in their junior year or early in their senior year.

All students who graduate from high school, whether in North Dakota or in any other state, in 1993 or later and are under the age of 23, 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 is entitled to admit some students who have not completed the required courses. A University admissions committee will consider exemptions to the policy because of special circumstances.

The Admissions 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, 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 Bismack State College, North Dakota State College of Science, NDSU-Bottineau, UND-Lake Region and UND-Williston. 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 and is at least 19 years of age may be admitted to the University by completing the test of General Educational Development (GED) with a minimum score of 40 or above on each exam and an overall average of 50 on the entire test.

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 Admissions Office to acquire the international student application form.

International Students applying for freshman admission and students whose first language is not English are required to earn a score of at least 525 on the Test of English as a Foreign Language to be considered for admission. The International Student Office provides assistance and counseling to students from countries other than the United States. See page 58. International students should write to the International Student Adviser as well as to the Office of Admissions.

Canadian students are required to have completed Grade XII and meet non-resident and high school core curriculum admission requirements including the official ACT (preferred) or SAT results to be eligible to enter the University as freshmen.

Students who are currently attending high school may be allowed to enroll in University courses with the special permission of the Director of Admissions, the Dean of the Univer-
University College, and the student’s high school principal and 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.

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 Scholastic Aptitude Test (SAT) may request official test scores he mailed to the Admissions Office from SAT in Princeton, NJ, in lieu of the ACT. 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. Test scores are required for admission, as well as for evaluating applications for loans and scholarships.

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.

Students who neglect to take the test must complete it during the orientation period and pay a fee of $18.00 (subject to change).

Measles/Rubella Immunization. All students attending North Dakota colleges and universities must prove immunization against measles and rubella.

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 page 40.

“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, 204, 208, 211) 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. Ask your adviser, or contact the mathematics department, concerning time and place of this test.

The 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. Three different placement exams are used. Which exam will be taken is based upon ACT Math scores. Placement test results will determine beginning placement in Intermediate Algebra (Math 102), College Algebra (Math 103), Finite Math (Math 104), Trigonometry (Math 105), Survey of Calculus (Math 204), Discrete Mathematics (Math 208), Calculus I (Math 211) or Math for Elementary School Teachers (Math 277).
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. Additional information regarding CLEP is found on page 41.

Enrollment in University College. All freshman students are enrolled in the University College. A student usually remains enrolled in the University College for one academic year. When the student has earned a minimum of 24 semester hours of academic credit and has met college requirements, he or she may seek advancement to the degree college of his or her choice where he or she will complete the work for the degree. For more information on the University College, see page 70. (For information regarding additional requirements for admission to degree colleges and programs, see the listings beginning on p. 70.)

How to Apply: 1. The Application for Admission form may be obtained from The Office of Enrollment Services, Box 8135 University Station, University of North Dakota, Grand Forks, ND 58202.

2. ADMISSION to the University of North Dakota. All applicants are required to complete and return the application for admission to the Office of Admissions with the $20.00 non-refundable application fee. In addition, beginning freshmen must request the principal of their high school to send a transcript of their record directly to the Office of Admissions. (Students applying for fall 1995 and after will pay a $25.00 non-refundable fee.)

3. The freshman applicant is required to take the ACT (preferred) 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. Each applicant must have the Medical Examination Form completed by his or her family physician. This form is mailed to each accepted student and the completed medical form should be returned to the Student Health Service before enrollment.

When to Apply: 1. 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.

2. The application for admission for the fall semester maybe submitted any time during the period between the beginning of the senior year and July 1. Application for spring semester should be submitted no later than November 15 prior to the opening of the spring semester and April 15 for the Summer Session. International students are required to apply for admission for the fall semester by April 1.

Providing applicants meet all the admission requirements, completed applications received from applicants after the deadlines for the academic year 1993-94, may be considered for admission to the University by the Director of Admissions and the Dean of University College.

3. A prospective freshman student may make application for admission for either fall or spring semester or the summer session.

Admission of Transfer Students

Transfer students from other colleges and universities must request that official transcripts of their records at each institution attended be sent directly from the registrar of that
institution to the Admissions Office. Also applicants who have attended other colleges and universities but have not earned 24 semester hours of credit must request that their high school record and official copy of their ACT or SAT results be forwarded to the Admissions Office. These students will enroll in the University College.

An application will not be considered until all transcripts and official ACT or SAT results for students who will not have 24 acceptable transfer credits toward a degree program, have been received by the Admissions Office.

A student who has completed a minimum of 24 semester hours (or 36 quarter hours) of transferable credit at another college or university may enroll in one of the undergraduate degree granting colleges of the University. These are the College of Arts and Sciences, Center for Aerospace Sciences, the Center for Teaching and Learning, the College for Human Resources Development, the College of Fine Arts, the School of Engineering and Mines, the College of Nursing, and the School of Medicine (Physical Therapy and Medical Technology). The College of Business and Public Administration requires completion of 60 acceptable credits toward a degree program. For information on admission requirements and grade point average requirements of UND’S colleges and schools, see the listings beginning on page 70.

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 Admissions Office 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 Admissions Office examines and passes upon credentials for 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 to register is granted, the student is placed on scholarship probation.

International students applying for transfer admission from United States colleges must, in addition to the application for admission, complete a foreign student adviser reference form and a certification of finances form. The TOEFL (Test of English as a Foreign Language), with a score of 525 for undergraduate students, is required for all students whose native language is not English.

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. These requirements are described in the specific college listing in this catalog.

Measles/Rubella Immunization. All students attending North Dakota colleges and universities must prove immunization against measles and rubella.

Transfer Credit. In general, students may transfer credit to the University for any courses successfully completed at regionally accredited colleges and universities, providing (a) the courses were in disciplines offered at or cognate to those offered at the University; and (b) the courses do or would receive credit if offered at the University.

Students pursuing degrees in Vocational Marketing Education (Business Education, Distributive Education, Home Economics Education or Industrial Technology Education), or in such programs as Airway Science-Aviation Maintenance Management; Community
Dietetics; or Medical Technology who have completed approved vocational programs of at least nine months duration may be allowed transfer credit, on a block basis, in the major area. The amount of credit will be determined by the Coordinating Council for vocational education majors or the respective departments for other majors. The credit granted will be applied only toward degrees in the specified majors.

Transfer students from two-year colleges (junior or community colleges) are required to complete a minimum of sixty semester hours at a four-year college. The last 30 credits toward the degree must be completed in residence 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 Station, University of North Dakota, Grand Forks, ND 58202.

2. Students must complete the application and return it to the Admissions Office together with a $20.00 non-refundable fee.

3. Students must request that an official transcript from each college attended be forwarded directly to the Admissions Office, Box 8135 University Station, 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. Official ACT or SAT results are required for students allowed less than 24 semester credits in transfer to a degree program.

When to Apply: 1. 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 preregistration during which time they may come to the University for advice about their schedule and may enroll for the first semester courses.

2. A student should submit an application no later than July 1 prior to the opening of the first semester in the year for which admission is sought. Application for second semester should be submitted no later than December 1 prior to the opening of the second semester. Application for Summer Session should be submitted by May 15. International students must apply by April 1 for the fall semester.

Providing applicants meet all the admission requirements, completed applications received from applicants after the deadlines for the academic year 1993-94, may be considered for admission to the University by the Director of Admissions and the Dean of University College.

Readmission of Former Undergraduate Students

Former undergraduate students of the University of North Dakota who wish to return must submit a Request for Readmission form to the Admissions Office. Those who have enrolled in other institutions must submit official transcripts for evaluation before they will be considered for readmission. (Returning graduate students refer to the Graduate Bulletin.)

The completed Readmission Form should be returned to the Admissions Office at least one month before the beginning of the semester in which the student expects to return to the University.
ORIENTATION PROGRAMS FOR NEW STUDENTS

The University of North Dakota holds orientation programs for new students (freshman and transfer students) each semester. 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.

TUITION AND FEES, 1994-95*
(Per semester, 12 or more credits)**

<table>
<thead>
<tr>
<th></th>
<th>Resident</th>
<th>Minnesota</th>
<th>Contiguous States</th>
<th>Non-resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>$1,214.00</td>
<td>$1,478.00</td>
<td>$1,742.00</td>
<td>$2,976.00</td>
</tr>
<tr>
<td>Graduate</td>
<td>1,319.00</td>
<td>1,609.00</td>
<td>1,899.00</td>
<td>3,256.00</td>
</tr>
<tr>
<td>Law</td>
<td>1,424.00</td>
<td>1,741.00</td>
<td>2,056.50</td>
<td>3,537.00</td>
</tr>
<tr>
<td>Medicine</td>
<td>4,389.00</td>
<td>5,447.00</td>
<td>11,453.00</td>
<td></td>
</tr>
</tbody>
</table>

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 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 1993-94 totaled $156.00 per semester at UND (and is included in the above table). These include the University Fee, which supports, among other functions, musical organizations, the UND Memorial Union, and intercollegiate athletics, $68.00; health fee, $45.00; student activity fees, allocated by student government for such purposes as concerts and student publications, $20.50; Memorial Union bond retirement, $7.50; and McCannel Hall Renovation, $15.00. The student activity and bond retirement fees were approved by votes of the student body.

*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 Engineering and Nursing as indicated in a following section titled “Other Fees.”

ESTIMATED YEARLY EXPENSES

The following table gives an estimate of the expenses of a single, undergraduate student residing on campus during the nine month, 1993-1994 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 States</th>
<th>Non-resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition and Fees*</td>
<td>$2,428.00</td>
<td>$2,956.00</td>
<td>$3,484.00</td>
<td>$5,952.00</td>
</tr>
<tr>
<td>Room and Board**</td>
<td>2,654.00</td>
<td>2,654.00</td>
<td>2,654.00</td>
<td>2,654.00</td>
</tr>
<tr>
<td>Books and Supplies</td>
<td>450.00</td>
<td>450.00</td>
<td>450.00</td>
<td>450.00</td>
</tr>
<tr>
<td>Personal Expenses</td>
<td>1,800.00</td>
<td>1,800.00</td>
<td>1,800.00</td>
<td>1,800.00</td>
</tr>
<tr>
<td>Total Estimated Costs</td>
<td>$7,381.00</td>
<td>$7,909.00</td>
<td>$8,437.00</td>
<td>$10,905.00</td>
</tr>
</tbody>
</table>

*Plus matriculation fees ($20.00 one time)
**Costs based on UND residence hall rates (double room and 14 meal contract)
OTHER FEES

Application Fee (Undergraduate) ................................................................. $20.00*
Payable by all undergraduate students applying for admission.

Application Fee for Medical Students ......................................................... 25.00”

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

Engineering Laboratory Field
Trip Fee (one semester) ........................................................................... as required
Payable by each student enrolled in Civil 481 and Mechanical 380.

Engineering Program Fee
A program fee of $150 per semester ($300 per academic year) will be charged to both undergraduate and graduate students in engineering who have completed 60 semester credits of courses which pertain to an engineering program.

Outreach Programs Courses. (See Schedule in Division of Continuing Education section of Catalog.)

Late Registration Fee .................................................................................. 5.00”
Payable by each student — including graduates — who completes his or her registration in the Registrar’s Office the day after the last day designated for registration or who fails to pay his or her fees on the designated date for fee payment. An additional $5.00 to be charged for each day thereafter.

Non-resident Fee Penalty ........................................................................... 25.00’
Payable by any student who does not give correct information regarding his or her residence or who represents himself or herself to be a resident of North Dakota when he or she is a legal resident of another state.

Nursing Program Fees
For all students newly admitted to Nursing, a program fee of $150 per semester ($300 per academic year) will be charged all undergraduate students enrolled in the professional nursing education programs which lead to a Bachelor of Science Degree and eligibility for licensure as a Registered Nurse.
A program fee of $250 per semester ($500 per academic year) will be charged to all graduate students admitted to and enrolled in the anesthesia nursing and nurse practitioner tracks of the graduate program in Nursing.

Parking Fee ............................................................................................... 30.00**
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 $15.00 and new summer session students pay $7.50. Fees are subject to change.

Special Examination for Credit Fee per Semester Hour ................................. $14 the regular credit hour fee

*Non-refundable

REGULATIONS REGARDING NON-RESIDENT FEES

FEES FOR NON-RESIDENT STUDENTS (Requirements Subject to Change without Notice). Non-resident students seeking to declare residence for tuition fee purposes must contact the Business Office and tile such a request. For purposes of determining residency a resident student is defined by law as follows:

1. A person less than 18 years of age who resides with a parent or guardian who has been a legal resident of North Dakota for twelve months;

2. A person of age eighteen or over who has been a legal resident of North Dakota for twelve months. (Applicant must not have been claimed as a dependent on the parent or guardian’s most recent federal tax return);

3. A dependent whose parent or guardian has been a legal resident of North Dakota for twelve months or resides in the state with the intent to establish residency in the state for a
period of years. (Applicant must be claimed as a dependent on the most recent federal tax return);

4. A person who graduated from a North Dakota high school within sixty-four months prior to registration;

5. A full-time active duty member of the armed forces assigned to a military installation in North Dakota (does not include National Guard or reserve members);

6. A spouse or dependent of a full-time active duty member of the armed forces assigned to a military installation in North Dakota (does not include National Guard or reserve members);

7. A dependent of an instructor who lives in North Dakota and teaches in any institution of higher education in the state (instructor with faculty or equivalent professional status);

8. The spouse of any person who is a resident for tuition purposes; or

9. Any other person who registers within sixty months after residing in this state for a period of at least thirty-six consecutive months.

Applications for residency are available at the Business Office.

**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 any motor vehicle owned.

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, 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 other North Dakota residency requirements for tuition purposes. Refugee students should contact Business Office for requirements.

“Any student may submit an appeal to the UND legal counsel. If they determine the circumstances to justify such action, the UND legal counsel will admit such student as a resident for tuition purposes.

**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. This rate is determined by averaging the tuition costs of the North Dakota and Minnesota state university systems. All UND students from Minnesota are included. To be certified for reciprocity at UND Minnesota students must (1) file UND’S standard admission application, and (2) file a reciprocity participation application with the Minnesota Higher Education Coordinating Commission, 901 Capitol Square Building, 550 Cedar Street, St. Paul, MN 55101. Reciprocity forms will be mailed to all Minnesota residents after acceptance. Students who participated in the reciprocity program and have earned credit in the previous 12 months will not have to reapply.

**CONTIGUOUS STATES/PROVINCES**

Although residents of South Dakota Montana, Manitoba and Saskatchewan are not covered by reciprocity agreements, they pay lower tuition and fees than do other non-residents.
WESTERN UNDERGRADUATE EXCHANGE PROGRAM

The University of North Dakota participates in the Western Undergraduate Exchange (WUE) program. Currently, students may enroll in designated programs at selected institutions in Alaska, Colorado, Hawaii, New Mexico, Oregon, South Dakota, Utah, and Wyoming at a special tuition level. For example, those attending the University of North Dakota under the WUE program pay an amount equal to one and one-half times the North Dakota in-state tuition and fees, which in 1993-94 would have totaled $3,290 instead of the normal $5,612 in non-resident tuition and fees for that year.

REFUND OF FEES 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 fees, upon written request, in accordance with the North Dakota State Board of Higher Education policy.

   A. Refund for new or transfer students attending the University for the first time who receive Title IV aid. A new or transfer student is defined as any student attending the University for the first time. Any new or transfer student who withdraws from the University shall receive a pro rata refund of tuition and fees. Refunds will be calculated as follows:

   
<table>
<thead>
<tr>
<th>Week of Classes</th>
<th>Refund Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st week</td>
<td>100%</td>
</tr>
<tr>
<td>2nd week</td>
<td>80%</td>
</tr>
<tr>
<td>3rd week</td>
<td>80%</td>
</tr>
<tr>
<td>4th week</td>
<td>70%</td>
</tr>
<tr>
<td>5th week</td>
<td>60%</td>
</tr>
<tr>
<td>6th week</td>
<td>60%</td>
</tr>
<tr>
<td>7th week</td>
<td>50%</td>
</tr>
<tr>
<td>8th week</td>
<td>50%</td>
</tr>
<tr>
<td>9th week</td>
<td>40%</td>
</tr>
<tr>
<td>10th week</td>
<td>0%</td>
</tr>
</tbody>
</table>

   If a student awarded financial aid receives a tuition refund, the refund will be applied to the financial aid, not issued to the student.

   B. Refund policy for returning students and first time students not receiving Title IV aid. Any student who withdraws from the University shall receive a refund of tuition and fees. Refunds will be issued according to the following schedule:

<table>
<thead>
<tr>
<th>Class Day</th>
<th>Refund Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero</td>
<td>100%</td>
</tr>
<tr>
<td>Sixth</td>
<td>80%</td>
</tr>
<tr>
<td>Eleventh</td>
<td>60%</td>
</tr>
<tr>
<td>Sixteenth</td>
<td>40%</td>
</tr>
<tr>
<td>After</td>
<td>0%</td>
</tr>
</tbody>
</table>

2. 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.

3. Any student who is suspended or who withdraws from the University shall, upon written notice, receive full refund for any unused portion of his or her room and board. Unused portion begins with that succeeding week after a student is no longer in school; a student shall be charged for that entire week in which he or she was last in school be it for the entire week or any portion thereof.

4. Such written notice must be given or sent to the Business Office, Twamley Hall, Box 8203, University Station, Grand Forks, ND 58202. An appeal of a decision may be made by a student in accordance with appeal procedure outlined in the Code of Student Life and the Student Handbook.
REFUND FOR CLASS CHANGES (DROP/ADD)

Students dropping a class during the first seven days of the semester will receive a 100% refund of tuition and fees. After the seventh class day of the semester there is no refund for a class which is dropped. However, classes of the same or fewer credits may be substituted at no additional tuition/fee charge. If the substituted class requires a special course fee, the student will be assessed that charge.

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 borrow. 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.

RESEARCH

Research is an important component of the mission of the University of North Dakota. As a result of research activities conducted by the faculty, UND students, both undergraduate and graduate, have an opportunity to further broaden their educational experience. Besides 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 either through University and local research agencies or through individual faculty members working within their own departments. Several of the UND research agencies and programs are involved in public service activities which provide an opportunity for faculty and students to use service data in research projects and to initiate new research studies based on the findings of the public service projects.

Financial support for research activities is provided either from University sources, such as the Faculty Research Committee or the Office of Research and Program Development, or through funds provided from external agencies such as the Federal or State government, private foundations, and industry. In the 1992-93 fiscal year, $40.6 million of external support was received for sponsored program activities, of which $26.3 million was for research.

Major UND research agencies and programs include the Bureau of Business and Economic Research, Bureau of Governmental Affairs, Bureau of Educational Services and Applied Research, Engineering Experiment Station, Institute for Ecological Studies, the Social Sciences Research Institute, the Earth Systems Science Institute, and the UND Energy and Environmental Research Center.

Local research agencies and programs which work with UND faculty and students include the UND Rehabilitation Hospital Child Evaluation and Treatment Program, the U.S. Department of Agriculture Human Nutrition Research Center, and the State of North Dakota Geological Survey.

UND is a major component of the National Science Foundation’s Experimental Program to Stimulate Competitive Research (EPSCOR) in North Dakota. The state received and matched its first EPSCOR grant in 1986, and has received continuous NSF funding since that time.

Further information on research activities can be obtained by calling the Office of Research and Program Development at 701/777-4278. See also page 68.
**ORAU, AWU Membership:** The University of North Dakota is a member of two consortia of associated universities. Oak Ridge Associated Universities (ORAU) is a private, not-for-profit consortium of 65 colleges and universities with its principal offices located in Oak Ridge, Tennessee. Associated Western Universities, Inc., (AWU) is a consortium of more than 40 universities that directly supports the Department of Energy’s (DOE) mission to develop and maintain educational and training activities which insure that the scientific and technical needs of the energy research and development community are met. AWU provides an interface among the academic community, DOE, and its western laboratories. For information regarding either ORAU or AWU, contact the Office of Research and Program Development (777-4278).

**STUDENT FINANCIAL AID**

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

The Student Financial Aid Office believes the primary responsibility for financing a college education rests with the student and his/her family. UND financial aid is viewed only 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 his/her family is expected to pay, as determined by a standard formula. In determining family contribution, four major sources are considered: (1) parents/spouse income, (2) parents/spouse 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 Financial Aid Office reserves the right to make the final determination regarding the type(s) and amount of aid awarded, 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 (usually cash) awarded on the basis of academic performance and potential. Grants are outright 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. Worthwhile work experience that will complement the students’ learning gives the University the opportunity to utilize student skills. There are several student employment programs.

Federal Work-Study 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 employment are paid from state-appropriated funds allocated to individual University departments. Financial need is not a requirement.

All students who work through FWS and/or institutional 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 Veterans’ 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, Nursing Student Loan, Health Professions Student Loan, Health Education Assistance Loan, Student Educational Loan Fund. A more complete listing of private loans is available at the financial aid office.

Federal requirements insist all first time borrowers must attend a loan counseling session prior to receiving loan funds. An exit interview is also required at the time a student graduates or terminates enrollment at the University. Federal regulations also require multiple disbursements and a 30-day delayed disbursement policy for first-year, first-time borrowers.

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 60 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 1450 undergraduate scholarships totaling over $1,000,000 per year. These vary in amounts up to $2,250 per academic year, although most are $250.

Nearly 1,700 students are selected for consideration for scholarships each year on the basis of information on their financial aid applications.

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 rank in the upper ten percent of their graduating class and who have ACT scores commensurate with this rank. Graduating class rank is normally based on seven semesters of high school work. 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.
UND awards a maximum of $2,250 in scholarship) assistance per recipient each year from all University funds including academic departments, the Student Financial-Aid Office and the UND Foundation.

Students may be considered for all undergraduate scholarships as well as other forms of financial aid by completing the Free Application for Federal Student Aid. Students interested only in an honor scholarship should complete the Honor Scholarship Application form. Application forms may be requested by contacting the Office of Enrollment Services.

Only one application is required to apply for an academic scholarship. Students are matched with scholarships on the basis of previous academic records and information provided on the financial aid or scholarship application.

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). For more information or an application, contact the Student Financial Aids Office.

Grants. The largest of the grant programs, the Federal Pen Grant entitlement program, provides grants to those students who meet the eligibility and need criteria established by the U.S. Congress. For the 1994-95 school year, grants range from $400 to $2,300. The exact amount of a Pen Grant depends upon the student’s need and the money appropriated by Congress to fund the program in any given year. Students can receive this grant for the period required for completion of the first undergraduate baccalaureate degree.

Supplemental Educational Opportunity Grants are available to undergraduate students who qualify for the Pen Grant and meet the priority deadline. Eligible students enrolled at least half-time may receive grants up to $500 per year.

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 assure 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. Students must check yes to the item on the FAFSA allowing the information to be released to state agencies. The deadline for priority consideration is April 15. For 1994-95 students who were awarded a Student Financial Assistance Grant received $600 for the academic year. Additional information may be obtained from the Student Financial Assistance Program, State Board of Higher Education, 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 scholarship are offered on a competitive basis to outstanding ‘male and female student; 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 North Dakota National Guardsman presently serving in either the Army Guard or the Air Guard may have up to 75 percent of the tuition fee per academic year waived or receive assistance through the loan repayment program. For information on eli-
gibility requirements, contact your local National Guard unit or the Office of the Adjutant General, P.O. Box 5511, Bismarck, ND 58502-5511.

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’s 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.** April 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 mid-February as it takes approximately one month for processing. Students must submit the FAFSA each year.

The Student Financial Aid Office awards aid to the neediest students whose FAFSA is on file by April 15. After that date, students’ files are considered by date of FAFSA 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 during the early summer regarding the action taken on their application. Recipients of financial aid must accept or reject the aid within 15 days after receiving notice of the award.

**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.

**Transfer Students.** Students who previously attended another post-secondary school, college or university must have on file at the UND Student Financial Aid Office a Financial Aid Transcript to document financial aid information from the school(s) previously attended. This form is required even if the student did not receive financial aid at the previously attended school. These forms are available at the UND Student Financial Aid Office. Failure to comply may result in withholding of aid.

**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. 1) Academic standards: students classified as juniors or seniors, and stu-
ents who have attended UND for two or more academic terms (4 semesters or more) must have a minimum 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 Bulletin meet this standard. All students must be eligible to re-enroll in the next term in order to meet this standard. (2) Rate of progress standards — a) students must complete their program of study within the maximum number of attempted credit hours: undergraduate 187, graduate 135, medical 218 and law 135; and b) students must successfully complete 2/3” (67%) of the cumulative credit hours attempted each year. A more detailed Summary of the Standards of Satisfactory Progress for Financial Aid Eligibility may be obtained from the Student Financial Aid Office.

Repayment of Financial Aid. Financial aid funds can be used only for educational expenses. Therefore, repayment may have to be made if a student withdraws from the institution. If withdrawal is before the first day of classes, all cash disbursements are overpayments and must be repaid. If withdrawal is on or after the first day of classes, the institution will determine the overpayment to be repaid based on the last day of documented class attendance according to a federal formula on a prorated basis. For specific details, contact the UND Student Financial Aid Office.

Access to Records. Files containing information regarding individual students are not open to the general public under the provisions of the Family Educational Rights and Privacy Act of 1974. The release of such information shall only be made in conformance with the University’s policy as contained in Section 6-3A(1) of the Code of Student Life and the Release of Records Policy, which may be obtained from the Student Financial Aid Office.

UNIVERSITY HOUSING AND DINING SERVICES

Student living facilities at the University of North Dakota include University residence halls, single student apartments, family housing apartments, and a mobile home park.

Dining Services

The University has four dining centers serving meals on a contract basis. They are located in three residence hall complexes — Wilkerson, Squires and Smith. The fourth, the Terrace Dining Center in the Memorial Union, serves students living in Swanson Hall and those living off campus who are interested in a board contract. (Board is required in all residence halls.) Fine Dine Table Service is available at the Centennial Dining Room. The Snack Bar and short order or fast food dining is available at the Burger King located in the Memorial Union, Twamley Snack Bar located on the third floor of Twamley Hall, and the West Bank Convenience Store/ Snack Bar located in Wilkerson Hall.

Private dining room and banquet services are also available for students, faculty groups and others associated with the University by contacting the campus catering office or the Director of Dining Services. Students may invite their parents to use any of the Dining Service facilities when they visit the campus. See page 3 for additional visitor information.

University Residence Halls

University residence halls are designed to provide a comfortable living environment for students while they are enrolled in the University and to promote the personal and social development of students through group living. Each residence hall has a hall director who is assisted by resident assistants. Each hall elects its own hall council which promotes a program of social, educational and recreational activities. Complete information may be obtained by writing to the Housing Office, University of North Dakota, Box 9029, University Station, Grand Forks, ND 58202-9029.
Applications. Applications are sent, on request, from the Enrollment Services Office or the Housing Office. Assignments are made in accordance with the established priority system which is determined by the date of the receipt of the $25 nonrefundable 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 semesters) or for the entire summer session. The student 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 State Board of Higher Education. The cost of a double room with a 19-meal board plan was $2,654 for the 1993-94 academic year. Room and board rates are revised annually and are subject to change.

A student vacating his or her assigned quarters before the end of his or her contract term without written consent from the Associate Director of Residence Halls 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. Only enrolled University students may live in UND residence halls.

Facilities. All residence halls meet modern standards of health, fire and sanitation. Furnishings include study desks, single beds (mattresses are 36” x 80”), dressers, chairs and drapes. Laundry facilities and mail service are also provided. Students are required to furnish their own blankets, study lamps, towels, bedspreads, and pillows. Bed linen is available on a contract basis or the student may provide their own. Telephone lines are provided; however, the student is required to bring their own phone.

University Apartment

The University maintains several hundred apartments for families and single students along with a lot for privately owned mobile homes. Applications and information about the specific types of apartments and current rates is available from the Housing Office, University of North Dakota, Box 9029, Grand Forks, ND 58202-9029. Rental rates are subject to change. Early application is encouraged due to the high demand for University housing. Assignments are made in accordance with the established priority system which is determined by the date of receipt of the $100 application fee/deposit ($25 nonrefundable application fee and $75 deposit).

Single Student Housing

The University maintains furnished and unfurnished apartments, efficiencies, and sleeping rooms for single students. Leaseholders must be senior, graduate level, or 26 years of age or older. Rent, which in most cases includes all utilities except electricity and telephone, ranged from $207 to $396 for the 1993-94 academic year.

Family Student Housing

The University reserves 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 $207 to $503 for the 1993-94 academic year. In most cases, the rent includes heat, water, garbage, and basic cable TV. All family housing apartments are unfurnished. The largest family which can be accommodated in a three bedroom apartment is seven people.

Princeton Mobile Home Park

The University maintains a modern facility for privately owned mobile homes on the north side of the campus. Princeton Mobile Home Park is reserved for either families or students who are classified by the UND Registrar’s Office as senior, graduate level, or 26
years of age or older. The monthly lot rental for the 1993-94 academic year was $115. The leaseholder/application must own the mobile home to be eligible for assignment.

**OFF CAMPUS HOUSING**

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

**FRATERNITY AND SORORITY MEMBERSHIP**

Fourteen national social fraternities and seven national social sororities maintain houses adjacent to the campus in which residence and dining facilities are available to members. Costs for room and board are approximately $1,900 per year. There are other costs, such as dues and initiation fees, which also vary.

Eligibility for membership in a fraternity or sorority is a mutually selective process between the individual chapters and individuals seeking membership within the framework of University policy. 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 potential opportunities for learning about interpersonal relationships, leadership, informal contact with administrators and faculty, and social relationships.

For further information, please contact the Coordinator of Greek Life in the Memorial Union, University of North Dakota, Grand Forks, ND 58202-8136 (777-3667).
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 beginning on page 32 describing the University’s general graduation requirements. Since institutional policies may change between catalog publication dates, students are encouraged to consult with their academic adviser whenever appropriate. Students with questions should also feel free to 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. All freshman students, including transfers, who have completed fewer than 24 semester credits — begin in the University College (freshman division). After having completed 24 credits, the student may be admitted to one of UND’s degree granting colleges (e.g., Arts and Sciences). 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. Most students will find a “home” with a specific department and college after their freshman year; however, 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.

University, college and departmental requirements. Undergraduate students must meet three sets of requirements to be graduated from the University of North Dakota: (1) University graduation requirements, which are summarized on pages 32-40; (2) requirements of the UND college or school granting the student’s degree, which are summarized on pages 72-121; and (3) the requirements of the student’s major department or program area, which are summarized on pages 130-370.

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 requirements, as published in the catalog or amended by the University Senate and the Board of Higher Education, may be substituted at the option of the students. 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 vice president for academic affairs, the University Curriculum Committee, the University Senate, 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 Time Schedule of Classes for each term. Registration is the student’s personal responsibility.
DEGREES GRANTED

The University of North Dakota offers both undergraduate and graduate courses of study leading to degrees in many academic disciplines. Listings of undergraduate majors and minors are included in the college and school sections beginning of page 72. Curricula for specific majors will be found in the Courses of Instruction section of this catalog, beginning on page 129.

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. These three schools publish separate bulletins, which are available upon request.

THE PURPOSES OF A UNIVERSITY EDUCATION

UND’S Philosophy of General Education

Before consulting the University-wide graduation requirements (pages 32-40, immediately following this section), students are urged to read this statement of philosophy prepared by UND’S General Education Committee. One aspect of the University-wide requirements for a baccalaureate degree is completion of UND’S general education requirements. This statement places the general education requirements into a broader context and indicates the end results which should be striven for in undertaking a university education.

Introduction

The University of North Dakota provides students opportunities to enrich their lives through a large number of major and minor fields of study designed both for general education and for academic specialization. This dual objective — non-specialized and specialized education — ideally is reciprocal and inclusive. Each kind of education is expected to inform and enrich the other and to contribute to those special qualities and abilities we have come to expect of university graduates.

While the directions and purposes of specialized programs usually are clear, the directions and purposes of general education have often been left undefined. For this reason, the General Education Review Committee has defined a number of broad and specific goals to serve as guideposts for faculty proposing and teaching courses designed to fulfill general education requirements and also to enhance students’ understanding of the purposes of a university education.

These broad goals are rooted in a belief that a general education program should help students develop (1) the ability to make informed choices, (2) the ability to communicate effectively, (3) intellectual curiosity and creativity, (4) a continuing commitment to learning, (5) a capacity and interest in serving others, (6) a sense of responsibility both to specific communities and to a culturally pluralistic world, and (7) greater personal satisfaction through access to the larger social, political, economic, scientific, and aesthetic culture.

The specific goals have been organized into two sets. The first set is not tied directly to any particular discipline and gives attention to integration around such abilities as critical thinking, effective communication, creative thinking, recognizing relationships and understanding value formation. The second set is more closely tied to the areas of study included in the general education program: the social and behavioral sciences; mathematics, science and technology; and humanities and the fine arts.
1. Cross-Disciplinary Abilities

A. Critical Thinking

Critical thinking can provide students confidence and assurance to make informed decisions. The processes of dissecting and reassembling ideas can be personally liberating and serve as a powerful means for developing one or more of the following abilities:

1. defining a problem and selecting pertinent information for its solution;
2. recognizing stated and unstated assumptions in order to formulate useful hypotheses;
3. understanding methods of inquiry as they are used in specific disciplines;
4. using imagination and insight to expand an exploratory process;
5. questioning what one has been told; and
6. relating skills to thought and action.

B. Communication

The ability to communicate is the ability to present information, ideas, feelings, and values, in such a way that people may be able to understand one another. Students should learn how to communicate effectively in as many ways as possible.

In order to communicate one must know languages. Each culture and each discipline develops its own language, with unique symbols, terminology, and rules for using its symbols. Students must advance their skills in the use of English, develop abilities to use other languages, and become acquainted with the specialized languages which exist in many areas — mathematics, computer science, graphics, the fine and performing arts, and others.

Communication also depends on experience in expressing oneself through language and experience in interpreting and appreciating what other people are trying to say. General education at the University should provide students with numerous opportunities to express their thoughts, feelings and values through language of all kinds, and to learn how well others have been able to understand them. Communication skills may be taught both by courses specifically emphasizing written and oral expression and interpretation and by courses emphasizing other aspects of the arts, sciences, and humanities.

C. Creative Thinking

While it is unrealistic to expect every student to bring into being original work of extraordinary merit, every person ought to be given opportunities and incentives to think creatively and to attempt creative work. Creative thinking can be encouraged by promoting students’ ability and effort:

1. to imagine alternatives to accepted ways of solving problems or formulating questions;
2. to change categories and comprehend analogies;
3. to generate new ideas; and
4. to add details, transform, or extend ideas.

Characteristics of a teaching environment that fosters creativity include:

1. encouragement of risk taking;
2. use of a rich variety of stimuli;
3. support for curiosity, imagination and experimentation;
4. opportunities for self-expression; and
5. tolerance for ambiguity and complexity.

D. Recognizing Relationships

Focusing upon relationships among parts — emphasizes connectedness and inter-dependency.

Learning to see connections is vital to general education. This process emphasizes:

1. inter-relatedness; conceptualizing links between events, entities and ideas and the larger context in which they occur;
2. inter-dependency: conceptualizing mutual dependency or reciprocity of events, entities, or ideas — seeing that the impact on one part has ramifications for the other parts and for the whole;
3. holism: conceptualizing a totality rather than considering discrete or individual elements that only partially depict that totality; and
4. structure: conceptualizing the underlying and relatively stable relationships that exist among events, entities and ideas which unify any totality.

E. Recognizing and Evaluating Choices

Education concerning values is important in general education — not seeking one right way to behave, but recognizing that choices cannot be avoided. Students should be aware of how many choices they make, how these choices are based on values, and how to make informed choices.

General education courses should deal with at least some of the following issues:
1. how human choices influence the results and dominant values of all disciplines;
2. how these choices have been made in the past;
3. how some of these choices might otherwise have been made; and
4. how choices are made, evaluated, and used to explain phenomena.

II. Disciplinary Abilities

A. The Behavioral and Social Sciences

General education should include courses that help students understand the complexities and uncertainties of their personal and social environment; its differing goals and expectations, agreements and conflicts, actions and transactions; and how students intentionally and unintentionally can change and control their personal and social environment and be changed and controlled by it.

Specifically, general education in the behavioral and social sciences should give students knowledge about themselves and their human environment at three levels: 1) how human beings behave individually; 2) how individuals are linked to the social environment around them; and 3) how the social environment is organized and influenced by institutions.

For knowledge of individual behavior, general education should help students attempt to understand how human behavior originates, how it is integrated into a continuing and whole personality, and how it can deviate from what is intended or desired. To increase this understanding, general education courses should help students learn about how individuals think, obtain and use information, solve problems, make decisions, are motivated to act, develop over a lifespan, and can demonstrate a broad range of behavior.

For knowledge of the social environment, general education should help students attempt to understand how they are affected by the world around them, how they affect that world, and how they may be able to make intended changes in it. Improved understanding can come from learning about the following issues:
1. how groups of people make decisions intended to direct their own behavior and other people’s, or to change the conditions in which they and others live;
2. how the behavior of individuals is socially organized into different patterns of coordinated activity that individuals are obligated to perform;
3. how the cumulative effects of individuals and their behavior have consequences for the environment that individuals have not intended or controlled; and
4. how people produce, expend and exchange social resources, those resources whose existence and usefulness depend on social interaction (such as money, authority, information, or loyalty).

General education should also help students understand how the structure, organization and resources in the social environment depend on social institutions such as family
and household life, religion, education, business, politics and health. General education about social institutions should address the origins of institutional characteristics, variations and options, how the institutional characteristics have changed and developed, and what the immediate and long-term consequences of these characteristics may be.

**B. Mathematics, Sciences and Technology**

General education in mathematics, science, and technology should provide students with knowledge of how human beings try to understand and control the fundamental phenomena and processes of the universe, and do so by means of readily understandable, accurate descriptions and explanations.

**Mathematics**

General education in mathematics should help students to understand and use mathematics as:

1. an intellectual discipline concerned with such considerations as quantity and space and their relationships.
2. a method of analyzing problems with logic and precision;
3. a way to communicate and interpret information provided by others; and
4. a continually developing tool, useful for describing and explaining phenomena.

General education in mathematics is one way to improve a student’s ability to think in terms of precise and quantitative relationships. It should develop abilities to perceive how things are logically related. It should also enable students to consider systematically alternative approaches to solving problems, and enable them to appreciate the accomplishment and elegance of solutions to problems.

General education courses should help students learn how to use mathematics as a basic tool for working in many different disciplines and for integrating the findings of different disciplines. Because it is important for students to understand that the concepts and methods of mathematics are not fixed, but are continually being expanded, revised, and refined, students can benefit from learning the history of mathematics, and learn how mathematicians evaluate their achievements and decide on their goals.

**The Natural and Physical Sciences**

To make a significant contribution to general education, courses from the natural and physical sciences ought to attract those who find science fascinating, those who approach it "apprehensively, and those whose outlook falls somewhere between. Given the wide range of attitudes toward science, science courses designated as part of a general education program must necessarily differ from each other structurally and pedagogically. All should share, however, certain common characteristics.

Science courses intended for general education should offer students opportunities to acquire an appreciation of science and its contributions to society. General education courses in science should present current information on certain aspects of the natural world, and should require students to follow the logical, and sometimes mathematical, reasoning relating one structure or process to another. What differentiates science from other disciplines is its methods and its choice of problems. Scientists continually build and revise theoretical models to organize and explain natural phenomena. The theories must be logically consistent and must stand the test of experiments. Thus, as part of their general education, students should learn that science does not consist of a set of immutable or unquestionable facts but is by nature a continuing process of hypothesis and revision.

**Technology**

Throughout history humans have sought to apply their scientific knowledge in ways that enhance material culture, enlarge their capacity to produce goods and services, and defend physically their territorial and ideological borders. This application of scientific knowledge is what is commonly referred to as technology. Technology is visible everywhere and has brought enormous material benefits as well as increasingly complex social
and environmental problems. The need to understand the tensions and conflicts that arise over the uses and consequences of technology is as critical as the necessity of making human choices about technology.

C. Humanities and Fine Arts

The humanities and fine arts are expected to give principal attention to the individual and collective search for meaning through order, values and aesthetics. By giving focus to “a search for meaning,” the general education program encourages courses and related experiences which challenge how individual students think about and relate to the culture in which they live, as well as introduce them to some of the literature, the ideas, the art forms, and the expressions of social order which are rooted deep in history.

The search for meaning which is embodied in the humanities and fine arts is an exploration of the many imaginative answers given to the questions about the place of human beings in the universe by richly diverse cultures. In this sense, the humanities and fine arts are attempts to understand human action and thought, to find languages which express ideas and beliefs, hopes and fears, certainties and uncertainties. They provide opportunities for students to see how their present lives connect with the larger life of our culture as it has developed over time. The humanistic tradition embodies the age-long attempt to know and express self through works of the imagination and intellect.

While courses in the humanities and fine arts may help students examine their own values and ways of viewing the world, they also provide opportunities for students to encounter the great humanistic works. By enriching their experience with the exploration or other ways of seeing, of recognizing meanings, and of dealing with the world, students should discover in the interplay the complexity of our world.

As much as possible, humanities and fine arts courses should assist students to appreciate the roles of historians, writers, painters, philosophers, sculptors and musicians in giving voice to human understanding and aspiration. These courses may also help students to comprehend the joys that come from personal expression. Thus it is appropriate to provide within related general education courses both opportunities to participate actively in the humanities and arts as creators — as writers, painters, musicians or actors — and as audience in art exhibitions, performances, lectures and discussions.

Conclusion

General education as it is presented in this statement has few unique qualities. Thinkers and writers in various ages and cultures have voiced ideals for individuals and societies that undergird the concepts of general education presented. The pursuit of each of these ideals requires different, often specialized skills. The full realization of any one of these ideals may require a lifetime of experience to perfect, during which one progressively hones skills, encounters a range of practical experiences, and learns to deal with a level of complexity not previously recognized.

Each culture has an image of the person who has had the benefit of a general education. The goals set forth in the preceding sections mirror the idealized vision of our university and of our contemporary society. The following set of courses is intended to make the achievement of these goals more attainable. Faculty and students must create from their commitment to general education a sense of the unity of learning.

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 institutional credit. The following pages describe the requirements which must be met by all students seeking the baccalaureate degree. These include the General Education requirements in (I) English Composition, (II) Social Sciences, (III) Arts and Humanities, and (IV) Mathematics, Science and Technology, as
well as regulations concerning majors, minors, grade point average, upper division courses, and residence.

The philosophy guiding the General Education portion of the University’s graduation requirements (I through IV) is explained in the immediately preceding section of the catalog. (Note: engineering students should pay special attention to modifications in the General Education requirements for engineering students — see page 94. The General Education requirements may be satisfied by:

1. Successful completion of classwork acceptable for that area, as specified below, or
2. Achievement of the minimum score required for credit in College-Level Examination Program CLEP subject examinations.

I. **English Composition**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td>Engl 102</td>
<td>Composition II</td>
<td>3</td>
</tr>
<tr>
<td>Engl 209</td>
<td>Technical and Business Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

II. **Social Sciences**

**6 sem. hours min.**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 100</td>
<td>Introduction to Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>Anth 171</td>
<td>Introduction to Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>Anth 172</td>
<td>Introduction to Archaeology and World History</td>
<td>3</td>
</tr>
<tr>
<td>Anth 371</td>
<td>Cultural Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>Anth 374</td>
<td>Old World Prehistory</td>
<td>3</td>
</tr>
<tr>
<td>Anth 375</td>
<td>North American Indians</td>
<td>3</td>
</tr>
<tr>
<td>Anth 377</td>
<td>North American Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>Anth 379</td>
<td>Culture Area Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

**9 sem. hours min.**

**must be taken in a minimum of 2 departments**

**Anthropology**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 172</td>
<td>Introduction to Archaeology and World History</td>
<td>3</td>
</tr>
<tr>
<td>Anth 371</td>
<td>Cultural Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>Anth 374</td>
<td>Old World Prehistory</td>
<td>3</td>
</tr>
<tr>
<td>Anth 375</td>
<td>North American Indians</td>
<td>3</td>
</tr>
<tr>
<td>Anth 377</td>
<td>North American Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>Anth 379</td>
<td>Culture Area Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

**Arts and Sciences**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>A&amp;S 225</td>
<td>Introduction to the Study of Women</td>
<td>3</td>
</tr>
</tbody>
</table>

**Communication**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comm 100</td>
<td>Introduction to Communication</td>
<td>2</td>
</tr>
<tr>
<td>Comm 300</td>
<td>Communication and Society</td>
<td>3</td>
</tr>
</tbody>
</table>

**Criminal Justice Studies**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJS 251</td>
<td>Introduction to Criminal Justice Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

**Economics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 105</td>
<td>Elements of Economics</td>
<td>3</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>
</tbody>
</table>

**Geography**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geog 151</td>
<td>Cultural Geography</td>
<td>3</td>
</tr>
<tr>
<td>Geog 152</td>
<td>Economic Geography</td>
<td>3</td>
</tr>
<tr>
<td>Geog 161</td>
<td>World Regional Geography</td>
<td>3</td>
</tr>
<tr>
<td>Geog 262</td>
<td>Geography of North America I</td>
<td>3</td>
</tr>
<tr>
<td>Geog 354</td>
<td>Conservation of Resources</td>
<td>3</td>
</tr>
</tbody>
</table>

**Home Economics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEC 335</td>
<td>World Food Patterns</td>
<td>3</td>
</tr>
</tbody>
</table>

**Honors**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hon 102</td>
<td>Inquiry in the Social Sciences</td>
<td>3</td>
</tr>
<tr>
<td>Hon 292</td>
<td>Colloquium in the Social Sciences</td>
<td>2-4</td>
</tr>
<tr>
<td>Hon 392</td>
<td>Advanced Colloquium in the Social Sciences</td>
<td>2-4</td>
</tr>
</tbody>
</table>

**Indian Studies**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 330</td>
<td>Contemporary Plains Indian Culture</td>
<td>3</td>
</tr>
<tr>
<td>IS 331</td>
<td>Traditional Plains Indian Culture</td>
<td>3</td>
</tr>
</tbody>
</table>

**Political Science**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSCI 101</td>
<td>American Government I</td>
<td>3</td>
</tr>
<tr>
<td>PSCI 102</td>
<td>American Government II</td>
<td>3</td>
</tr>
<tr>
<td>PSCI 220</td>
<td>International Politics</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
<td>---------</td>
</tr>
<tr>
<td>PSCE 225</td>
<td>Comparative Politics</td>
<td>3</td>
</tr>
<tr>
<td>PSCE 231</td>
<td>Politics of Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>PSCE 305</td>
<td>American Constitution-Governmental Powers</td>
<td>3</td>
</tr>
<tr>
<td>PSCE 306</td>
<td>American Constitution-Civil Liberties</td>
<td>3</td>
</tr>
<tr>
<td>PSCE 309</td>
<td>The Legislative and Executive Processes</td>
<td>3</td>
</tr>
<tr>
<td>PSCE 318</td>
<td>American Political Thought</td>
<td>3</td>
</tr>
<tr>
<td>PSCE 320</td>
<td>Foreign Politics</td>
<td>3</td>
</tr>
<tr>
<td>PSCE 322</td>
<td>Issues in Comparative Politics</td>
<td>3</td>
</tr>
<tr>
<td>PSCE 339</td>
<td>Survey of Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>PSCE 402</td>
<td>Problems in State and Local Government</td>
<td>3</td>
</tr>
<tr>
<td>PSCE 404</td>
<td>Urban Politics and Administration</td>
<td>3</td>
</tr>
<tr>
<td>PSCE 405</td>
<td>Political Behavior</td>
<td>3</td>
</tr>
<tr>
<td>PSCE 432</td>
<td>Public Policy Making Process</td>
<td>3</td>
</tr>
</tbody>
</table>

**Psychology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 251</td>
<td>Developmental Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSY 360</td>
<td>Introduction to Personality</td>
<td>3</td>
</tr>
<tr>
<td>PSY 361</td>
<td>Social Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSY 370</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Social Work**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWK 246</td>
<td>Human Behavior in the Social Environment 1</td>
<td>3</td>
</tr>
<tr>
<td>SWK 306</td>
<td>Social Welfare</td>
<td>3</td>
</tr>
<tr>
<td>SWK 346</td>
<td>Human Behavior in the Social Environment 11</td>
<td>3</td>
</tr>
<tr>
<td>SWK 354</td>
<td>Orientation to Gerontology</td>
<td>2</td>
</tr>
<tr>
<td>SWK 358</td>
<td>Contemporary Issues in Rehabilitation</td>
<td>2</td>
</tr>
</tbody>
</table>

**Sociology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 101</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 102</td>
<td>Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>SOC 250</td>
<td>Diversity in America</td>
<td>3</td>
</tr>
<tr>
<td>SOC 252</td>
<td>Criminology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 253</td>
<td>Juvenile Delinquency</td>
<td>3</td>
</tr>
<tr>
<td>SOC 301</td>
<td>Basic Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>SOC 331</td>
<td>Rural Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 335</td>
<td>The Family</td>
<td>3</td>
</tr>
<tr>
<td>SOC 340</td>
<td>Sociology of Gender and Sex Roles</td>
<td>3</td>
</tr>
<tr>
<td>SOC 352</td>
<td>Aging</td>
<td>3</td>
</tr>
<tr>
<td>SOC 353</td>
<td>Sociology of Death and Dying</td>
<td>3</td>
</tr>
<tr>
<td>SOC 354</td>
<td>Medical Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 355</td>
<td>Drugs and Society</td>
<td>3</td>
</tr>
<tr>
<td>SOC 361</td>
<td>Social Psychology</td>
<td>4</td>
</tr>
<tr>
<td>SOC 407</td>
<td>Political Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 430</td>
<td>Sociology of Education</td>
<td>2-3</td>
</tr>
<tr>
<td>SOC 431</td>
<td>Organizations and Behavior</td>
<td>3</td>
</tr>
<tr>
<td>SOC 432</td>
<td>Social Inequality</td>
<td>3</td>
</tr>
<tr>
<td>SOC 437</td>
<td>Population</td>
<td>3</td>
</tr>
<tr>
<td>SOC 450</td>
<td>Deviant Behavior</td>
<td>3-4</td>
</tr>
</tbody>
</table>

**Arts and Humanities**

12 sem. hours min. (must be taken in a minimum of 3 departments)

**Engineering**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 252</td>
<td>History of Technology</td>
<td>2</td>
</tr>
</tbody>
</table>

**English**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 151</td>
<td>Masterpieces of European Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 152</td>
<td>Masterpieces of European Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 200</td>
<td>Topics in Language and Literature</td>
<td>1-4</td>
</tr>
<tr>
<td>ENGL 207</td>
<td>Introduction to Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 21</td>
<td>Introduction to Fiction</td>
<td>2</td>
</tr>
<tr>
<td>ENGL 213</td>
<td>Introduction to Poetry</td>
<td>2</td>
</tr>
<tr>
<td>ENGL 217</td>
<td>Introduction to Drama</td>
<td>2</td>
</tr>
<tr>
<td>ENGL 219</td>
<td>Introduction to Film</td>
<td>2</td>
</tr>
<tr>
<td>ENGL 301</td>
<td>Survey of English Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 302</td>
<td>Survey of English Literature</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Engl 303</td>
<td>Survey of American Literature</td>
<td>3</td>
</tr>
<tr>
<td>Engl 304</td>
<td>Survey of American Literature</td>
<td>3</td>
</tr>
<tr>
<td>Engl 305</td>
<td>Creative Writing</td>
<td>2</td>
</tr>
<tr>
<td>Engl 315</td>
<td>Shakespeare</td>
<td>3</td>
</tr>
<tr>
<td>Engl 316</td>
<td>Shakespeare</td>
<td>3</td>
</tr>
<tr>
<td>Engl 320</td>
<td>Studies in American Fiction</td>
<td>3</td>
</tr>
<tr>
<td>Engl 321</td>
<td>Studies in American Poetry</td>
<td>3</td>
</tr>
<tr>
<td>Engl 322</td>
<td>Studies in American Drama</td>
<td>3</td>
</tr>
<tr>
<td>Engl 330</td>
<td>Studies in English Fiction</td>
<td>3</td>
</tr>
<tr>
<td>Engl 331</td>
<td>Studies in English Poetry</td>
<td>3</td>
</tr>
<tr>
<td>Engl 332</td>
<td>Studies in English Drama</td>
<td>3</td>
</tr>
<tr>
<td>Engl 357</td>
<td>Women Writers and Readers</td>
<td>2.4</td>
</tr>
<tr>
<td>Engl 361</td>
<td>American Indian Languages I</td>
<td>3</td>
</tr>
<tr>
<td>Engl 362</td>
<td>American Indian Languages II</td>
<td>3</td>
</tr>
<tr>
<td>Engl 365</td>
<td>Black American Writers</td>
<td>3</td>
</tr>
<tr>
<td>Engl 367</td>
<td>American Indian Literature</td>
<td>3</td>
</tr>
<tr>
<td>Engl 369</td>
<td>Literature and Culture</td>
<td>1-3</td>
</tr>
<tr>
<td>Engl 370</td>
<td>Language and Culture</td>
<td>3</td>
</tr>
<tr>
<td>Engl 401</td>
<td>Studies in Medieval Literature</td>
<td>3</td>
</tr>
<tr>
<td>Engl 402</td>
<td>Studies in Early Renaissance Literature</td>
<td>3</td>
</tr>
<tr>
<td>Engl 403</td>
<td>Studies in Colonial American Literature</td>
<td>3</td>
</tr>
<tr>
<td>Engl 404</td>
<td>Studies in Late Renaissance Literature</td>
<td>3</td>
</tr>
<tr>
<td>Engl 405</td>
<td>Studies in Restoration and Eighteenth Century Literature</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 406</td>
<td>Studies in Nineteenth Century Literature</td>
<td>3</td>
</tr>
<tr>
<td>Engl 407</td>
<td>Studies in Twentieth Century Literature</td>
<td>3</td>
</tr>
<tr>
<td>Engl 409</td>
<td>Art of the Cinematic Drama</td>
<td>3</td>
</tr>
<tr>
<td>Engl 442</td>
<td>History of the English Language</td>
<td>3</td>
</tr>
</tbody>
</table>

**Fine Arts**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA 150</td>
<td>Introduction to Fine Arts</td>
<td>3</td>
</tr>
</tbody>
</table>

**History**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hist 101</td>
<td>Western Civilization to 1500</td>
<td>3</td>
</tr>
<tr>
<td>Hist 102</td>
<td>Western Civilization since 1500</td>
<td>3</td>
</tr>
<tr>
<td>Hist 103</td>
<td>United States to 1877</td>
<td>3</td>
</tr>
<tr>
<td>Hist 104</td>
<td>United States since 1877</td>
<td>3</td>
</tr>
<tr>
<td>Hist 106</td>
<td>Middle Eastern Civilization from Islam to present time</td>
<td>3</td>
</tr>
<tr>
<td>Hist 204</td>
<td>Canada, Canada to 1867</td>
<td>3</td>
</tr>
<tr>
<td>Hist 210</td>
<td>The United States: Military History</td>
<td>3</td>
</tr>
<tr>
<td>Hist 214</td>
<td>Latin America to 1825</td>
<td>3</td>
</tr>
<tr>
<td>Hist 215</td>
<td>Latin America: The National Experience since 1825</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 220</td>
<td>History of North Dakota</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 221</td>
<td>The Scandinavian Countries since 1500</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 325</td>
<td>The United States: The Early Frontier</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 326</td>
<td>The United States: Western Frontier</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 330</td>
<td>The United States: Social and Cultural, 19th Century</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 331</td>
<td>The United States: Social and Cultural, 20th Century</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 332</td>
<td>Women in American History</td>
<td>3</td>
</tr>
<tr>
<td>Hist 343</td>
<td>Ancient Greece</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 405</td>
<td>The United States: Age of Jefferson and Jackson, 1789-1850</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 406</td>
<td>The United States: Civil War and Reconstruction, 1850-1877</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 416</td>
<td>Russia, Russia to 1855</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 417</td>
<td>Russia since 1855</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Honors**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hon 101</td>
<td>Inquiry in the Humanities</td>
<td>3</td>
</tr>
<tr>
<td>Hon 291</td>
<td>Colloquium in the Humanities</td>
<td>(2.4)</td>
</tr>
<tr>
<td>Hon 391</td>
<td>Advanced Colloquium in the Humanities</td>
<td>(2.4)</td>
</tr>
</tbody>
</table>

**Humanities**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hum 101</td>
<td>Introduction to Humanities</td>
<td>(4)</td>
</tr>
<tr>
<td>Hum 102</td>
<td>Introduction to Humanities</td>
<td>(4)</td>
</tr>
</tbody>
</table>

**Indian Studies**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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 255</td>
<td>Survey of Native American Art</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 345</td>
<td>Contemporary American Indian Issues</td>
<td>(3)</td>
</tr>
</tbody>
</table>
## Industrial Technology

**IT 322** Fundamentals of Photography (2)

### Languages

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 101</td>
<td>First-Year College Latin</td>
<td>(4)</td>
</tr>
<tr>
<td>C 102</td>
<td>First-Year College Latin</td>
<td>(4)</td>
</tr>
<tr>
<td>C 201</td>
<td>Second-Year College Latin</td>
<td>(4)</td>
</tr>
<tr>
<td>C 202</td>
<td>Second-Year College Latin</td>
<td>(4)</td>
</tr>
<tr>
<td>C 251</td>
<td>Introduction to Greek</td>
<td>(4)</td>
</tr>
<tr>
<td>C 252</td>
<td>Introduction to Greek</td>
<td>(4)</td>
</tr>
<tr>
<td>C 301</td>
<td>Latin Prose</td>
<td>(3)</td>
</tr>
<tr>
<td>C 351</td>
<td>Greek Prose and Poetry</td>
<td>(4)</td>
</tr>
<tr>
<td>C 352</td>
<td>Greek Poetry: Homer</td>
<td>(4)</td>
</tr>
<tr>
<td>F 101</td>
<td>Beginning French</td>
<td>(4)</td>
</tr>
<tr>
<td>F 102</td>
<td>Beginning French</td>
<td>(4)</td>
</tr>
<tr>
<td>F 103</td>
<td>Accelerated Beginning French</td>
<td>(8)</td>
</tr>
<tr>
<td>F 201</td>
<td>Second-Year French</td>
<td>(4)</td>
</tr>
<tr>
<td>F 202</td>
<td>Second-Year French</td>
<td>(4)</td>
</tr>
<tr>
<td>F 301</td>
<td>Third-Year French</td>
<td>(3)</td>
</tr>
<tr>
<td>F 302</td>
<td>Third-Year French</td>
<td>(3)</td>
</tr>
<tr>
<td>F 305</td>
<td>French Conversation and Culture</td>
<td>(2)</td>
</tr>
<tr>
<td>F 306</td>
<td>French Conversation and Culture</td>
<td>(2)</td>
</tr>
<tr>
<td>F 371</td>
<td>History of French Literature</td>
<td>(3)</td>
</tr>
<tr>
<td>F 372</td>
<td>History of French Literature</td>
<td>(3)</td>
</tr>
<tr>
<td>G 101</td>
<td>Beginning German</td>
<td>(4)</td>
</tr>
<tr>
<td>G 102</td>
<td>Beginning German</td>
<td>(4)</td>
</tr>
<tr>
<td>G 103</td>
<td>Accelerated Beginning German</td>
<td>(6)</td>
</tr>
<tr>
<td>G 201</td>
<td>Second-Year German</td>
<td>(4)</td>
</tr>
<tr>
<td>G 202</td>
<td>Second-Year German</td>
<td>(4)</td>
</tr>
<tr>
<td>G 301</td>
<td>Introduction to German Literature</td>
<td>(2)</td>
</tr>
<tr>
<td>G 302</td>
<td>Introduction to German Literature</td>
<td>(2)</td>
</tr>
<tr>
<td>G 305</td>
<td>German Composition and Conversation</td>
<td>(2)</td>
</tr>
<tr>
<td>G 312</td>
<td>German Civilization (Kulturkunde)</td>
<td>(2)</td>
</tr>
<tr>
<td>I 101</td>
<td>Beginning Italian</td>
<td>(4)</td>
</tr>
<tr>
<td>I 102</td>
<td>Beginning Italian</td>
<td>(4)</td>
</tr>
<tr>
<td>N 101</td>
<td>Beginning Norwegian</td>
<td>(4)</td>
</tr>
<tr>
<td>N 102</td>
<td>Beginning Norwegian</td>
<td>(4)</td>
</tr>
<tr>
<td>N 201</td>
<td>Second-Year Norwegian</td>
<td>(4)</td>
</tr>
<tr>
<td>N 202</td>
<td>Second-Year Norwegian</td>
<td>(4)</td>
</tr>
<tr>
<td>N 301</td>
<td>Advanced Norwegian</td>
<td>(3)</td>
</tr>
<tr>
<td>N 302</td>
<td>Advanced Norwegian</td>
<td>(3)</td>
</tr>
<tr>
<td>R 101</td>
<td>Beginning Russian</td>
<td>(4)</td>
</tr>
<tr>
<td>R 102</td>
<td>Beginning Russian</td>
<td>(4)</td>
</tr>
<tr>
<td>R 201</td>
<td>Second-Year Russian</td>
<td>(4)</td>
</tr>
<tr>
<td>R 202</td>
<td>Second-Year Russian</td>
<td>(4)</td>
</tr>
<tr>
<td>R 301</td>
<td>Third-Year Russian</td>
<td>(3)</td>
</tr>
<tr>
<td>R 302</td>
<td>Third-Year Russian</td>
<td>(3)</td>
</tr>
<tr>
<td>R 305</td>
<td>Russian Reading and Composition</td>
<td>(2)</td>
</tr>
<tr>
<td>R 306</td>
<td>Russian Reading and Composition</td>
<td>(2)</td>
</tr>
<tr>
<td>S 101</td>
<td>Beginning Spanish</td>
<td>(4)</td>
</tr>
<tr>
<td>S 102</td>
<td>Beginning Spanish</td>
<td>(4)</td>
</tr>
<tr>
<td>S 103</td>
<td>Accelerated Beginning Spanish</td>
<td>(6)</td>
</tr>
<tr>
<td>S 201</td>
<td>Second-Year Spanish</td>
<td>(4)</td>
</tr>
<tr>
<td>S 202</td>
<td>Second-Year Spanish</td>
<td>(4)</td>
</tr>
<tr>
<td>Lang 331</td>
<td>Foreign Literature in Translation</td>
<td>(1-3)</td>
</tr>
</tbody>
</table>

## Library Science and Audiovisual Instruction

**LSAV 470** Fundamentals of Photography (3)

### Music

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mus 100</td>
<td>Introduction to the Understanding of Music</td>
<td>(3)</td>
</tr>
<tr>
<td><strong>Mus 105</strong></td>
<td>Individual Lessons for Non-Majors</td>
<td>(1)</td>
</tr>
<tr>
<td>Mus 108</td>
<td>Fundamentals of Music</td>
<td>(3)</td>
</tr>
<tr>
<td>Mus 109</td>
<td>Creative Music</td>
<td>(3)</td>
</tr>
<tr>
<td>Mus 220</td>
<td>Music in America</td>
<td>(3)</td>
</tr>
</tbody>
</table>
## Academic Information

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 260</td>
<td>Popular and Classical Music of the World.</td>
<td>(3)</td>
</tr>
<tr>
<td><strong>MUS 261</strong></td>
<td>University Chamber Chorale</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>MUS 262</strong></td>
<td>UND Community Chorus</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>MUS 263</strong></td>
<td>Varsity Barids</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>MUS 264</strong></td>
<td>Women's Choruses</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>MUS 265</strong></td>
<td>Jazz Choir</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>MUS 266</strong></td>
<td>Opera Project</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>MUS 268</strong></td>
<td>Wind Ensemble</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>MUS 270</strong></td>
<td>University Band</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>MUS 271</strong></td>
<td>Marching Band</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>MUS 273</strong></td>
<td>All-University Jazz Ensemble</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>MUS 274</strong></td>
<td>Symphony Orchestra</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>MUS 275</strong></td>
<td>All-University Chamber Orchestra</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>MUS 276</strong></td>
<td>Collegium Musicum</td>
<td>(1)</td>
</tr>
<tr>
<td><strong>MUS 279</strong></td>
<td>All-University Chamber Chorale</td>
<td>(1)</td>
</tr>
</tbody>
</table>

**Philosophy**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phil 101</td>
<td>Introduction to Philosophy</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 108</td>
<td>Introduction to Logic &amp; Scientific Method</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 201</td>
<td>Contemporary Moral Issues</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 301</td>
<td>Medieval Philosophy</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 303</td>
<td>Renaissance and Enlightenment</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 304</td>
<td>Kant and the Nineteenth Century</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 305</td>
<td>Classical Greek and Hellenistic Philosophy</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 308</td>
<td>American Philosophy</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 330</td>
<td>Metaphysics: What Is Real?</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 330</td>
<td>Epistemology: What Can We Know and</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 340</td>
<td>How Can We Know It</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 346</td>
<td>Aesthetics: What is Beauty?</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 370</td>
<td>Ethics in Engineering and Science</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 398</td>
<td>Philosophic Themes</td>
<td>(1-3)</td>
</tr>
<tr>
<td>Phil 408</td>
<td>Philosophy of Human Nature</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Political Science**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phil 311</td>
<td>Development of Political Thought I</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 312</td>
<td>Development of Political Thought II</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Religion**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rel 101</td>
<td>Introduction to Religion (West)</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 102</td>
<td>Introduction to Religion (East)</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 104</td>
<td>Introduction to the New Testament</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 105</td>
<td>Introduction to the Old Testament</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 110</td>
<td>Contemporary Religious Writers</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 120</td>
<td>Religion in America</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 201</td>
<td>World Religions</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 203</td>
<td>Catholic Christianity</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 237</td>
<td>Protestant Christianity</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 247</td>
<td>Introduction to Judaism</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 250</td>
<td>East and West in Religions</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 301</td>
<td>Life and Religion of Paul</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 302</td>
<td>Mexicanian</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 342</td>
<td>Religious Ethics</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 345</td>
<td>Death and Dying</td>
<td>(2)</td>
</tr>
<tr>
<td>Rel 423</td>
<td>Psychology of Religion</td>
<td>(3)</td>
</tr>
<tr>
<td>Rel 450</td>
<td>Sacred Scriptures of the East</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Theatre Arts**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA 121</td>
<td>Introduction to Theatre Arts</td>
<td>(3)</td>
</tr>
<tr>
<td><strong>TA 130</strong></td>
<td>The Art and Craft of Theatre</td>
<td>(3)</td>
</tr>
<tr>
<td><strong>TA 200</strong></td>
<td>Beginning Oral Interpretation</td>
<td>(3)</td>
</tr>
<tr>
<td><strong>TA 225</strong></td>
<td>Sagecrafts 1</td>
<td>(3)</td>
</tr>
<tr>
<td><strong>TA 227</strong></td>
<td>Acting I</td>
<td>(3)</td>
</tr>
<tr>
<td><strong>TA 229</strong></td>
<td>Creative Dramatics</td>
<td>(3)</td>
</tr>
<tr>
<td>TA 200</td>
<td>Readings in Dramatic Literature</td>
<td>(2)</td>
</tr>
</tbody>
</table>
IV. Mathematics, Science and Technology  
12 sem. hours min.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy</td>
<td>Micro 204</td>
<td>(3)</td>
</tr>
<tr>
<td>Anatomy</td>
<td>Principles of Anatomy (with lab)</td>
<td>(5)</td>
</tr>
<tr>
<td>Anthropology</td>
<td>Principles of Anthropology (with lab)</td>
<td>(3)</td>
</tr>
<tr>
<td>Biology</td>
<td>Principles of Biology (with lab)</td>
<td>(4)</td>
</tr>
<tr>
<td>Biology</td>
<td>Introduction to Biology (with lab)</td>
<td>(4)</td>
</tr>
<tr>
<td>Geology</td>
<td>Wildlife Conservation</td>
<td>(2)</td>
</tr>
<tr>
<td>Geology</td>
<td>Wildlife Conservation</td>
<td>(2)</td>
</tr>
<tr>
<td>Geology</td>
<td>Wildlife Conservation</td>
<td>(2)</td>
</tr>
<tr>
<td>Geology</td>
<td>Wildlife Conservation</td>
<td>(2)</td>
</tr>
<tr>
<td>Geology</td>
<td>Wildlife Conservation</td>
<td>(2)</td>
</tr>
<tr>
<td>Geology</td>
<td>Wildlife Conservation</td>
<td>(2)</td>
</tr>
<tr>
<td>Geochemistry</td>
<td>Introduction to Organic and Biochemistry</td>
<td>(4)</td>
</tr>
<tr>
<td>Geochemistry</td>
<td>Fundamental Concepts of Chemistry (with Chem 161 lab)</td>
<td>(4)</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Inorganic Chemistry I (with Chem 162 lab)</td>
<td>(4)</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Chemical Engineering Process Synthesis</td>
<td>(2)</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Introduction to Computers</td>
<td>(3)</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Computer Science I</td>
<td>(4)</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Computer Science II</td>
<td>(4)</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Programming Languages</td>
<td>(3)</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Social Implications of Computer Technology</td>
<td>(3)</td>
</tr>
<tr>
<td>Economics</td>
<td>Introduction to Business and Economic Statistics</td>
<td>(3)</td>
</tr>
<tr>
<td>Geography</td>
<td>Physical Geography (must be taken with lab)</td>
<td>(4)</td>
</tr>
<tr>
<td>Geography</td>
<td>Introduction to Weather and Climate</td>
<td>(3)</td>
</tr>
<tr>
<td>Geography</td>
<td>Introduction to Weather and Climate (with lab)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

*Maximum total of 2 credits from these courses may be counted toward the general education requirement in the Arts and Humanities area.

**Maximum total of 3 credits from these courses may be counted toward the general education requirement in the Arts and Humanities area.
### 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.
VI. **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. Driver and Traffic Safety Education). 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.

VII. **Grade Point Average**

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 work taken at the University of North Dakota be 2.00 (C). Some undergraduate colleges require higher averages. (See requirements under specific College information.)

VIII. **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 are defined as upper division.

IX. **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.

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 Academic 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. Blank 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.** Candidates for a second UND baccalaureate degree must complete a minimum of 30 additional hours beyond the University minimum of 125 hours 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 decked, must be institutional credit.

### 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 an
examination must be made 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 Registrar’s Office 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 which correspond to work taken at unaccredited and non-degree granting institutions, 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 the minimum acceptable standard score. Credit earned through CLEP Subject Exams may be used to fulfill University General Education requirements as outlined on pages 30-39; to fulfill specific course requirements, or to be used as 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 maybe 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 from 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.
### SUBJECT EXAMINATION

<table>
<thead>
<tr>
<th>Subject</th>
<th>Minimum Standard Score</th>
<th>Equivalent UND Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting (Introductory) (except majors)</td>
<td>50</td>
<td>Acct. 200, (3 cr.)</td>
</tr>
<tr>
<td>American Government</td>
<td>55</td>
<td>PSci 101 (3 cr.)</td>
</tr>
<tr>
<td>American History I</td>
<td>50</td>
<td>Hist 103 (3 cr.)</td>
</tr>
<tr>
<td>American History II</td>
<td>50</td>
<td>Hist 104 (3 cr.)</td>
</tr>
<tr>
<td>Business Law</td>
<td>51</td>
<td>Acct 214 (3 cr.)</td>
</tr>
<tr>
<td>Calculus with Elementary Functions</td>
<td>51</td>
<td>Math 211, 212 (8 cr.)</td>
</tr>
<tr>
<td>College Algebra</td>
<td>50</td>
<td>Math 103 (3 cr.)</td>
</tr>
<tr>
<td>College Composition (Essay)</td>
<td>55</td>
<td>Engl 101 (3 cr.)</td>
</tr>
<tr>
<td>Educational Psychology</td>
<td>47</td>
<td>Psy 213 (3 cr.)</td>
</tr>
<tr>
<td>General Biology</td>
<td>50</td>
<td>Biol 101, 102 (8 cr.)</td>
</tr>
<tr>
<td>General Chemistry</td>
<td>48</td>
<td>Chem 105 (4 cr.)</td>
</tr>
<tr>
<td>Human Growth and Development</td>
<td>47</td>
<td>Psy 251 (4 cr.)</td>
</tr>
<tr>
<td>Information Systems &amp; Computer Applications</td>
<td>55</td>
<td>BVED 213 (3 cr.)</td>
</tr>
<tr>
<td>Introduction to Psychology</td>
<td>47</td>
<td>Psy 101 (3 cr.)</td>
</tr>
<tr>
<td>Languages (French, German, Spanish)</td>
<td>45-49</td>
<td>Lang. 101 (4 cr.)</td>
</tr>
<tr>
<td></td>
<td>50-54</td>
<td>Lang. 101, 102 (8 cr.)</td>
</tr>
<tr>
<td></td>
<td>55</td>
<td>Lang. 101, 102, 201 (12 cr.)</td>
</tr>
<tr>
<td>Macroeconomics (Introductory)</td>
<td>49</td>
<td>Econ 202 (3 cr.)</td>
</tr>
<tr>
<td>Management (Introductory)</td>
<td>51</td>
<td>Mgmt 300 (3 cr.)</td>
</tr>
<tr>
<td>Marketing (Introductory)</td>
<td>51</td>
<td>Mkt 301 (3 cr.)</td>
</tr>
<tr>
<td>Microeconomics (Introductory)</td>
<td>49</td>
<td>Econ 201 (3 cr.)</td>
</tr>
<tr>
<td>Sociology (Introductory)</td>
<td>47</td>
<td>Soc 101 (3 cr.)</td>
</tr>
<tr>
<td>Trigonometry</td>
<td>49</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>

### COOPERATIVE EDUCATION

Cooperative Education is an academic program that provides students with opportunities to both integrate and combine their course learning with practical, professional work experience in their chosen field of study. Cooperative Education 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. The program is based on the belief that learning extends beyond the classroom and that the combination of course learning and practical work experience provides an innovative and comprehensive education.

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 337.

Students enrolled in Cooperative Education 337, 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.

### REGISTRATION

The academic year calendars giving the dates of registration appear on page iv. Details concerning the registration procedure are given in the Time Schedule of Classes, which is available to all students prior to and at the time of registration.

### 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 terms. The last day to drop a course without a grade for all students is on the Friday five weeks preceding Reading and Review Day each semester. (See also Pre-Summer and Summer Sessions deadlines on p. iv.) 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 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 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 for which the student is enrolled on the first day of the term will count toward their satisfactory progress for financial aid.**

No change in registration involving addition of a new course or a change of sections is permitted after the tenth day of instruction of the semester (except during Pre-Summer and Summer Sessions). Changes from credit to audit or to or from S-U grading are permitted to the end of the fifth week of instruction (except during Pre-Summer and Summer Sessions). The specific deadlines for the various types of changes of registration are published in the Time Schedule of Classes each semester.

**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 mail to the current local address a revised class schedule 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 with the Registrar’s Office.

**WITHDRAWAL FROM UNIVERSITY**

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

The last day a student may cancel registration without grades is the Friday five weeks preceding Reading and Review Day. (See also Summer Sessions deadlines on page iv). 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 canceled without grades for cause (major mental or physical illness or other significant incapacity) providing both the student’s Academic Dean and the Dean of Students agree to this course of action. Please note: Anytime a student withdraws after the first 10 days of the semester, a “W” indicating the withdrawal will appear on the student’s transcript. AH 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**

For a member of the freshman class, sixteen 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 twelve 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 fifteen to seventeen 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.

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 POINTS 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>CR</td>
<td>Credit Received</td>
<td>—</td>
</tr>
<tr>
<td>CD</td>
<td>Credit Deferred</td>
<td>—</td>
</tr>
<tr>
<td>CW</td>
<td>Credit 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>
</tbody>
</table>

The mark “I”, Incomplete, shall 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. Incomplete are so entered on a semester grade sheet. In addition, the instructor shall indicate on a separate form what grade the incomplete should automatically be converted to, if the student fails to complete the assigned work within the allowed time period. An “I”, Incomplete, in a course taken for undergraduate credit must be completed during the first four weeks of the succeeding semester that the student is enrolled in institutional credit. An Administrative Procedures Committee petition for an extension of time of an incomplete may be submitted to the registrar’s office by a student with the approval of the instructor of the course and the dean of the college offering the course. An “I” once recorded may be removed or converted as indicated above but cannot be expunged from the record. After seven years, all outstanding “Incomplete” grades will be marked as permanent “Incomplete.” A student may complete the course work to remove a permanent “Incomplete” after seven years with the permission of the chairperson of the department offering the course and the dean of the college offering the course.

If a student misses a final examination for reasons not satisfactory to the instructor, he or she is given an F. A student receiving a failure in a course shall not be allowed to pursue the continuation of that course before removing the failure. Any student receiving a failure in a course which is required in his/her curriculum must repeat the course at the earliest opportunity.
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 5. 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:

1. A maximum of 30 semester hours of credit of elected S-U grades may be counted toward his or her baccalaureate degree.

2. Courses in the major field may not be taken for an S-U grade. 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. A course elected for S-U grade will not be included in the 30 hour residency requirement, i.e., all students must complete a minimum of 30 graded credits at the University of North Dakota to receive a bachelor’s degree.

5. 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 Registrar’s Office to a grade of S. Grades of D and F will be converted to U. Changes in registration to or from S-U grading for fall and spring semesters may be made during the first five weeks of the semester. The deadline for that same activity during the Pre-Summer Session and Summer Session is determined by using a time guideline which is proportionate to that for the academic year (see Academic Calendar, p. iv).

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. These courses may be taken in excess of the 30 hour limitation if they are required for that student’s program. Students who do enroll in a required S-U class, which is not a program requirement for them, must include it in the 30 hour maximum and comply with all other elective S-U regulations.

REPETITION OF COURSES

A student who receives a grade of D or F in a course may repeat the course without special permission. Courses in which grades of C or better are earned may be repeated upon written approval of the department concerned and the dean of the college offering the course and the student’s academic adviser. Without this approval, both grades will be recorded on the student’s permanent record, with the last grade being marked as duplication and not being counted in the student’s GPA. 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 CPA if the achieved result is an S, but repetition which results in a U will leave the effects of the earlier grade intact.

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 of the course and with the student’s dean and adviser, except in the Schools of Law, Medicine, and 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 advisor, 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

SEMESTER GRADE REPORTS

Grade reports are mailed to students at their home address approximately two weeks after the close of each semester and the summer session.

TRANSCRIPTS OF ACADEMIC RECORDS

Transcript requests must be submitted in writing. Either a completed “transcript request” form or a letter bearing the student’s signature is acceptable. Telephone requests cannot by federal law be honored nor can requests by relatives or friends of a student.* 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. The written request by the student, accompanied by a check or money order payable to the University of North Dakota, if a charge is required, should be sent to the Registrar’s Office, Twamley Hall 201, Grand Forks, ND 58202.

*Questions about the Family Educational Rights and Privacy Act (FERPA) should be directed to the Registrar’s Office.
Each transcript includes the student’s entire academic record to date and current academic status. Partial transcripts are not issued. The University of North Dakota does not FAX transcripts.

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 until the indebtedness has been paid.

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. While attendance is necessary to demonstrate competency via participation in some classes, attendance itself is not a measure of competence and therefore is not used as a criterion for evaluation. Students’ grades are based on recognized academic standards, e.g., scholarly achievement and examination performance. Faculty are encouraged to find appropriate ways to reflect in their grading the quality of participation and contributions of students to their classes. Students are informed during the first class week of the criteria to be used in assigning grades in their courses.

The Dean of Students will notify instructors if a student is hospitalized or absent due to a death in the family. This is not an excuse, but a notification of a student’s status. In other instances students are to notify the instructor if unable to attend classes.

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 incomplete on page 42 will apply.

However, 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 semester, otherwise, the student’s rescheduling right is forfeited. If an accommodation cannot be reached, he or she should contact the department chair(s) to find a mutually agreeable time. If no agreement is reached, the appropriate dean(s) should be contacted. The final appeal, if no mutually convenient time has been found, will be to the Vice-President of Academic Affairs.

UNDERGRADUATE PROBATION — DISMISSAL POLICY

Any student who does not maintain minimum academic requirements will, at the end of the term in which he or she fails to meet minimum standards, be placed on Academic Probation. Subsequent failure to meet these standards will result in dismissal from the University.
A student who has earned less than 90 total hours will be considered in Good Academic Standing if he or she maintains a UND Grade Point Average GPA of C (2.00) or higher. A student who has earned 90 or more total hours will be in Good Academic Standing only with a 2.00 or higher GPA on both UND and cumulative hours. NOTE: It is possible to be in Good Academic Standing at the University, and, yet to not be in Good Academic Standing in certain University programs which require a GPA higher than 2.00.

Total hours earned toward graduation include (1) all UND hours for which a grade of A, B, C, D, S, or CR is recorded, (2) all hours accepted in transfer, (3) hours recorded by special examinations, (4) hours with passing grades of non-traditional nature, and (5) other hours which grant credit toward a degree.

Grade Point Average will be calculated by dividing Grade Points earned by Average Hours. Average hours include hours for which letter grades of A, B, C, D, and F are recorded. Grade points are accumulated per credit hour at the rate of A-4, B-3, C-2, D-1 and F-0.

A student on Academic Probation may remove Probation by attaining Good Standing. A student on Academic Probation who does not remove his or her probation at the end of the next term (semester or summer session) in which he or she enrolls will be dismissed.

CONDUCT IN GENERAL

A student is expected to show, both within and outside of the University, respect for law and order, personal honor, and the rights of others. To further strengthen the sense of community at the University of North Dakota, we affirm the following: (1) That everyone he allowed to work, learn, and live in a safe, caring environment; (2) That everyone learn about, understand, appreciate, and respect varied cultures; (3) That everyone matters; (4) That all individuals be respected and treated with dignity and civility; (5) That everyone continue to share in the responsibility of making UND a better place. Within the University, the student is subject to specific policies, rules and regulations promulgated by student governing groups, student-faculty committees, University Senate and the State Board of Higher Education. The student is subject to civil law and civil authority.

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 Office. Adjudication will incorporate both substantive due process, i.e., fair and equitable treatment, and appropriate procedural due process.

The Code of Student Life, available from the Vice President for Student Affairs, and the Dean of Students Office, 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 periodically. Interpretation of sections within the Code may be requested by contacting the Dean of Students Office, the Vice President of Student Affairs, 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.
   6. Bribing another person to obtain an unadministered test or information about an unadministered 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.

SCHOLARSHIP 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 grade point average of 3.8 or higher. The student must also have earned a minimum of 30 semester hours and have completed a minimum of 12 hours at the close of the semester, eight of which must be for traditional letter grades.

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 the bachelor’s degree who achieve a scholastic average of 3.2 will be graduated cum laude; those with an average of 3.5, magna cum laude; those with an average of 3.7, summa cum laude. A student with transferred credits will be similarly distinguished if his/her cumulative record and record at the University of North Dakota each meet the requirements. A gold seal indicating the honor will be affixed to the diploma upon graduation. The honor will be recorded on the student’s academic record.

THE HONORS PROGRAM

1. General

The Honors Program brings together highly capable students and dedicated faculty members in an atmosphere conducive to creative learning and intellectual exploration. The Program is intended for students with a personal interest in learning who will pursue intellectual and creative interests beyond the requirements of the particular courses in which they are enrolled. Well-qualified high school graduates are encouraged to apply at the time of their initial registration in the University. Students may also enter the Program after the freshman year; inquiries from interested students are welcome. Students in any College of the University may enroll in the Honors Program.

II. Administration

The Program is administered by a Coordinator and a University Honors Committee. The Honors Program has its own administrative apparatus and can adjust student programs
to fit the needs and desires of individual students. In response to this relative freedom from restrictive requirements, Honors Program students are expected to demonstrate intellectual excellence in their own lines of interest, and to pursue learning beyond the usual limits. Opportunities to do so are offered in Honors colloquia, Honors tutorials, 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 taking a major in the Colleges, but the Honors Program also offers the option of majoring in Honors. The Honors Program is not merely a modification of already existing programs, but a different program with ends and means of its own.

III. Means

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

The major 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 senior examination (with a grade no lower than “B”) in some field of specialization. To major, in Honors, students are additionally required to balance coursework in three broad areas of learning through Honors sections or the Honors mode. 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 respectable academic performance. The present criterion is that a student should attain a 3.2 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 course work encourages students to think independently, to express their thoughts clearly, 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

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 purpose 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 hours of work by the end of the first semester of the junior year with a general grade point average of at least 3.2. Early in the second semester of the junior year the student must apply to the Honors Coordinator for admission to honors work. 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 not less than six and, not more than fifteen. 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 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 499 and the title “Senior Honors.” 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 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 take a comprehensive examination. At least one hour of the examination shall be oral, and a member of the Honors Committee shall be present. At the end of his or her senior year the student may be excused from all final examinations given by the major department, if the department so approves.

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 “with honors in (the major field)” will appear on the Commencement program and transcript.

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 Omega Alpha** (1978) elects to membership from junior and senior medical students on the basis of their scholastic grades.

**Alpha Phi Omega** (1947) is a National Service fraternity of former Boy Scout members.

**Alpha Psi Omega** (Xi Alpha) (1981) is a national honorary dramatic fraternity for those performing a high standard of work in theatre arts.

**Alpha Tau** (1921) is the student organization of industrial technology.

**Beta Gamma Sigma** (1926) elects to membership a limited number of academically outstanding students from the primary disciplines in Business Administration.

**Beta Alpha Psi** (1923) elects from junior, senior and graduate students in accounting. Election is based on scholarship and promise in the field.

**Delta Pi Epsilon** (1963) is the national honorary graduate fraternity for students of superior scholastic achievement in business education.

**Delta Psi Kappa** (1948) is a professional fraternity endeavoring through its elections to recognize merit in the fields of health, physical education and recreation.

**Delta Sigma Rho** (191 1) limits membership to students who have distinguished themselves in public speaking activities.

**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 Theta Upsilon (1948) a professional fraternity, has for its purpose the recognition of merit among those enrolled in the study of geography.

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

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 (1948) aims to recognize excellence among those enrolled in the study 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 Delta Phi (1911) is an international fraternity in the School of Law.

Phi Epsilon Kappa (1949) is a national professional fraternity for those engaged in teaching health, physical education, and recreation.

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

Phi Lambda Theta (1923) elects outstanding students in the Center for Teaching and Learning.

Phi Omega Pi (1951) aims to promote scholarship in business education.

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

Phi 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 Xi (1919) chooses its members from the faculty and graduate students on the basis of their aptitude in scientific research. Undergraduates are eligible for associate membership.


Sigma Xi (1919) chooses its members from the faculty and graduate students on the basis of their aptitude in scientific research. Undergraduates are eligible for associate membership.

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

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.

Upsilon Pi Epsilon (1987) recognizes outstanding students in the field of Computer Science.
University Services

Division of Student Affairs

Under the direction of the Vice President for Student Affairs, a number of services, programs, and activities are available to assist students. Students needing assistance or information should contact the appropriate office as described below, or may contact the office of the Vice President for Student Affairs, 209 Twamley Hall, phone 777-2724.

The basic mission of the Division of Student Affairs is to provide resources and services to students to help them meet their immediate needs and to assist them in developing those skills which will enable them to be successful on campus and to be able to enter and be successful in society when they leave campus.

AFRICAN AMERICAN, ASIAN AMERICAN, AND HISPANIC STUDENT PROGRAMS

2800 University Avenue
Phone 777-4259

The Era Bell Thompson Cultural Center is the base of operation for African American, Asian American, and Hispanic Student Programs and houses the offices of the director of African American, Asian American, and Hispanic Student Programs, Black Student Association and the Hispanic American Council student organization. Under the auspices of the Division of Student Affairs and the Dean of Students, the Era Bell Thompson Cultural Programs office provides on-going educational and social programs that include cultural awareness and programming, counseling, group advisement, new student orientation, academic support, recruiting, career development referrals, and financial aid and scholarship information. The Center provides an area for meeting/studying and a resource library of special collection books.

The Center is open to all interested students, staff/faculty, and community residents who wish to enhance their knowledge and perspective on Asian American, African American, and Hispanic cultures.

CAREER SERVICES CENTER

Hyslop Sports Center, first floor, north section (temporary quarters)
Phone 777-3904

Career Services’ goal is to assist students and alumni in planning for and carrying out their job searches. This is accomplished through individual and group assistance in job search techniques, resume/letterwriting, and interviewing skills. Career Services encompasses the function of placement in conjunction with Job Service North Dakota. In addition, the Cooperative Education program is a part of Career Services. The Career Services office coordinates such activities as on-campus interviews, hosts annual Career Fairs (Business-Industry-Government-Aviation Fair, Health Occupations Fair, Mock Interview Fair, and the State of North Dakota Teacher Education Fair), provides job referral information to employment openings listed with Job Service, distributes a weekly vacancy list which advertises job openings listed with Career Services, compiles labor market information, and houses an occupational/employment resource library.

Assistance is available for students of any discipline in resume development, letters of application, interviewing skills, and job search techniques. Occupational research materials are available for students in the career resource library located within Career Services. The resource library houses audiovisual materials, company literature, microfiche records, and computerized job information systems.
Career Services provides a resume service and credential file for a nominal fee. Students in all disciplines are encouraged to establish a credential file, which is mailed to prospective employers upon student request, employer request, and for on-campus interviewing. Of particular value to registrants who open a credential file is the weekly job vacancy bulletin, which lists current job openings. Orientation sessions for registering with Career Services are offered daily.

COUNSELING CENTER
127 McCannel Hall
Late 1994: to Medical Science South Building, third floor (temporary quarters)
Phone 777-2127

The Counseling Center 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.

Center services may be requested by visiting 127 McCannel Hall anytime between 8:00 a.m. and 4:30 p.m., Monday through Friday, or by calling (701) 777-2127. A receptionist will direct your request or inquiry to the appropriate staff person and/or set up an appointment for you.

All Center services are free of charge except where otherwise indicated. All contracts are confidential.

The specific Counseling Center services are as follows:

Individual Counseling and Therapy. The Center 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, and adjusting to the University.

Testing Service. The administration of the College Level Examination Program (CLEP) and numerous graduate or professional school entrance examinations (GRE, GMAT, MCAT, etc.) is done by the Testing Service. In addition, the administration and interpretation of career, self-assessment, or ability inventories is available through the Center. There may be a small charge for some of the tests and assessment instruments.

University Learning Center. This component of the Counseling Center provides academic skills assistance for students in order to help them achieve an increased measure of academic success.

Professional staff are available to work with students on an individual basis to assess and identify student learning strengths and needs. The center also provides course specific tutoring, credit courses, and workshops in skill development areas. In addition, the center accepts applications for peer tutors in all subject areas.

All Center services, including tutoring, are available free of charge to students.

The University Learning Center is located in 201A Memorial Union. The Center is open Monday through Friday between 8:00 a.m. and 4:30 p.m. Call (701) 777-4406 for more information.

Career Counseling Services. Career Counseling Services offers assistance to help UND students make informed and satisfying decisions about career and educational goals. This service offers guidance through four areas: Career Walk-In Center, Individual Career Counseling, Career Presentations, and a Career Decision-Making Course.

Substance Abuse Prevention Program. Educational programming, individual and group counseling, referral to community treatment agencies, and informational workshops
are offered through this Center program. In addition, a resource library for use by students, faculty, and staff is located in the Counseling center.

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.

DEAN OF STUDENTS OFFICE
McCannel Hall
Late 1994: to Medical Science South Building, second floor (temporary quarters)
Phone 777-2664

The Dean of Students Office seeks to assist students and prospective students in meeting their needs and to serve as a liaison among the diverse populations of student, faculty, staff, the UND community, state, and region. Dean of Students personnel can provide referrals concerning academic/personal/developmental services and programming designed to educate students to share in the responsibility for their educational goals, their communities, and the world. To meet these challenges, the Dean of Students departments work to create a holistic learning environment that enhances the total experience of UND’s diverse student body.

To create a positive learning and growing environment and assist students in meeting the challenges of this important phase of development, many specific services and programs are coordinated and administered through the Dean of Students office. These include discipline, initiation of new programs, notifications of absence, crisis team coordination, and special circumstances for withdrawal from the University of North Dakota. In addition, the following offices provide services to the University and surrounding community: Disability Support Services, the Era Bell Thompson Cultural Center, the Multicultural Program, Trio Programs (Student Support Services, Talent Search, Upward Bound, the Educational Opportunity Center), and Women’s Program. Additional details on these areas may be found in this section on Division of Student Affairs Services in this catalog.

DISABILITY SUPPORT SERVICES
153 McCannel Hall
Late 1994: to Medical Science South Building, first floor (temporary quarters)
Phone 777-3425 (Voice or TTY)

Disability Support Services (DSS) provides a variety of academic support services both directly and in collaboration with other University departments. These services provide equal access to academic programs to eligible students with disabilities. The support services used by an individual student vary depending on the specific disability. The list of services available through DSS include, but are not limited to: readers, taped textbooks, notetakers, adapted testing, tutors, adapted equipment and computer technology, classroom accommodations, academic advising, disability management/vocational counseling, referral, and arrangement of interpreter services.

It is the student’s responsibility to request disability related services by contacting DSS. Students will be asked to provide current documentation (no older than three years) from an appropriate professional (such as a physician, audiologist, rehabilitation counselor, psychologist, or learning disabilities specialist) that states the disability, functional limitations, and recommendations for academic accommodations and support services. It is strongly recommended that students contact DSS as soon as the decision to enroll is made in order to determine eligibility and to ensure that services will be arranged upon arrival on campus.
ENROLLMENT SERVICES
Twamley Hall
Phone 777-4463

The Enrollment Services Office is the central contact point for dissemination of enrollment information about the University of North Dakota. There are two major subdivisions of Enrollment Services: Outreach, and Student Financial Aid.

The primary mission of Outreach is to inform, counsel, and assist prospective students regarding admission, academic programs and procedures. For requests for information, applications and campus tours see Visitor Information on page 3.

The primary mission of Student Financial Aid is to provide need-based financial assistance to students who would otherwise be unable to attend the University of North Dakota and non-need based honor scholarships to academically talented students to encourage enrollment at UND For additional information please, refer to Student Financial Aid Office on page 20.

INTERNATIONAL CENTRE
2908 University Avenue
Phone 777-4231

The UND International Centre is a home and global learning environment that provides opportunities for studying, selecting books from the resource library, listening to international music, viewing satellite news from various countries, computer usage, watching TV, using the VCR, playing ping pong, and meeting friends from 47 countries.

Weekly programs include:
- Educational forums on cultural diversity and the world reality.
- Cultural events, including food, music, artifacts, literature, students’ heritage/ experiences, attire, language, and slides.
- Celebrating international holidays, birthdays, graduation, and special events.
- Insight sessions focusing on oneself, humankind, and the global environment.

The International Affairs Coordinator advises students in areas of academics, housing, banking, purchasing, financial aid, health insurance, library resources, and personal needs.

The International Organization is located on the third floor of the Centre.

INTERNATIONAL STUDIES OFFICE
314 Cambridge Street
Phone 777-3306

The UND Office of International Studies works with the University community to support and develop academic programs on campus to help prepare students to deal effectively with the growing interdependence of the world. Our goals are to promote and enhance internationalization of the campus, in each and every area, and to foster understanding of different countries and cultures.

To achieve these goals, the Office provides these services:
- Coordinates the International Student Exchange Program, ISEP, and the UND Norway Exchange Program.
- Provides information on Fulbright Grants and other international faculty exchanges and development programs.

Provides both international and U.S. students and scholars with up-to-date immigration and employment information and assistance.
Sells International Student ID cards which enable students to have discounts on transportation, lodging, museums, et cetera, and provides students with sickness and accident insurance outside the country.

— Sells Hostelling International Cards.
— Plans International Perspectives events and supports other programs and speakers that focus on international concerns.
Advises International Studies minors and majors.

The office is composed of a Director of International Academic Affairs, an immigration specialist and an administrative secretary, and coordinates with the International Centre to ensure that UND will be a place where individuals from various cultures and countries can work and learn about the world together.

**MEMORIAL UNION**
**Phone** 777-3926

The Memorial Union provides a host of services to the University community, including meeting rooms from small to ballroom size, teleconference facilities, Service Center/Copy Stop (check cashing, newspapers, photocopying, fax), Off Campus Student LIFE Center, Craft Center, and Sign and Design Studio. Food service options include: Burger King, the Deli. Espresso Cart, Centennial Dining Room, the Terrace Dining Center, and Campus Catering. Space in the Union for meetings or displays may be reserved by calling Central Scheduling at 777-3928 or by stopping in on first floor. Another service offered at the Union is Info Center, which has information on most University events and services on a walk up or phone in basis (777-4321). The Lifetime Sports Center, located on the ground floor, offers billiards, bowling, electronic darts, ping pong, coin operated games, and television lounges. Outdoor equipment rentals, including canoes, camping equipment, and cross country skis, are also available. Leadership and personal development as well as advising of campus organizations are provided by the Leadership Development Program, Student Organization Center, and Greek Life departments. Also located in the Union are Student Government, Learning Services, the Computer Learning Lab and Terminal Room, and Campus Barbers.

**NATIVE AMERICAN PROGRAMS**
2419 Second Avenue N.
**Phone** 777-4291

Native American Programs assists the University of North Dakota in developing the talents of the largest ethnic minority in the state, the Native American. The office assists all aspects of the University to maintain a climate that is responsive to the needs of the Native American; serves as a general institutional contact for Native American students; and provides academic, financial and personal counseling. Native American Programs offers American Indian students financial support to participate in the tutorial program administered by Learning Services. Native American Programs is responsible for administering the Native American Cultural Center, coordinating recruitment, establishing communication channels, assisting with institutional planning, advising faculty and staff as to the needs of Indian students, and serving as an advocate for the Indian student. The program also acts as a liaison with the reservation communities to bring the University and the students’ home communities closer together.

**ORIENTATION AND RETENTION**
Twamley Hall
**Phone** 777-4851

Orientation and Retention works to coordinate campus-wide efforts to assist students with their transition to the university, as well as to help them complete a successful and
satisfying college experience. Students are introduced to university life through orientation activities prior to the first day of classes, a seminar course for first year students, and events for special populations and families. Retention efforts include identifying high risk students, barriers to student success and appropriate interventions.

**STUDENT FINANCIAL AID OFFICE**

Twamley Hall  
Phone 777-3121

The Student Financial Aid Office assists students and their families in meeting the costs of higher education by providing the students with financial assistance and by counseling the students and their families on how to attain their educational goals through proper financial planning. The philosophy of the Student Financial Aid Office is that the primary responsibility for financing a college education lies with the student and his/her 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 loans, scholarships, grants, and employment programs. The Student Financial Aid Office maintains a listing of both on- and off-campus part-time jobs. Details and procedures, practices and programs are available from the Student Financial Aid Office and on page 20 of this catalog.

**STUDENT HEALTH SERVICE**

McCannel Hall  
Late 1994: to Medical Science South Building, basement (temporary quarters)  
Phone 777-3963

The Student Health Service is located on the third floor of McCannel Hall. Regular school year hours are 8 a.m. to 5 p.m., Monday through Friday. Summer hours are 8 a.m. to 4:30 p.m., Monday through Friday. The full-service medical clinic provides medical evaluation, treatment, and health education programs.

We are authorized to treat all enrolled students. Souse of enrolled students may use the Health Service for a minimal per-semester fee. Faculty and Staff may be treated under job-related emergency conditions. Medical service, including that for children, is available at the UND Family Practice Center, 780-6800.

Students are not charged for office calls. The cost is covered by the per-semester health fee. There is no limit to the number of visits per semester. There is a charge for medications, laboratory and x-ray services, and for special examinations.

A licensed addiction counselor can be seen at Student Health by appointment at no cost to enrolled students.

All charges are billed through the University Business Office and are charged to the student regardless of third party coverage.

Brochures are provided on various health topics. Telephone tape messages for personal listening can be requested by calling Info-line, 777-4321.

After-hours medical coverage is available 24 hours per day. To reach a doctor, call 777-3963.
OFFICE OF SUBSTANCE ABUSE PREVENTION
Counseling Center
Late 1994: to Medical Science South Building, third floor (temporary quarters)
Phone 777-2127

The Office of Substance Abuse Prevention provides information and assistance to students who have questions or concerns related to alcohol or drug use, co-dependent behavior, adult children of alcoholics experiences, or other addictive tendencies. This program is actively involved in organizing, planning, and presenting workshops and activities designed to help individuals make positive and responsible decisions about addictive and high risk behaviors. The Alcohol and Drug Abuse Prevention Team (ADAPT) offers a variety of wellness workshops, facilitated by Peer Assistants, which increase awareness of chemical use and abuse issues. The Office of Substance Abuse Prevention is located in the Counseling Center, 127 McCannel Hall.

TRIO PROGRAMS
(Student Support Services/Upward Bound/Educational Talent Search/
Educational Opportunity Center/Ronald E. McNair Program)
Bek Hall
Phone 777-3426,3427,3816,3809, 4931

The UND components of TRIO programs are funded by the United States Department of Education.

Student Support Services. The Student Support Services program provides academic and personal support to first generation (neither parent has earned a bachelor’s degree) and economically disadvantaged students. The program provides academic assistance with course selection and registration, career decision making, developmental and supplemental tutoring in math science and writing skills. With a variety of resources available, the program is designed to assist students in developing self-reliance, independence and academic achievement.

Upward Bound. The Upward Bound program provides assistance to low-income and first generation (neither parent has earned a bachelor’s degree) high school youth at selected target schools in North Dakota, in obtaining the academic skills and motivation necessary to attend a post-secondary institution. The services are provided throughout the academic year and during a six-week residential program held on the University of North Dakota Campus. For further information, call 777-3427.

Educational Talent Search. The Educational Talent Search program assists in enabling youth who have academic potential, but may lack adequate information or school preparation to enter, continue, or resume programs of secondary and post-secondary education. Services include academic advisement, financial aid information and workshops, tutoring and student skills, career counseling and interpretation of interest tests.

Educational Opportunity Center. The Center assists participants who have academic potential, but may lack adequate information or school preparation to enter, continue, or resume programs of secondary and/or post-secondary education. Services include but are not limited to: Career Exploration, Admissions, Financial Aid, GED, Workshops, and assisting individuals when transferring from a two-year to a four-year institution.

Ronald E. McNair Program. 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 LEARNING CENTER
Memorial Union, 201A
Phone 777-4406

The University Learning Center provides a wide range of educational skills assistance for university students. Professional staff are available to work with students on an individual basis to assess and identify learning strengths and needs.

Academic skills assistance is available in the following areas: (1) Individual assistance, (2) Tutoring, (3) Credit courses, (4) Workshops in skill development areas.

The University Learning Center accepts applications for peer tutors in all subject areas throughout the year.

The University Learning Center provides consultation for students, staff, and faculty. The services provided by the University Learning Center are free of charge to students.

VETERAN SERVICES
McCannel Hall
Late 1994: to Medical South Building (temporary quarters)
Phone 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.

WOMEN’S CENTER
305 Hamline Street
Phone 777-4300

The purpose of the Women’s Center is to provide support, advocacy, and education, for the UND campus and the community. The center offers a warm, friendly, growth-oriented environment where both men and women can explore their roles in society, current issues may be discussed, and new skills developed. Ongoing programs include a Wednesday noon Feast & Focus series where people gather to discuss a variety of topics and issues important to our lives and experiences. Other offerings include several support and/or discussion groups, free counseling to students, reading groups, mini-conferences, and programming relevant to Women’s History. A lending library and study area (with computer and typewriter) are located on the second floor and are available to all. The Women’s Center is open Monday through Friday, 9:00 a.m. to 4:30 p.m.

Other University Services

ACADEMIC MEDIA CENTER
Sayre Hall
Phone 777-2129

The Academic Media Center is the primary media preparation and service unit on campus. Its main mission is to prepare software, provide AV/TV hardware for academic use, and provide maintenance- and repair service for AV/TV equipment, micro-computers and peripherals for approved units.
Faculty and students may have slides, prints, graphs, transparencies, film/tape rentals, audio and video dubbing and computer generated visuals prepared for them at a charge of the cost of materials. Videotaping of classroom presentations, video tape editing facilities and film and video tape delivery to departments are provided at no charge to the users. A wide range of AV/TV equipment is available and will be delivered and retrieved from classrooms on request. A limited amount of long term use equipment is available.

Consultation regarding instructional design, media systems, videotaping, photography, graphics and equipment is an important part of AMC services.

**AFFIRMATIVE ACTION OFFICE-TITLE IX COMPLIANCE**

Twamley Hall  
Phone 777-4171

The Affirmative Action Office is responsible for oversight of the University’s equal opportunity and affirmative action program; Rehabilitation Act of 1973, Sections 503 and 504; Titles VI and VII of the Civil Rights Act of 1964; Age Discrimination in Employment Act; and Title IX of the Education Amendments of 1972, and the Americans with Disabilities Act as well as responsible for compliance with Federal and State laws and regulations involving civil rights, equal employment and equal educational opportunity. Under equal employment and equal education opportunity, the University declares that it will not discriminate on the basis of race, color, religion, creed, sexual orientation, national origin, sex, or age and otherwise encourages the inclusion of members of minority groups (Black, Hispanic Non-Black, Asian, Native American), women, disabled persons, 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.

Students are encouraged to use the resources in the Affirmative Action Office regarding minority, women, and disability issues and to consult with the Affirmative Action Officer concerning discrimination problems. Those individuals who believe that they have been victims of unlawful discrimination are encouraged to contact the Affirmative Action Office for UND’S grievance procedures covering discrimination.

**ALUMNI ASSOCIATION AND FOUNDATION**

J. Lloyd Stone Alumni Center  
Phone 777-2611

The University of North Dakota has a proud tradition of alumni achievement and loyal and dedicated alumni and friend support. Alumni and friend involvement has provided a “margin of excellence” for many of the programs offered by the University of North Dakota. Two private, non-profit organizations, the UND Alumni Association and the UND Foundation, have responsibility for coordinating alumni relations and fund raising programs. Policies for the Association and the Foundation are set by a 24-member Board of Directors. Program and office operations are under the direct supervision of an Executive Vice President. The Association and Foundation are headquartered in the J. Lloyd Stone Alumni Center (formerly Oxford House), the historic, restored home of early UND presidents.

The Alumni Association and Foundation have a unique working relationship which differs from similar organizations at many colleges and universities. Both organizations are managed by the same board of directors and the same executive vice president. The Foundation receives private gifts for the benefit of the total University of North Dakota and also acts as a trustee in deferred giving arrangements and for named endowment funds. The staff of the Alumni Association conducts all fund raising activities for the Foundation. The Alumni Association and the Foundation have a closely coordinated and
integrated alumni relations and fund raising program which involves the maintenance of records and current addresses for all graduates and former students, on- and off-campus alumni events, and alumni tours. The Alumni Review, a bi-monthly newspaper, is mailed free of charge to over 80,000 graduates and former students. The fund raising programs include an annual sustaining drive, major gift programs, the promotion of UND Foundation giving clubs, and the marketing of deferred giving programs, including life income arrangements for alumni and friends.

In conjunction with the 1983 University of North Dakota Centennial, the Alumni Association and Foundation conducted a Centennial Endowment National Campaign which raised over $26 million in direct, pledged, and deferred gifts. This was followed in 1991-92 with a “Thank You, President Tom Clifford Campaign” which resulted in gifts and commitments exceeding $25 million. The Foundation manages assets in excess of $52 million, much of which is endowed for perpetual support of scholarships, faculty enhancement programs, and other priority needs at the University of North Dakota.

Over the years, the University of North Dakota alumni have been generous in supporting their Alma Mater and have assisted several major University projects, including the establishment of a number of scholarship and loan funds, providing for faculty awards, and making possible in part or total several buildings on the University of North Dakota campus. This includes financial support for the UND Memorial Union, a swimming pool in the original Fieldhouse, the Winter Sports Center, the Ray Richards Golf Course, the Chester Fritz Library, the Chester Fritz Auditorium, Gamble Hall, the Hughes Fine Arts Center, Ireland Cancer Research Laboratory, Burtness Theatre, and the Fox Service Complex. In 1993 the UND Foundation completed a successful drive which raised over $4 million for the construction of a Bio-Information Learning Resources Center for the UND School of Medicine. UND alumni and friends have also made contributions for research and lectureships and have given financial support to many activities on the UND campus, including music and athletics. The Alumni Association and Foundation administer more than 1,200 separate named accounts which support scholarship, faculty enhancement and other UND priority needs.

In 1981, TELESIS, a student alumni group made up of currently enrolled UND students, was established on the campus to assist the Alumni Association in maintaining contact with UND alumni.

**CHESTER FRITZ AUDITORIUM**

Phone 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 show’s, 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, the literature of theatre, and the portrayal of past societies as a basis for compre-hension of today’s world; and (3) As a public facility to be used by both University and non-university programming groups.

**UNIVERSITY CHILDREN’S CENTER**

Bek Hall
Phone 777-3947

The University Children’s Center offers child care to parents who are students or employees at UND and also to parents of the greater Grand Forks community. The Center serves children ages three, four, and five years old. Children who attend Kindergarten in
the public school are also served half-days. The Center is open five days a week, 7:30 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 48 to 54 children, with no more than nine children being cared for by each 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 or are students-in-training from the Early Childhood Education Department at UND The Center is accredited by the National Academy of Early Childhood Programs and licensed by the North Dakota Department of Social Services.

For more information, you are welcome to come to the lower level of Bek Hall for a tour and visit. Call 777-3947 or write the University Children’s Center, Box 9026, Grand Forks, ND 58202-9026.

COMPUTER CENTER
Upson Hall
Phone 777-3171

The University’s computing resources include an IBM ES/9000 480 with 256 megabytes of memory, a Unisys 2200-401 system running the “ODIN” library system, a RS/6000 530/H, and an IBM AS/400. Through state of the art fiber optic technology, the Computer Center in Upson Hall is also linked to the State Higher Education Computer Network mainframes and minis, the Internet, through which individuals can communicate via electronic mail, access databases and other information throughout the world, and use NSF super-computers. On campus networking links the Computer Center facilities with microcomputers and terminals across the campus to provide individuals access to these services. Numerous LANS provide resource and file sharing and microcomputer based electronic mail within departments and across campus. The Computer Center emphasizes convenience and ease of use for students and faculty.

Students have access via terminals and microcomputers to the CMS time-share system and UNIX systems in several classroom buildings, residence halls, the Chester Fritz Library, Memorial Union and a 24-hour facility in the Computer Center. The Computer Center also provides interactive graphics, video terminals, and two line plotters. UND students have access to several minicomputers and microcomputer clusters around the campus which offer a variety of hardware and software. A computer learning lab in the Memorial Union contains microcomputers and terminals which provide instructional facilities for students and faculty.

The User Services Department within the Computer Center provides program consulting, instructional workshops and documents, LAN support, microcomputer discount purchase program consulting and assistance to all elements of the academic and administrative community including instruction, research and administrative service.

The Computer Center Help Desk, telephone 777-2222, provides a single contact point for help with a computing problem or question. The Help Desk is answered 24 hours a day, seven days a week.

OFFICE OF INSTITUTIONAL RESEARCH
Twamley Hall
Phone 777-4358

The Office of Institutional Research collects and analyzes data about the University. These data include faculty evaluation, course evaluation, student outcomes assessment, enrollment patterns, course enrollment patterns, faculty demographics, faculty workload, faculty salaries, undergraduate program evaluation and academic space assignments. The
Office also analyzes student data collected by the Registrar’s Office and offices in the Division of Student Affairs. Institutional Research works with various offices in the different divisions of the University to coordinate information used and reported to agencies, other colleges and universities, and other interested parties.

**OFFICE OF INSTRUCTIONAL DEVELOPMENT**

Twamley Hall  
Phone 777-3325

The Office of Instructional Development (OID) exists to assist the UND faculty with the improvement of instruction and their continuing professional development as teachers. The Office, along with the Faculty Instructional Development Committee, provides funding opportunities for faculty and academic staff members to support workshops and seminars, the development of instructional materials, course and curriculum improvements, and other projects. The Office also consults with and assists faculty members, academic departments, and deans with curriculum and course development, evaluation, assessment and teaching methods.

**UND OFFICE OF INTERNATIONAL STUDIES**  
314 Cambridge Street  
Phone 777-3306

The UND Office of International Studies works with the University community to support and develop academic programs on campus to help prepare students to deal effectively with the growing interdependence of the world. Our goals are to promote and enhance internationalization of the campus in each and every area and to foster understanding of different countries and cultures.

To achieve these goals, the Office provides these services: (1) Coordinates the International Student Exchange Program, (ISEP), and the UND-Norway Exchange Program; (2) Provides information on Fulbright Grants, and other international faculty exchanges and development programs; (3) Provides both international and United States students and scholars with up-to-date immigration and employment information and assistance, (4) sells International Student Identification cards which enable students to have discounts on transportation, lodging, museums, etc., and provide students with sickness and accident insurance outside the country; (5) Sells Hostelling International Cards; (6) Plans International Perspective events and supports other programs and speakers that focus on international concerns; and (7) Advises International Studies minors and majors.

The Office is composed of a Director of International Academic Affairs, an immigration specialist, and an administrative secretary, and it coordinates with the International Centre to ensure that UND will be a place where individuals from various cultures and countries can work and learn about the world together.

**LEGAL COUNSEL**  
Room 108, Law School  
Phone 777-2104

The Legal Counsel is the chief legal adviser to the President, officers, faculty, and staff of the University, and is responsible for handling all institutional legal matters affecting the University. The Legal Counsel is responsible for approving all requests for the use of off-campus legal counsel and the supervision thereof. Requests for legal services should be routed through the appropriate vice-president. Services are not available to students.
LIBRARIES

Library facilities on the UND campus are collectively known as the University Libraries. The Library system consists of the Chester Fritz Library and six branches, as well as two autonomous libraries affiliated with the professional schools of law and medicine, the Thormodsgard Law Library and the Harley E. French Library of the Health Sciences.

As the oldest and largest library in the University of North Dakota System, and the largest library in the state, the Chester Fritz Library is highly regarded by scholars in the region. Although some of its resources have restricted access, most are available to everyone.

Built in 1961, enlarged and renovated in 1982, the Chester Fritz Library is designed to be a convenient point of entry into the complex University Library system for UND’s 12,000 students and faculty. The holdings of the Chester Fritz Library number more than 2 million items. Subscriptions are maintained for approximately 7,000 periodicals and the Library participates in various public document depository programs such as those of the Educational Resources Information Center (ERIC), U.S. Superintendent of Documents, and U.S. Patents and Trademarks Office. In addition, the Library’s Elwin B. Robinson Department of Special Collections acquires materials which primarily focus on the Great Plains, North Dakota, and the University.

To access library holdings, ODIN, an online catalog of North Dakota library materials, is used. ODIN is accessible via terminals throughout the Library system, and also from home or office computers. Information about journal articles may be found in printed indexes, and in the growing number of computer databases to which the campus libraries subscribe.

Reference librarians at the Reference Desk in the Chester Fritz Library can help library users design research strategies, solve bibliographic problems, and answer factual reference questions. Some of the other specialized services and programs the library offers include: computerized reference searches, individualized guidance to students engaged in special research projects and Interlibrary Loan services.

The University Libraries are participants in a statewide library automation system that provides access to library collections throughout North Dakota, the Region, and the nation.

MEDICAL CENTER REHABILITATION HOSPITAL AND CLINICS

Grand Forks Medical Park
Phone 780-2311

The University’s Medical Center Rehabilitation Hospital (The Rehab) is a not-for-profit, self-supporting, comprehensive rehabilitation hospital which provides services designed to help adults and children with disabilities improve their quality of life and attain their maximum level of independence.

The Rehab utilizes a multi-disciplinary treatment approach, and provides services on both an inpatient and outpatient basis. Services provided include accelerated athletic training, audiology, case management for patients and family, dietary services, fitness center, medical services, occupational therapy, pharmacy services, physical therapy, psychological testing and counseling, recreational therapy, rehabilitation nursing, speech and language therapy, x-ray services, and work injury programming which may include work tolerance testing, job-site analysis, and other services. In addition, complete artificial limb and brace services are available. All therapy is supervised by a team of physicians specializing in physical medicine and rehabilitation (physiatry).
The Rehab Hospital’s pediatric programs are provided through The Child Evaluation and Treatment Program. For over 25 years, this unique department has been meeting the needs of children with developmental disabilities, learning difficulties, psychological and emotional problems, communication disorders, and a wide range of physical disabilities.

Patients treated at The Rehab Hospital often have one of the following diagnoses: amputation, stroke, chronic pain syndromes, developmental disabilities, learning difficulties, psychological and emotional problems, communication disorders, and a wide range of physical disabilities.

Special features of the facility include one of the nation’s largest Easy Street Environments”, a warm water therapy pool, a pediatric physical therapy gym, a high speed running treadmill, and a state-of-the-art hockey treadmill.

In addition to meeting the needs of patients, the Rehab actively cooperates with the University in the education of health professionals. According to their curriculum requirements, students from the School of medicine, College of Nursing, and Departments of Social Work, Communication Disorders, Occupational Therapy, Physical Therapy, and Psychology, may receive orientation and training in rehabilitation processes, and/or complete their clinical affiliation or practicum at the hospital.

Individuals regardless of age, race, color, or creed who may benefit from any of the services offered at the Rehab are admitted for treatment. Individuals with primary diagnosis of chemical dependence or a psychiatric disorder, however, are not eligible for admission. The Rehab Hospital is accredited by the Commission on Accreditation of Rehabilitation Facilities.

PERSONNEL SERVICES OFFICE
Twamley Hall
Phone 777-4361

The Office of Personnel Services is maintained for the purpose of assisting the various departments on campus in fulfilling their staff employee needs, as well as assisting persons who are interested in working at the University of North Dakota. The University offers a wide variety of positions to qualified persons without discrimination because of race, color, religion, sex, political affiliation, age, handicap, marital status, or national origin. These positions include clerical and professional work, laboratory and hospital services, engineering and mechanical work, food services and custodial, skilled and unskilled labor and many others.

Additional information on employment at the University may be obtained from the Office of Personnel Services, Box 8010, University Station, Grand Forks, ND 58202. The Office of Student Financial Aids (see page 20) should be contacted by students seeking part-time employment.

OFFICE OF RESEARCH AND PROGRAM DEVELOPMENT
Twamley Hall
Phone 777-4278

One of the main functions of the Office of Research and Program Development (ORPD) is to collect, store, and disseminate information on grant programs of federal agencies, state agencies, foundations, and industrial organizations. Select items on research programs that may be of interest to UND faculty and research staff are printed in R&D News, the periodic newsletter of ORPD, which is distributed widely throughout the campus. The ORPD Staff provides application materials, endeavors to identify potential funding sources, and assists with proposal planning.
The Director of ORPD is the official authorized by the University to sign all proposals submitted to external agencies. Before proposals are submitted to ORPD for administrative review, the proposed budgets are checked and approved for compliance with financial policies of the funding agencies and the Budget and Grants Administration (BGA) Office. The Director of ORPD has the responsibility to provide requested certifications and to assure compliance with all other policies and regulations required by the Federal government and other funding agencies. These regulations include human subjects, animal care and use, publication policies, intellectual property policies, use of radioactive materials, recombinant DNA research, and a drug-free workplace. The negotiation of contracts, grants, subcontracts, and subgrants is a joint process involving BGA, ORAD, and the Principal Investigator.

ORPD provides administrative support to the Faculty Research Committee and to committees required by Federal regulations, particularly the Institutional Review Board, which approves research projects involving human subjects, and the Institutional Biosafety Committee, which approves research projects involving DNA.

**SPEECH, LANGUAGE AND HEARING CLINIC**

Montgomery Hall  
Phone 777-3232

The Department of Communication Disorders offers clinical evaluations and treatment for speech, language, and hearing disorders. These services are provided by faculty or by graduate and undergraduate students under the supervision of certified Speech-Language Pathologists and Audiologists. The program in Speech-Language Pathology is accredited by the Educational Standards Board of the American Speech-Language-Hearing Association.

Clinical services are provided without charge to university students. In addition, the Speech, Language and Hearing clinic conducts a program of on-going evaluation and therapy on an outpatient basis. Moderate fees are charged for this service.

Some of the specific services provided are: evaluations of all types of speech handicaps, language disabilities and hearing problems; and hearing aid evaluations. Treatment is also provided in all of these areas.

Referrals to the clinic can be made by anyone for individuals of any age.

Those who wish evaluations, consultations, or training can make appointments by calling the Speech, Language and Hearing Clinic.

**UND RADIO — KFJM-AM/FM**

Old Science  
Phone 777-2577

The University operates two public radio stations. First licensed in 1923 as a ‘land wireless’ station, KFJM began primarily for the purpose of giving students the advantage of observation and practice in operating a radio transmitter. Since then, the purpose has broadened to serve the University and regional communities with intelligent, high quality program services that provide informational and cultural opportunities not readily available elsewhere.

The radio activities are supervised by a professional staff. Participation is open to students and other members of the University community, and community volunteers.

KFJM-AM 1370 covers a radius of about 65 miles in the daytime, and about 30 miles at night. The AM’s 24-hour program service is predominantly news, information, jazz, and contemporary folk, and adult alternative music, with additional programming of big bands, folk and new age music, comedy, and radio theater.
KFJM-FM 89 began broadcasting in 1976, covering a radius of about 30 miles. Through a series of low power repeaters, the signal is extended to Devils Lake, Thief River Falls, Lakota, and Crary. The FM’s 24-hour service is primarily classical music with several hours per day of news programming. Both stations are members of National Public Radio.

TELEVISION PRODUCTION CENTER
Robertson Hall
Phone 777-4346

The general mission of the Center is to provide television production services for university clients, program UND Cable Channel 3, and serve as a lab for School of Communication broadcasting courses.

Television facilities include a complete production studio, a computerized post-production edit bay, and remote production equipment. Projects are produced by a full-time professional staff with assistance from part-time students. Clients are charged a fee for production services.

Students may gain practical experience by working on “Studio 1,” a live program featuring news, sports, weather, and interviews. Students operate studio equipment, write news stories, produce feature segments, design publicity materials, and forecast weather. Participation in “Studio 1” is open to all University students.

WRITING ACROSS THE CURRICULUM
Leonard Hall
Phone 777-3600

Writing Across the Curriculum (WAC) is one piece of the University Writing Program. The goal of the WAC program is to enable content area faculty to assist students in their disciplines to use writing effectively, both as a means of communication and as a mode of learning. Activities within the program, which is funded by a grant from the Bush Foundation, fall under four distinct projects. Project 1 supports curriculum development through small grants to academic units and a “Model Projects” program. Project 2 provides resources for students, including enhancement of Writing Center activities through training and outreach. Project 3 offers resources for faculty in the form of workshops, discussion groups, and seminars. Project 4 provides administrative, structural, and material support for WAC and other writing programs at UND. In addition to the four projects, the WAC program offers consulting to faculty or departments as they re-evaluate the role of writing in their courses, and the WAC office serves as a clearinghouse for information and materials on teaching with writing.

OFFICE OF UNIVERSITY RELATIONS
Twamley Hall
Phone 777-2731

The Office of University Relations (OUR) is UND’s central communication and public relations department. Its goals are (a) to generate awareness, understanding and support among the University’s many constituencies, and (b) to assist in the acquisition of the human and fiscal resources necessary for UND to continue its development as a comprehensive university of regional and national rank. Reporting directly to the Office of the President, OUR also maintains liaison with other units performing advancement-related tasks, and serves as an institutional contact with such affiliated but legally independent organizations as the UND Alumni Association and Foundation.
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 Advancement 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 and foundation leaders. Among these tools are mass media publicity, advertising, OUR-produced periodicals such as the “University Letter” and UND Dimensions,” brochures and other printed materials, videotapes and slide shows, 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.

THE UND WRITING CENTER
115 Merrifield Hall
Phone 777-2795

Students at UND will find that they need to be able to write well not only to complete assignments in various courses, but also in their jobs after graduation. Consequently, the Department of English at UND has established a Writing Center to provide opportunities for all students to become better writers.

In the Center, students receive help in brainstorming, organizing, revising, or documenting papers. If students need to brush up on their grammar, they can gain this knowledge at the Writing Center. Assistance is available to students in any of their courses that require writing; in fact, the majority of students who use the Writing Center are from departments other than English.

Services of the Writing Center are free and on a one-to-one basis. A consultant works with only one student at a time. To obtain help, students simply walk into the Center and if a consultant is free, receive help immediately. Otherwise, the student can make an appointment for another time. Appointments may also be made by phone at 777-2795.

The Center is located in Room 115 of Merrifield Hall and is open Monday to Friday, from 10:00 a.m. to 4:00 p.m. during the fall and spring semesters.
The University College
George W. Schubert, Dean

HISTORY AND SCOPE

The University College was founded in 1955 as the academic unit which enrolls all freshman students, whether or not they have decided upon a specific major. Freshmen and transfer students who have not completed a minimum of 24 credit hours are provided the opportunity in the University College to adjust to their environment, to measure their abilities, and to discover their special interests. After completing a minimum of 24 credit hours and meeting other specific degree granting college requirements most students will advance to one of the University’s nine colleges and schools which offer undergraduate degrees. These include the Center for Aerospace Sciences, College of Arts and Sciences, the Center for Teaching and Learning, the School of Engineering and Mines, the College of Nursing, the College of Fine Arts, the College for Human Resources Development, and the School of Medicine. Students planning to enter the College of Business and Public Administration must complete a minimum of 60 semester hours and have the approval of that college before admission is complete.

Some undecided students may retain their enrollment status in the University College for a somewhat longer period while they explore their academic and career interests.

ADMISSION AND ACADEMIC ADVISING

As soon as new students have been admitted to the University, their data sheet and high school transcript are forwarded to the University College. University College offers no coursework itself, nor must particular courses be taken in order to leave the college. Instead, University College has the responsibility for housing the records of all freshmen and for assigning each new student to an appropriate academic adviser. Students who have declared a major are assigned to a professor in that department to help the student choose classes and to review their progress throughout the academic year. Students who are still deciding upon a major are assigned to a full-time University College academic adviser. The University College staff is available at all times to respond to student questions and concerns.

ADVANCEMENT TO A DEGREE COLLEGE

Records of a University College student may be advanced from University College to a four-year, degree-granting college upon completion of 24 semester hours and other academic requirements specified by the college or department. One exception is the College of Business and Public Administration, which requires a minimum of 60 semester hours for admission consideration.

To advance the records, the student must call or go to the office of the college which grants the degree the student wishes to pursue. If the student fulfills the requirements of the new college, the new college will request the records from University College.

PROGRAM PLANNING

In most cases the University recommends that a student’s first year be devoted to broad preparation for later specialization. This is particularly important for the undecided student, who may wish to test his or her capacities and interests in various directions before making a final decision about a major field of concentration.

Many new students devote much of their first year of coursework to satisfying the University’s general education requirements, which must be completed by all under-
graduate students no matter which school or college they eventually enter to become degree candidates. The general education requirements form a core of learning that the University sees as necessary for a complete liberal education. These requirements include a minimum of six credit hours in English composition; twelve hours in mathematics, science and technology; nine hours in social sciences and twelve hours in arts and humanities. See pages 33-39 for more information. Within each of these broad areas, students may select from a wide variety of courses. Many students who have not decided on a major find that their general education studies point out possible majors for them.

Students who have chosen a major field of concentration are advised to select courses from among those offered in the general education requirement areas that are especially recommended for the curriculum they expect to follow. Many of these recommendations are found in the departmental and program area listings which begin on page 127.

**D. J. ROBERTSON AWARD**

The D. J. Robertson Academic Award is presented each spring and fall by University College in recognition of academic excellence by freshman students. These students must achieve a 4.0 grade point average and have completed a minimum of 12 semester hours of traditionally graded course work.

**THOMAS J. CLIFFORD OUTSTANDING FRESHMAN AWARD**

The Thomas J. Clifford Outstanding Freshman Award recognizes the freshman student who best exemplifies the highest academic standards and demonstrates 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 Achievement award.

**SUMMER REGISTRATION PROGRAM**

The University College conducts a special summer registration program each year to allow incoming freshmen to arrange their fall semester class schedules. This procedure allows each student to obtain individual attention from faculty advisers. Students accepted for admission to the University are invited to participate in the Summer Registration Program. The individual advisement and registration process takes one full day, with activities beginning at 8:00 a.m. and concluding at approximately 3:30 p.m. Appointments are required and can be scheduled by contacting University College.

**SUMMER SESSION**

The Summer Session is administered by the Dean of the University College and Summer Sessions. See page 120 for information on summer programs.

**PRE-PROFESSIONAL PROGRAMS**

Students who are enrolled in pre-professional programs are normally advanced to the College of Arts and Sciences after one year of study in University College. Following are recommended curricula for pre-professional programs.
Pre-Dental

While schools of dentistry have traditionally listed the following courses as the minimum requirements for admission, very few students are now being admitted to a school of dentistry without having first completed an undergraduate degree. All schools require successful completion of at least one year each of biology, physics, inorganic chemistry, and organic chemistry. Some schools require additional specific courses. For information on dental schools and their requirements consult with the Dean’s Office in the College of Arts and Sciences.

**Freshman Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101, 102</td>
<td>Composition I and II</td>
<td>(6)</td>
</tr>
<tr>
<td>Chem 105, 106</td>
<td>General Chemistry and Qual. Analysis</td>
<td>(8)</td>
</tr>
<tr>
<td>Biol 101, 102</td>
<td>Introduction to Biology</td>
<td>(8)</td>
</tr>
<tr>
<td>Math 103</td>
<td>College Algebra</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist</td>
<td>Elective</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 211, 213 or 217</td>
<td>Literature</td>
<td>(2)</td>
</tr>
<tr>
<td>Phys 101, 102</td>
<td>Introductory College Physics</td>
<td>(8)</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phys 203, 204</td>
<td>General Physics</td>
<td>(8)</td>
</tr>
<tr>
<td>Chem 305, 306</td>
<td>Organic Chemistry</td>
<td>(10)</td>
</tr>
<tr>
<td>Psy 101</td>
<td>Introduction to Psychology</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Elective (literature, Latin words, history, science, etc.)</td>
<td>(3)</td>
</tr>
</tbody>
</table>

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.

**Freshman Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101, 102</td>
<td>Composition I and II</td>
<td>(6)</td>
</tr>
<tr>
<td>Biol 101, 102</td>
<td>Introduction to Biology</td>
<td>(8)</td>
</tr>
<tr>
<td>Psy 10</td>
<td>Fundamentals of Public Speaking</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 161</td>
<td>Social Science, History, Government, Economics</td>
<td>(6)</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>(3-6)</td>
</tr>
</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105, 106</td>
<td>General Chemistry and Qual. Analysis</td>
<td>(8)</td>
</tr>
<tr>
<td>Anat 204</td>
<td>Anatomy for Paramedical Personnel</td>
<td>(3-5)</td>
</tr>
<tr>
<td>Soc 101</td>
<td>Introduction to Sociology</td>
<td>(3)</td>
</tr>
<tr>
<td>Acct 200</td>
<td>Elements of Accounting</td>
<td>(3)</td>
</tr>
<tr>
<td>Acct 214</td>
<td>Legal Environment of Business</td>
<td>(3)</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BVED 320</td>
<td>Business Communications</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Pre-Optometry

The requirements for admission into a school of optometry are highly variable, but students are not admitted without successful completion of at least two years of college. All optometry schools require at least one year of biology, physics, and chemistry; almost all require at least one course in organic chemistry; and most require calculus. Additional
specific courses are required by each school. Consult with the Dean of the College of Arts and Sciences for schools and requirements.

<table>
<thead>
<tr>
<th>Freshman Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engl 101, 102</strong> Compsition I and II</td>
</tr>
<tr>
<td><strong>Math 103</strong> College Algebra</td>
</tr>
<tr>
<td><strong>Math 105</strong> Trigonometry</td>
</tr>
<tr>
<td><strong>Biol 101, 102</strong> Introduction to Biology</td>
</tr>
<tr>
<td><strong>Humanities, Social Science, or Electives</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engl 211, 213 or 217 Literature</strong></td>
</tr>
<tr>
<td><strong>Chem 105, 106</strong> General Chemistry and Qual. Analysis</td>
</tr>
<tr>
<td><strong>Phys 202/04 General Physics</strong></td>
</tr>
<tr>
<td><strong>Sociology or Social Sciences</strong></td>
</tr>
<tr>
<td><strong>Psy 101</strong> Introduction to Psychology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pre-Veterinary Medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Freshman Year</strong></td>
</tr>
<tr>
<td><strong>Engl 101, 102</strong> Compsition I and II</td>
</tr>
<tr>
<td><strong>Chem 105, 106</strong> General Chemistry and Qual. Analysis</td>
</tr>
<tr>
<td><strong>Biol 101, 102</strong> Introduction to Biology</td>
</tr>
<tr>
<td><strong>Math 103</strong> College Algebra</td>
</tr>
<tr>
<td><strong>Math 105</strong> Trigonometry</td>
</tr>
<tr>
<td><strong>Elective</strong></td>
</tr>
</tbody>
</table>

**CONSULTING THE ADVISER**

All students who are enrolled in University College should meet with their adviser on a regular basis and should consult with their adviser preceding enrollment in classes each term.
The Center for Aerospace Sciences

John D. Odegard, Dean

MISSION AND HISTORY

The principal mission of the Center for Aerospace Sciences is to preserve, create, and disseminate knowledge and to demonstrate the principled use of knowledge for and about aerospace, meteorology, and computer science. In consort 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 Center has earned national acclaim for its achievements in collegiate aviation education and atmospheric research. In just a few years, the Center has received a steady stream of multi-million dollar research contracts and attracted students from every state and at least a dozen 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 emerged at a rapid pace and, 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 in the nation accredited by the Council on Aviation Accreditation.

SCOPE

In the aviation industry, the rate of change is rapid and relentless. New aircraft and air traffic control technology are profoundly affecting the way the industry does business. Increased air travel and pending pilot shortages are just two of the industry’s major challenges today. The result is a demand for high-caliber professionals to handle an infinitely greater range and complexity of responsibilities. These are the employment trends the Centers aviation programs are designed to meet.

The Center’s research faculty in the Atmospheric Sciences Department are working on federally funded projects to modernize the nation’s aging weather surveillance system and to develop early warning systems for aircraft icing and wind shear. Their research takes them across the Great Plains to the Rockies, indeed across the globe, on a variety of both basic and applied atmospheric studies. Digital Doppler radar, a customized Cessna Citation II research jet, and a mobile computer lab are among the research tools used for these meteorological fact-finding missions. They are developing new ways of gathering, analyzing and presenting weather information for the special needs of different professions including aviation and agriculture.

An interdisciplinary space studies program, the nation’s first, takes a look at the broad area of activities beyond Earth’s atmosphere and the use of extraterrestrial resources in space development. 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. Both an undergraduate minor and a Master’s degree in space studies are available.

Because of the space studies program, NASA has designated the University of North Dakota as the state’s Space Grant College. This designation makes the university eligible
for funds to conduct space related projects and programs including an outreach program to elementary and secondary schools around the state to encourage students to study math and science.

The Center also operates the Scientific Computing Center, a facility that supports the high performance computing needs of the college for research, academic, and administrative functions. The Scientific Computing Center operates a variety of mainframe and mini-computers, as well as a Cray supercomputer.

Working in consort, the Center’s Atmospheric Sciences Department, Space Studies Department, and Scientific Computer Center engage in multi-disciplinary research as the Earth System Science Institute. Pooling the unique perspectives of these varied sciences, and calling upon faculty scientists from other university departments, the Institute works to better understand the earth’s complex environment and provide practical tools for agriculture generated from this research.

Computers are transforming the aerospace industry. To meet this challenge, the Department of Computer Science became a part of the Center in 1982. Since then, the undergraduate degree in computer science has received national accreditation and a Master’s degree was approved. This unique interface between aerospace and computer science has positioned the Center for a leadership role in driving computational technology to solve space-age problems.

The Center for Aerospace Sciences is the home of a unique distance learning facility called the Airway Science Network. Funded by the Federal Aviation Administration, it provides telecommunications production facilities to produce aviation classes and related educational materials and the facilities to transmit them to other schools and FAA sites around the country via two-way interactive satellite links. Classes are transmitted live daily from UND aviation classrooms to other universities and colleges across the United States.

Future program development at the Center will include instructional technology, artificial intelligence, and global weather information. In addition, advanced degrees are being developed for aviation and meteorology.

**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 four-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, weather forecasting facilities with satellite downlink, sophisticated computing labs, and the Arthur C. Anderson Atmospherium — a computerized planetarium and multi-media instructional theater.

The Center’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. The fully integrated systems with advanced networking provide a wide range of computer support 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.

At Mark Andrews International Airport, the Center operates a modem flight training facility with a fleet of 85 aircraft including jets, turboprops and helicopters. Aviation students fly more than 90,000 flight hours in pursuit of their undergraduate aviation degrees. A new five-story office building with deli/cafeteria and two new hangars are
among the recent additions to the newly expanded facility. Two new FAA facilities — a 90-foot air traffic control tower and an automated flight service station — are located within a short walking distance. A high-speed fiber optic link provides access to the Center’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.

**ADMISSION**

All students enrolled in the University who wish to be admitted to the Center for Aerospace Sciences are advised during their freshman year to follow the suggested curriculum leading to the desired degree (see departmental listings). To be eligible for admission to the Center for Aerospace Sciences, the student must have completed at least twenty-four hours of credit and must have earned a minimum Grade Point Average GPA of 2.5.

**DEGREES AND REQUIREMENTS FOR GRADUATION**

The Degree of Bachelor of Science in Aeronautical Studies, Bachelor of Science in Airway Science, or Bachelor of Science in Meteorological Studies is conferred upon a student who successfully fulfills the following requirements:

1. Complete the University’s General Graduation Requirements (see pages 33-39)
2. Earn a minimum Grade Point Average of 2.5 in all courses taken. (Note: transfer students must not only earn a minimum cumulative GPA of 2.5, but must also earn a minimum 2.5 average in work completed at the University of North Dakota).
3. Complete the curriculum for the major as outlined in the departmental listings.
4. Make formal application to the Registrar for the degree sought within four weeks of the beginning of the semester of expected graduation.

The Department of Aviation and the College of Business and Public Administration also award the degree of Bachelor of Business Administration with major in Aviation Administration or Airport Administration upon completion of curriculum outlined under specific departmental listings on page 137.

The Department of Computer Science and the College of Arts and Sciences award the degree of Bachelor of Science with major in Computer Science upon completion of curriculum outlined on page 200. A minor in Computer Science may also be completed.

The Department of Space Studies offers a minor in space studies to introduce students to the variety of space projects and issues that will affect their careers and lifestyles in the coming decades. At other universities, 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.

**FLIGHT TRAINING**

The following certificates and ratings are currently offered for college credit: private, commercial, instrument (both airplane and rotorcraft), multi-engine, seaplane, certified flight instructor (airplane, instrument multi-engine and rotorcraft), ground instructor (basic, advanced and instrument), air transport pilot (single-engine, multi-engine and Cessna Citation). type ratings (Cessna Citation and Beechcraft 1900).

**Flight Instructor Program.** The Center’s flight operations staff includes over 130 flight instructors, many of whom are aviation students. Students who have acquired their CFII are eligible to work as flight instructors which helps them fund their college education while accumulating hours and experience toward a professional piloting career.
Helicopter Flight Training. The Center offers a full range of helicopter ratings in piston and turbine powered helicopters to all students. In addition, in cooperation with the U.S. Army ROTC Cadet Scholarship Program, the Center offers helicopter training for selected ROTC cadets enrolled in four-year aviation degree programs. Two, three, and four year scholarships pay for flight training, tuition, and books.

OTHER PROGRAMS

Cooperative Education. The Center encourages its students to gain practical on-the-job experience in their chosen field prior to graduation. Cooperative Education 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 supported by the U.S. Bureau of Reclamation. Classes are offered in ground and air cloud seeding technology taught by nationally-respected cloud physicists and meteorologists. Students selected to fly as weather modification pilots for the program must have a commercial certificate with instrument and multi-engine ratings.

Scholarships. An extensive scholarship program is available to recognize and reward high achievers in aviation, meteorology, and computer science. These scholarships are supported by numerous private individuals and companies who support the Center’s commitment to excellence.

Executive-In-Residence. The Center brings to campus an impressive number of visiting aviation officials each year as guest lecturers for classes and special seminars. The input of these professionals contributes significantly to keeping students and faculty abreast of new developments in the aerospace industry.

Youth Programs. Special aviation programs are offered to young people during the summer months. The Epoch Pilot Program, available to high school juniors, makes it possible to earn a private pilot certificate for college credit during the University’s summer session. The Aerospace Camp offers a ten-day summer program to introduce the excitement and challenge of aerospace to 8th, 9th, and 10th graders.

STUDENT ORGANIZATIONS

Flying Team. The UND Flying Team has held the National Intercollegiate Flying Association national championship title and the judges’ trophy for best overall school for seven consecutive years — 1985, 1986, 1987, 1988, 1989, 1990, and 1991. Students chosen for the 12-member team participate in a rigorous training program and take part in regional and national competitive flying events oriented toward increasing piloting skills.

Student Aviation Advisory Council. This six-member student advisory council is appointed by their peers to act as a liaison between students and aviation faculty. The group also sponsors monthly safety seminars and recognizes a student- and instructor-of-the-month.

Student Aviation Management Association. This organization, founded in 1975, has the honor of having been recognized as the first student chapter of the American Association of Airport Executives in 1983. Among its many professional development activities, SAMA hosts an annual seminar featuring aviation professionals from across the nation and Canada.

Alpha Eta Rho. The Delta Chapter of Alpha Eta Rho, an internation al aviation fraternity stresses closer ties between students and the industry through education. Efforts to achieve this goal include providing free tutoring and awarding annual scholarships to
aviation students. The group also sponsors the annual Parents’ Day, an opportunity for students to share the excitement of their education with parents.

The UND chapter of Ninety-Nines, the international organization for women pilots, provides opportunities for women students to learn more about their chosen profession and participate in a variety of aviation-related activities. Workshops and guest speakers are arranged throughout the year to help prepare students for the job market.

Wilderness Pilots Association. Floatplane enthusiasts have their own special group to promote a better understanding of air safety as it relates to flying into remote areas. Activities include an annual fly-in, field trips, a four-day wilderness survival program, and first aid courses.

Association for Computing Machinery. As the student branch of the National Association for Computing Machinery, this organization sponsors such events as computer programming contests, computer demonstrations, and tutorial programs. Weekly meetings with guest speakers and field trips provide valuable insight into the computer industry.

American Meteorological Society. The Lake Agassiz Student Chapter of the American Meteorological Society seeks to promote advancement and understanding of meteorology. This effort includes sponsoring community awareness seminars on severe weather and natural hazards. Other group activities include monthly meetings with guest speakers and field trips to weather services in Winnipeg and Minneapolis.

SERVICE

Service to the University, the community and the aerospace industry is a vital part of the Center’s mission. This commitment is typified by such activities as hosting aerospace education workshops, conducting airport management seminars, and sponsoring pilot/instructor refresher courses. The Center also sponsors local chapters of the Young Astronauts and Aviation Explorers.

The Center also provides an air transportation service to fly faculty, staff, administrators, and students safely and efficiently on University business. A Cessna Citation and a variety of single-engine and multi-engine aircraft are available for this purpose. Students who have their commercial/instrument rating may fly as co-pilots.

During times of severe weather, atmospheric sciences faculty and their student assistants staff the Center’s Severe Weather Analysis Center around-the-clock to provide timely weather information to the general public. This work, conducted in cooperation with city emergency crews, is provided on a volunteer basis.
The College of Arts and Sciences

Bernard O’Kelly, Dean

HISTORY AND ORGANIZATION

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, when George S. Thomas, a classicist, assumed office. He was followed in 1911 by Melvin A. Brannon, a biologist. Vernon P. Squires of the English Department was dean from 1914 to 1930; William G. Bek, a German scholar, served from 1930 to his death in 1948; he was succeeded by Robert Bonner Witmer of the Physics Department, who was dean until 1965. Philip A. Rognlie of the Mathematics Department was interim associate dean in 1965-66. In 1929 the structure of a junior college and a senior college (in the same year renamed divisions) was adopted; the last vestiges of this structure remained until 1966, although it had been largely superseded in 1955 by the establishment of the University College, enrolling all freshmen.

As a faculty of Arts and Sciences, the College structurally includes at present 14 academic departments: Anthropology, Biology, Chemistry, Communication Disorders, English Languages and Literature, Geography, History, Indian Studies, Mathematics, Modern and Classical Languages, Philosophy and Religion, Physics, Psychology, and Sociology. In addition, the School of Communication is located within the College. The coordinators of the Honors Program and Integrated Studies Program, and the coordinator and faculty of the Humanities Program are also members of the College’s faculty. The chair and faculty of departments structurally located in other colleges — Computer Science, Economics, Geology, Music, Political Science, Theatre Arts and Visual Arts — 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 Center for Teaching and Learning.

As a college of students in the arts and sciences, the College enrolls all undergraduates who have completed twenty-four credit hours in the University College or at another college or university and who wish to complete studies for the Bachelor of Arts or Bachelor of Science degree with concentration in some substantive or applicative field of study within the traditionally broad spectrum of the liberal arts. The College also enrolls some “unclassified” students who already have a bachelor’s degree but wish to pursue further studies without formally registering in the Graduate School, and accepts auditors and special students.

The College is a member of the Council of Colleges of Arts and Sciences.

MISSION

The following statement of mission has been articulated by the College of Arts and Sciences:
1. To offer both a liberal education and professional education in the liberal arts disciplines, or in some instances professional education and training in applicative fields which have developed from liberal arts disciplines.

2. To teach the skills that have been called the “foundation” of education: “Critical ability, cognitive and analytical skills, artistic skills, communication skills.”

3. To preserve and cherish skills and knowledge from the ancient as well as the recent past, while discovering, testing and advancing new skills and new knowledge.

4. To vindicate the oneness of all learning and of all learners, and effectively to encourage students and scholars to resist the over-professionalization or totemization of learning.

5. To communicate the ultimate and immediate importance of the College’s intellectual and creative concerns through services and outreach activities.

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, rather than in the vocational sense. While students seeking the B.A. of B.S. may prepare themselves in the College for specific professions or occupations — e.g., as journalists, writers, radio and television broadcasters, computer experts, conservationists, specialists in speech correction, high school teachers, translators — their studies in these and similar applicative specializations are secondary to their intellectual growth through studies in the substantive fields — the social sciences, philosophy, literature and languages, the humanities and fine arts, the natural sciences, religious studies, mathematics, history, psychology — which concern themselves directly with the nature of humanity and the universe rather than with specific vocational orientations. Students in the College are prepared on graduation to continue toward higher degrees or professional degrees in graduate schools and in medical schools, law schools and other professional schools such as dentistry, optometry and education. Graduates who have concentrated in substantive fields often go directly into federal and international agencies, state and local government service, careers in the armed forces, business, trade, communication, service and the fine and performing arts.

**ELIGIBILITY AND ADMISSION**

Any student who has completed 24 credit hours in the University College may be admitted to the College of Arts and Sciences, provided he/she has achieved normal academic progress towards his/her degree. Transfer students are admitted directly to the College of Arts and Sciences if they have 24 or more transfer credit hours and a satisfactory academic record (generally a C or 2.0 Grade Point Average).

**COUNSELING AND ADVISEMENT**

Students entering the College with clear purpose regarding majors or concentrations should consult the appropriate departmental or interdepartmental advisers; those who are uncertain about their majors or concentrations should seek advisement in the Office of the Dean, Montgomery Hall.

Students who are having personal, family, or emotional problems or unusual difficulties with their studies will find assistance at the Counseling Center, McCannel Hall.

**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 a natural science (biology and related fields, chemistry, earth science, geography, natural science, physical science, and
physics). In Psychology and Computer Sciences there are separate requirements for the B.A. and B.S. Students in Mathematics may choose either degree, as may students with both science and non-science majors.

By following certain specified programs, students may also obtain one of the following special degrees: B.S. in Chemistry, B.S. in Criminal Justice Studies, B.S. in Fisheries and Wildlife Biology, and B.S. in Geology. (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) See pages 32-41.

II. Language Requirements. Generally for a degree from the College of Arts and Sciences a student must establish proficiency in a foreign language equivalent to that attained at the end of the fourth semester course in college (202 at this university, except for Greek, in which two courses at the 300 level are required to achieve the equivalent proficiency.) This is known as Level IV proficiency. Certain programs, however, admit variations in this requirement, and students should consult the specific requirements of particular programs and departments. The language requirement, if any, and options are listed for each major under the heading, “Required in other departments.” Any student doubtful about what his major will be is advised to established language proficiency through coursework or other means as early as possible. Students must note that for certain majors and concentrations, particular languages are preferred.

III. The Major or Concentration. Majors, basically a minimum of 30 credit hours in a single field, are offered in a variety of subjects. Interdepartmental majors, or related fields concentrations, are more limited in number. The requirements for both may be found in the departmental and interdepartmental listings beginning on page 129. Students should note particularly the requirements not only of the majors and concentrations, but, where appropriate, the accompanying requisites in other departments. In the Major (or concentration) students must have a grade point average of at least 2.2 by graduation.

Majors Available in the College

| Advertising | Latin |
| Anthropology | Mathematics |
| Biology | Music |
| Broadcasting | Norwegian |
| Chemistry | Philosophy |
| Communication Disorders | Physics |
| Computer Science | Political Science |
| Economics | Psychology |
| English | Public Relations |
| Fisheries and Wildlife Biology | Religion |
| French | Sociology |
| Geography | Spanish |
| Geology | Speech |
| German | Theatre Arts |
| History | Visual Arts |
| Indian Studies | Journalism |
Related Fields Concentrations

American Studies Peace Studies
Earth Science Physical Science
Humanities Russian Studies
International Studies Social Science
Natural Science

Other Available Majors and Concentrations. In addition to the majors and concentrations listed above, students may also present other related fields concentrations with the approval of the Dean and the departments involved.

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

Chinese & Far Eastern Studies (D. S. Lowe, adviser) Responsibility for Chinese & Far Eastern Studies at present lies mainly in the College of Arts and Sciences, under the guidance of the Chinese & Far Eastern Studies Committee. For those interested in increasing their knowledge of East Asian or Pacific Rim affairs, it coordinates offerings in the Chinese and Japanese languages (A&S 250, Lang 333), history (Hist 105, 300), literature (A&S 250, Engl 4 15), culture and civilization (A&S 250), philosophy, and religion. We expect that courses will be offered in other departments as well. Each term the Committee makes available a descriptive list of Chinese & Far Eastern Studies courses. No regular major or minor exists at present in Chinese & Far Eastern Studies at the University of North Dakota, but students may consult the general provisions under “Other Available Majors and Concentrations,” and “Minors.”

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. 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 2.0 is required in a minor.

Teacher Certification Preparation. To prepare to teach in secondary schools, students must meet requirements set by the Center for Teaching and Learning. In addition, the candidate must have a major or concentration in a “teaching field” as listed in the same section. The major courses required under the B.S. Ed. degree must be completed as part of the major. Students wishing professional certification should, as soon as possible, “Seek advisement from, and admission to, the Center for Teaching and Learning as well as A&S. To be accepted for Student Teaching, applicants must have a 2.75 Grade Point Average GPA in their major and a 2.5 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. 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. Majors in the humanities and social sciences are appropriate. See also the Law School listing on page 104.

Medical School Preparation. Like law schools, medical schools generally require a B.A. or B.S. 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: Chemistry 105-106; Chemistry 305-306; Biology 101-102; and Physics 203-204. Calculus and other selected courses in Biology are also recommended. Because tomorrow’s physician not only must be accomplished in medicine, but also concerned with the social problems of people and must be a leader in civic and community affairs, he/she needs to have a liberal 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 on page 108.
Other Professional Schools. Students may obtain information on the best preparation for schools of dentistry, pharmacy, optometry, veterinary medicine, etc. from the office of the Dean or from University College.

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

Integrated Studies Program: P. Sanborn (Coordinator). The permanent faculty is supplemented by faculty from other university departments.

The Integrated Studies Program was established in 1986 as a means for students to fulfill general education requirements. In Integrated Studies students and faculty work together in small groups to complete the requirements of the courses offered by examining a single theme designed to show how all the subjects interrelate. Students receive a full semester’s credit in all areas of the University’s general education requirements. (See pages 32-41 for information on these requirements.)

Students in the program obtain information and ideas through reading texts, attending lectures, participating in laboratories, and viewing films. Small groups working with this information and these ideas improve student skills in thinking, reading, writing, and oral communication.

HONORS AND INDEPENDENT STUDY

Students in the College are encouraged to take advantage of the educational opportunities offered by the Four-Year Honors Program (page 50) 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 250 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 challenge the course (or courses) for credit by special examination.
SPECIAL FACILITIES AND SERVICES

For research institutes, the Institute for Ecological Studies, the Institute for Remote Sensing, the Communication Research Center, and the Social Science Research Institute, are lodged in the college. In addition, through its various departments, the College of Arts and Science provides a variety of special services and facilities such as the Psychological Services Center (Psychology Department); the Speech, Language, and Hearing Clinic (Department of Communication Disorders); the North Dakota State Press Hall of Fame and the Northern Interscholastic Press Association (School of Communication); the Center for the Study of Cultural and Social Change (Sociology Department); and the U.S. Weather Bureau Observation Station and Astronomy Observatory (Geography Department). In addition, all departments of the College engage in general and specialized research. A variety of publications, ranging from the Dakota Student, the campus newspaper published by the students weekly, to the North Dakota Quarterly, the scholarly journal, are closely related to the college.
The College of Business and Public Administration

W. Fred Lawrence, 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 American Assembly of Collegiate Schools of Business (AACSB) since 1984, and the MBA program has had AACSB accreditation since 1990.

MISSION

The mission of the College of Business and Public Administration is to meet its responsibilities to its students, the University, and State by:

1. Offering accredited undergraduate programs of overall high quality in general and public accounting, airport administration, aviation administration, business economics, banking and financial economics, financial management, information management, management, and marketing.

2. Offering an accredited MBA program of overall high quality in conjunction with the Graduate School.

3. Offering an undergraduate public administration program of overall high quality and, in conjunction with the Graduate School, a graduate public administration program of overall high quality.

4. Offering high quality undergraduate and graduate business education programs in conjunction with the Center for Teaching and Learning and the Graduate School, respectively.

5. Offering high quality undergraduate and graduate political science and economics programs in conjunction with the College of Arts and Sciences and the Graduate School, respectively.

6. Engaging in ongoing evaluation of program and course offerings.

7. Engaging in research and scholarly activity for the benefit of students, and for contribution of new knowledge to the State, region, and nation.

8. Providing economic development assistance to the State and region.

9. Providing educational opportunities, consistent with quality and resource considerations, throughout the State for those who cannot come to the campus.

CURRICULA IN THE COLLEGE OF BUSINESS AND PUBLIC ADMINISTRATION

Nine 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: Accounting, Aviation Administration, Airport Administration, Banking and Financial Economics, Business Economics, Financial Management, Information Management,
Management, and Marketing. Additionally, two separate groups of courses lead to the degrees of Bachelor of Science in Public Administration and Bachelor of Accountancy. Detailed information on all programs may be found in the departmental listings beginning on page 131. In order to assist business students preparing for careers in the global economy, the College offers a minor in International Business (see Business Administration, page 168) and the College of Arts and Sciences offers minor programs in languages, including some (i.e., French) that have an orientation in business.

ADMISSION

In order to be admitted to a program leading to the Bachelor of Business Administration or Bachelor of Accountancy degrees, a student must have:

1. Satisfactorily completed the 19 freshman/sophomore Pre-Business courses.
2. Earned at least a 2.5 overall GPA in all courses taken.
3. Earned at least a 2.5 GPA in the six business administration courses (Acct 200 and 201; BVED 217; Econ 201, 202 & 210) included in the group of 19 Pre-Business courses.

In order to be admitted to a program leading to the Bachelor of Science in Public Administration degree a student must have:

1. Satisfactorily completed at least 60 semester hours.
2. Earned at least a 2.5 GPA in all courses completed and a minimum of 2.5 GPA in the required pre-public administration core.

All students enrolled at the University who wish to be admitted to the College of Business and Public Administration must apply through the College’s Office of Academic Advisement, room 127, Gamble Hall.

Pre-Business Courses. The 19 freshman/sophomore Pre-Business courses, and special Pre-Business course requirements related to certain programs, are set forth below:

<table>
<thead>
<tr>
<th>Freshmen Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101......Composition I.................................(3)</td>
</tr>
<tr>
<td>*Engl 102......Composition 11. ................................(3)</td>
</tr>
<tr>
<td>or..............Technical &amp; Business Writing ....................(3)</td>
</tr>
<tr>
<td>Math 104.......Finite Math. ...................................(3)</td>
</tr>
<tr>
<td>Math 2W........Survey of Calculus ................................(3)</td>
</tr>
<tr>
<td>PSci 101.......Amer Government I.............................(3)</td>
</tr>
<tr>
<td>Comm 161.......Fundamentals of Public Shaking...............(3)</td>
</tr>
<tr>
<td>*Psy 101.........Intro to Psychology ..........................(3)</td>
</tr>
<tr>
<td>Soc 101........Intro to Sociology ................................(3)</td>
</tr>
<tr>
<td>or..............Intro to Cultural Anthropology .................(3)</td>
</tr>
<tr>
<td>*Arts &amp; Humanities Electives .................................(6)</td>
</tr>
<tr>
<td>*Free Elective......(See notes below) .........................(3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ 201........Principles of Macroeconomics .................(3)</td>
</tr>
<tr>
<td>Econ 202........Principles of Macroeconomics .................(3)</td>
</tr>
<tr>
<td>Acct 200.........Elements of Accounting ........................(3)</td>
</tr>
<tr>
<td>Acct 201.........Elements of Accounting ........................(3)</td>
</tr>
<tr>
<td>Econ 210.........Introduction to Business and Economic Statistics .......(3)</td>
</tr>
<tr>
<td>*Lab Science .......(See page 37) ................................(4)</td>
</tr>
<tr>
<td>BVED 217........Fundamentals of MIS...........................(4)</td>
</tr>
<tr>
<td>*Arts &amp; Humanities Electives .................................(6)</td>
</tr>
<tr>
<td>*See notes following.</td>
</tr>
</tbody>
</table>
Students desiring to major in Airport Administration or Aviation Administration must take Meteorology 150 for Lab Science, must take a foreign language for one Arts & Humanities elective and a History course of at least three semester-hours credit for another, and must take English 209 instead of English 102. Students desiring to major in Airport Administration must take Computer Science 160 in place of the free elective.

Students desiring to major in Information Management must take Psychology 101 instead of Sociology 101 or Anthropology 171.

Students desiring to major in Management must take Psychology 101. In addition, Sociology 101 or Anthropology 171 must be taken in place of the free elective.

Transfer Credits from Junior Colleges. Accredited university undergraduate business administration programs normally concentrate the professional courses in the last two years of a four-year program. Only a limited amount of work in business courses is offered below the junior year. The objective of this policy is to permit the student to acquire a foundation of work in the basic arts and sciences as a prerequisite for professional courses in business.

All business administration programs offered in the College of Business and Public Administration at the University of North Dakota require students to complete a minimum of 40 percent of the four years’ work in areas other than business and economics. Students desiring a four-year degree are advised to take a majority of their work during the first two years in the arts and sciences, including a strong background in mathematics.

Students planning to take their first two years of work at a junior college should take only those courses in business that are offered as freshman or sophomore courses at the University of North Dakota. Full lower division transfer credit will be granted for all courses equivalent to those specified for the freshman and sophomore years at the University of North Dakota.

Business administration courses taken at the freshman or sophomore level at another institution which are similar to junior or senior courses offered at the University of North Dakota will be accepted for transfer credit only if the student passes a validation examination covering each course for which transfer credit is sought. Validation examinations are administered by the department responsible for the course(s) in question. Students desiring to validate courses taken at another institution should contact the College’s Office of Academic Advisement, room 127, Gamble Hall.

DEGREES AND REQUIREMENTS FOR GRADUATION

The degree of B. B.A., Bachelor of Business Administration, B. S. P. A., Bachelor of Science in Public Administration, or B. Acc., Bachelor of Accountancy, is conferred upon a student who successfully completes one of the prescribed courses of study in the College of Business and Public Administration. All candidates for graduation must make formal application to the Registrar or the Office of Academic Advisement within the first four weeks of the semester in which graduation is planned.

All candidates for degrees offered by the College of Business and Public Administration must complete the University’s General Graduation Requirements (see pages 30-39), and complete the curriculum for one field of concentration 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 program offered by the College of Business and Public Administration.

2. Earn a minimum 2.5 GPA in all courses taken. (Transfer students must also earn at least a 2.5 GPA in all work completed at the University of North Dakota.)

3. Earn a minimum 2.5 GPA in business administration courses required for the program or major.
4. Earn a minimum 2.5 CPA in UND business administration courses required for the program or major.

5. Complete at least 40% of the semester hours required for the degree in business subjects. For most students this means that at least 50 semester hours (of 125) must be completed in business courses.

All candidates for the B.S.P.A. degree must meet requirements 2 from above and also earn a minimum 2.5 GPA in the major area of emphasis.

PROGRAMS BEYOND THE CLASSROOM

Internships. The College of Business and Public Administration, through its internship program, 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, Aviation, Economics, Finance, Information Management, Management, Marketing 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 department, while at the same time receiving academic credit. Students desiring Cooperative Education positions should contact the department head of their major field of study.

Small Business Institute (SBI). The College has established a Small Business Institute in cooperation with the United States Small Business Administration. Students enrolled in this program study the problems of an actual business and make recommendations for improving the operation.

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.), Master of Science with major in Economics, and Masters degrees in Business and Vocational Education. The master of Business Administration program is accredited by the American Assembly of Collegiate Schools of Business. Students interested in graduate study in these areas should consult the Graduate School catalog for descriptions of these degree programs.

FACILITIES

Gamble Hall, an attractive and well equipped building completed in 1968, is the home for students and faculty of the College of Business and Public Administration. Teaching is enhanced through the use of modern instructional equipment including four microcomputer laboratories, two of which are networked with a Novell Netware operating system and provide students access to popular spreadsheet and word processing software on site; video display equipment for in class computer aided instruction; and video tape players with large screen monitors. Pit style classrooms in Gamble Hall are designed in amphitheater format to facilitate case study instruction. Study carrels are also available within the building so that students may make profitable use of their time between classes. One classroom has been refitted as an interactive video studio and is now one of eleven 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.

THE BUREAU OF GOVERNMENTAL AFFAIRS

The Bureau of Governmental Affairs (Gamble Hall, Room 160) is the research and service arm of the Political Science Department. 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. It maintains a research library for faculty and student use in conducting research on governmental problems.

THE SMALL BUSINESS DEVELOPMENT CENTER

The North Dakota Small Business Development Center (Gamble Hall, Room 118) provides counseling and technical assistance to potential and existing small business owners. It serves as a linkage between the North Dakota University System and the private sector by providing one-to-one counseling, training and outreach assistance through five regional centers, an outreach center and a procurement technical assistance center located throughout the state. In partnership with the University System, the U.S. Small Business Administration and the State of North Dakota, it provides management and technical assistance to existing and aspiring entrepreneurs to promote a stable economy, develop new jobs in the private sector and foster growth of the free enterprise system in North Dakota.

JOB PLACEMENT

The College enjoys a strong relationship with Career Services in providing job placement services to business students. Students have the opportunity to interview with representatives from business, industry, and government who visit the campus each year for the purpose of hiring graduating seniors and graduate students who are completing advanced degrees. This procedure permits the student to examine and compare companies and positions. Career Services also assists students in preparing for and carrying out job searches through the provision of training in job search techniques, resume/letterwriting and interviewing skills. Business faculty members are available to students for career counseling within their respective fields of expertise. Additionally, the College maintains close contact with employer groups and graduates.
The School of Engineering and Mines

Mogens Henriksen, 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, Engineering Management, Engineering Physics, Geological Engineering, Geology, and Mechanical Engineering. All programs are supported by well-designed and well-equipped laboratories.

MISSION

‘he major mission of the School of Engineering and Mines is to instruct students in the fundamentals of engineering. Successful engineers must have a sound foundation in science and mathematics and a knowledge of the principles and problems of society, government, business and industry. They must have a solid background in technical subjects, the ability to think and work accurately, breadth and clearness of vision, and high ideals and purposes.

The continued development of North Dakota and the country requires skilled and well-trained engineers and industrial leaders. The School of Engineering and Mines provides a broad education, coupled with strong technical training, that prepares new graduates to successfully fill important positions, both technical and nontechnical, in government and industry. Engineering education provides a broad background for successful accomplishment in many diverse fields in our technological society.

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 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 Graduation Requirements for engineering students listed on page 94: Bachelor of Science in Chemical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Engineering Management, Bachelor of Science in Engineering Physics, Bachelor of Science in Geological Engineering, and Bachelor of Science in Mechanical Engineering.

A cooperative program with the University of Manitoba at Winnipeg is available for engineering students interested in receiving a bachelor’s degree in Computer Engineering. Students study for one year at the University of North Dakota and complete the last three years at the University of Manitoba. Further information is available in the Engineering Dean’s Office.

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, and Mechanical Engineering; Master of Science with Majors in Chemical Engineering, Civil Engineering, Electrical Engineering, Geology, and Mechanical Engineering; and Doctor of Philosophy with majors in Energy 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 Energy 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 UND Graduate School bulletin.

ADMISSION POLICY

Admission to the University and the School of Engineering and Mines. All undergraduates are admitted to the University of North Dakota through the Office of Admissions. Application forms and general transfer information may be obtained from that office. All freshmen entering UND and transfer students with fewer than 24 semester hours of acceptable credit are admitted to University College. A student who has completed 24 semester credit hours may transfer from University College to the School of Engineering and Mines by simply notifying University College of the desired change. This is recommended for all students pursuing degrees through the School of Engineering and Mines. Students must have a minimum Grade Point Average GPA of 2.0 to transfer to the School of Engineering and Mines.

It is only through a formal admission process that students are admitted to a professional engineering degree program, and only those admitted students will be eligible to graduate with an engineering degree.

Degree Program Admission Standards. All of the professional engineering degree programs require that the following conditions be met prior to admission:

1) A minimum grade of C must be earned in each of the following foundation courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester Hours</th>
<th>UND Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Chemistry</td>
<td>4</td>
<td>Chem 105 or 151 and 161</td>
</tr>
<tr>
<td>English Composition</td>
<td>6</td>
<td>Engl 101 and 209 or 102</td>
</tr>
<tr>
<td>Calculus</td>
<td>12</td>
<td>Math 211 and 212 and 213</td>
</tr>
<tr>
<td>General Physics</td>
<td>8</td>
<td>Phys 205 and 206</td>
</tr>
<tr>
<td>(calculus-based)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
An additional science course which may be prescribed by each admitting department.

At least four engineering science courses or acceptable equivalents prescribed by each admitting department.

(2) A CPA of at least 2.0 must be maintained in all engineering courses taken to date.

**Degree Program Application Procedures.** Application forms may be obtained directly from the program/department of interest or the Office of Admissions or the Dean’s Office in the School of Engineering and Mines. Application for admission maybe made to only one degree program at a time.

Transfer students may apply for admission to an engineering degree program concurrently with application to the University. Any admission to an engineering degree program in such a case will be contingent upon admission to the University. It is advisable for transfer students to contact the engineering department of interest for an evaluation of the comparable and approved course work from other institutions that will meet the School of Engineering and Mines’ requirements.

**Degree Program Application Deadlines.** Students will apply for admission to a professional degree program during the term in which they are completing the foundation course work (normally the fourth semester). Applications must be received by March 15 or postmarked by March 5. Applications will be reviewed only once per year.

Notice of admission status will be mailed by April 15.

**Selection and Admission Process for Degree Programs.** If applications for admission exceed the number of spaces available in a degree program, admission will be on the basis of program criteria that include:

(1) earning at least a C grade in each of the foundation courses

(2) the GPA earned in the foundation courses and all other engineering courses completed at the time of application for admission

(3) additional admission criteria as specified by each program

Two types of admission will be granted. Those students who are enrolled in the remainder of their foundation courses at the time of application will receive conditional admission. Final admission for those students depends on earning a minimum grade of C in those foundation courses completed during the semester of application. Final admission may be granted directly if the student has completed all the foundation courses satisfactorily and met the degree program’s admission criteria.

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 Dakota.

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.

**Reapplication Procedure.** Non-admission to any degree program may be appealed through the School of Engineering and Mines Program Appeals Committee.

Reapplication 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 time 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.

No more than one unsuccessful completion will be allowed for any engineering course.

A minimum 2.0 overall GPA 2.0 UND GPA and 2.0 GPA for UND engineering courses in each degree program is required of all students in engineering. If any of these GPAs drop below 2.0, the student is placed on probation for one semester. Upon completion of the probation semester the minimum GPA requirements must be satisfied.

Students who have been admitted to a professional degree program, in addition to meeting stated requirements, will be allowed no more than a total of four unsuccessful completions in courses specifically listed in the program of study.

**Dismissal.** Dismissal from the School of Engineering and Mines will result when any of the above policies 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. No student will be reinstated within one calendar year of dismissal from the program, and reinstatement may be on a space-available basis.

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.

**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.

**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>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105, 106</td>
<td>(4)</td>
<td>(4)</td>
</tr>
<tr>
<td>General Chemistry and Qualitative Analysis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Outlines for all four-year curricula are found in the Courses of Instruction section of the catalog beginning on page 130. 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 General Education Requirements for Engineering students are modified from the requirements given on pages 30-39.

1. **English Composition**
   - 6 semester hours minimum required. (No change)

2. **Social Sciences**
   - Courses must be taken in a minimum of 2 departments.
   - At least 5 semester hours must be in one department.
   - 9 semester hours minimum required:
     - A. Economics 201 (3 hours). **Required.**
     - B. Select at least 6 semester hours from the following list:
       - Anthropology 170, 171, 371, 374, 375, 377
       - Geography 151, 152, 161, 262, 354
       - Economics 202
       - Political Science 101, 102, 220, 225, 305, 306, 309, 318, 404, 405, 432
       - Psychology 101, 251, 360, 361
       - Sociology 101, 102, 301, 331, 335, 340, 361, 407, 431
       - Social Work 358

3. **Arts and Humanities**
   - Courses must be taken in a minimum of 3 departments.
   - At least 5 semester hours must be in one department.
   - 12 semester hours minimum required:
     - A. Philosophy 370 (3 hours). **Required.**
     - B. Select at least 6 semester hours from the following list:
       - Fine Arts 150
       - History 101, 102, 103, 104, 106, 204, 210, 214, 215, 220, 221, 325, 326, 330, 331, 332, 343, 405, 406, 416, 417
       - *No more than 2 credits are allowed for Hist 300 for GER.*
       - Honors 101
       - Languages C 201, 202, 251, 252, 301, 302, 351, 352, 357, 358
       - F 201, 202, 301, 302, 305, 306, 371, 372
       - G 201, 202, 301, 302, 305, 306, 312
Languages (continued)  
N 201, 202, 301, 302, 306
R 201, 202, 301, 302, 306, 306
s 201, 202
Lang 331

Music
100

Philosophy  

Political Science
311, 312

Religion
101, 102, 103, 109, 110, 120, 203, 227, 237, 247, 250,
301, 305, 342, 345, 423

Theatre Arts
121, 250, 422, 423, 424

Visual Arts
110, 210, 211

C. Select remaining credits from the University Arts and Humanities Requirements given on page 34.

IV. Mathematics, Science, and Technology

12 semester hours minimum required. (No change)

Exceptions to the requirements are possible only by petition approval of the student’s adviser, department chair, and dean and will be permitted for well-justified reasons of validated importance to the student’s academic program.

It is recommended that engineering students, in consultation with their academic advisers, plan meaningful course sequences to meet their University General Education Requirements.

INTEGRATED MASTER OF ENGINEERING PROGRAM

The Integrated Master of Engineering program provides an opportunity for selected students to work concurrently toward both the baccalaureate and Master of Engineering degrees. Those students will be able to complete both degrees in a total of five years and will be qualified to directly enter the engineering profession at an advanced level with special competence in engineering design.

Admission Requirements:

Students may be admitted to the Integrated Master of Engineering program if they:

1. Have completed a minimum of 90 semester credits toward an engineering baccalaureate degree;
2. Have completed a minimum of 36 semester credits of approved engineering courses;
3. Have demonstrated the academic achievement necessary to pursue advanced study in engineering by attaining a GPA of at least 2.5 for all previous work.

Interested students should apply for admission to this program early during the second semester of the junior year on forms available from the UND Graduate School. Those admitted will receive a letter from the Dean of the Graduate School to that effect, and their academic transcripts will be marked accordingly.

STUDENT ORGANIZATIONS

Student Societies. There are student chapters of each of the following professional and technical societies: American Institute of Chemical Engineers (AIChE), American Institute of Mining Engineers (AIME), American Society of Civil Engineers (ASCE), American Society of Engineering Management (ASEM), American Society of Mechanical Engineers (ASME), Association of Undergraduate Geologists, Institute of Electrical and Electronics Engineers (IEEE), IEEE Computer Society, the National Association of Collegiate Entrepreneurs (ACE), the Society of Manufacturing Engineers (SME) and the Society of Women Engineers (SWE).
**Honor Societies.** Eta Kappa Nu, Sigma Gamma Epsilon, and Tau Beta Pi are engineering 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. 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, AIME, ASCE, ASEM, ASME, IEEE and SWE; the vice presidents of Eta Kappa Nu, Sigma Gamma Epsilon, and Tau Beta Pi; the engineering student senator; and the editor of The North Dakota Engineer II.

**UND SCHOOL OF ENGINEERING AND MINES FOUNDATION**

The School of Engineering and Mines (SEM) in the beneficiary of the School of Engineering and Mines Foundation, a not-for-profit North Dakota educational and research corporation. The Foundation serves to facilitate the School’s commercialization and transfer of technologies arising out of the UND Energy and Environmental Research Center and individual faculty research activity. To support technology commercialization around the world, the Foundation administers Environmental and Energy Research International, Ltd., based in Hong Kong and the Technology Transfer Office in Europe located in Recklinghausen, Germany.

The Foundation serves as the asset management unit for the School’s intellectual properties working with research, faculty, and staff in securing patents, copyrights, and other protection. Through its international offices, the Foundation both identifies technologies in other parts of the world which can be supported and nurtured by the School for introduction into the U.S. market via regional companies. In addition, these offices adapt technologies developed within the School for market application around the world.

The assets of the Foundation are dedicated to the financial support of the academic and research programs of the UND School of Engineering and Mines. For further information; contact the UND School of Engineering and Mines Foundation, P.O. Box 8103, University Station, Grand Forks, ND 58202.

**DEVELOPMENT OFFICE**

The mission of the School of Engineering and Mines’ Development Office is to expand the School’s interaction with the engineering and industrial community, to generate non-state appropriated financial resources for the School, and to coordinate the activities of the School’s Advisory Council. Much of the activity of the Office is dedicated to encouraging and supporting those activities of the School which contribute to the economic development of North Dakota. This involves providing technical support services for the manufacturing and engineering community in the region.

The Development Office prepares grants for laboratory equipment enhancement, identifies corporate academic support programs, and maintains a network of corporate contacts. The School’s Advisory Council consists of over 100 alumni and friends of the School who assist in student placement, corporate equipment grants and research opportunities, student design projects, and commercialization of the School’s research products. In this capacity, the Development Office serves as the School’s linkage with the UND SEM Foundation.

For further information, contact the UND SEM Development Office at Box 8103, University Station, Grand Forks, ND, 58202.

The Center for Innovation and Business Development provides business and technical support services to entrepreneurs, inventors, and small manufacturers to foster "home-
grown” ventures, or expansion and diversification of existing companies. This is accomplished by mobilizing and utilizing the human resources within the School of Engineering and Mines (including student employment and project opportunities) and the College of Business at the University of North Dakota as well as networking with other institutions of higher learning, professionals in economic development, private consultants, and the Center’s 34-member Advisory Council.

The Center sponsors the UND chapter of the National Association of Collegiate Entrepreneurs (ACE). The mission of ACE is to promote and enhance opportunities for students interested in entrepreneurial pursuits.

**STUDENT INSTRUCTION AND RESEARCH IN COOPERATION WITH THE ENERGY AND ENVIRONMENTAL RESEARCH CENTER**

Graduate and undergraduate students in appropriate departments of the University can participate in the research programs of the UND Energy and Environmental Research Center. Student part-time employment is available. The Center’s programs involve research into the properties and utilization of low-rank coals, mine-site restoration and reclamation and a variety of hydrogeological, waste management, geophysical and geochemical research.

Academic work is provided through the regular graduate offerings of the University departments. Research is performed either at the Center or in the academic unit, under cooperative supervision of faculty and Center staff.
University of North Dakota

The College of Fine Arts and Communication

Bruce C. Jacobsen, Dean

SCOPE AND MISSION

The College of Fine Arts and Communication originated in 1971 as the College of Fine Arts. A 1994 reorganization merged the School of Communication with the College of Fine Arts to create the new college. The College of Fine Arts and Communication offers students unique advantages as the only major academic division dedicated solely to the fine arts and communications disciplines. The College’s faculties in the departments of Music, Theatre Arts, and Visual Arts as well as the School of Communication comprise the largest community of creative artists, musicians, theatre practitioners, and communication specialists working together in the state.

The mission of the College of Fine Arts and Communication is to provide, through both instructional and extracurricular programs, opportunities for students who are interested in the fine arts and communication as a profession, as well as for those who wish to participate in and acquire a greater understanding and appreciation of the fine arts and communication. In conjunction with the offerings of the College’s faculty members, nationally known artists, professionals, and scholars in each of the disciplines regularly visit the campus to share their expertise with both faculty and students.

FACILITIES

The Departments of Music and Visual Arts occupy the Edmond A. Hughes Fine Arts Center, an award-winning structure of more than 91,000 square feet, which houses outstanding facilities consisting of classrooms, rehearsal rooms, studios, shops, offices, and the Josephine Campbell Recital Hall. The Department of Theatre Arts utilizes the Business Theatre for its production program with department offices, studio and support facilities in adjacent Chandler Hall. The School of Communication is housed largely in Merrifield Hall, one of the original buildings on the campus. In addition to these facilities, the cultural life of the campus is enhanced by the programs of the Chester Fritz Auditorium, a 2400-seat performance facility, the North Dakota Museum of Art, University Radio (KFJM and KFJM-FM), and the Television Production Center.

DEGREES

Undergraduate students in the College of Fine Arts and Communication may pursue the Bachelor of Arts, Bachelor of Music, Bachelor of Science in Education, or the Bachelor of Fine Arts degrees. Graduate degrees offered are the Master of Music, Master of Arts in Theatre Arts, Master of Arts in Communication, Master of Education in Communication, and Master of Fine Arts in Visual Arts.

The degree programs in the College of Fine Arts and Communication are preprofessional programs in the disciplines of music, theatre arts, visual arts, journalism, broadcasting, advertising, public relations, and speech. The programs of the Departments of Music, Visual Arts, and Theatre Arts are accredited by the National Association of Schools of Music, the National Association of Schools of Art and Design, and the National Association of Schools of Theatre, respectively.
DEGREE REQUIREMENTS

All candidates for degrees from the College of Fine Arts and Communication must complete the following requirements:

2. Major discipline curriculum as outlined under the specific department.
3. Minimum of 10 semester hours completed outside the College of Fine Arts and Communication (in addition to general education requirements).
4. Minimum of 6 semester hours of electives in Fine Arts courses from departments other than the major discipline.

**Teacher Certification:** Students who complete the requirements for the Bachelor of Music degree in Music Education are certified to teach music K-12 in the state of North Dakota. To be eligible for student teaching, one of the final components of the degree program, students must have a minimum of a 2.75 Grade Point Average GPA in their major and a 2.5 GPA overall in coursework attempted prior to application.

Students who are interested in Visual Arts teacher certification for secondary education or the Bachelor of Science in Education with a major in Speech may fulfill those requirements while pursuing their degrees in the College of Fine Arts and Communication. A coordinate program with the Center for Teaching and Learning makes this possible. To be accepted for student teaching, applicants are required to have a minimum of a 2.75 GPA in their major and a 2.5 GPA overall in coursework attempted prior to application.

**Graduate Studies:** The departments of Music, Theatre Arts, Visual Arts, and School of Communication offer, through the Graduate School, programs leading to the Master of Arts in Theatre Arts and in Communication, Master of Music, Master of Fine Arts in Visual Arts, and Master of Education in Communication.

The Master of Music degree offers specialization in music education, performance or pedagogy (voice, piano), and composition. In addition, music may also be selected as an Area of Concentration in the Teacher Education program for the Doctor of Education, or as a Minor in the Teacher Education program for the Doctor of Philosophy degree.

The Master of Arts in Theatre Arts offers specializations in acting, directing, design and technical theatre, literature, or history.

The Master of Fine Arts degree offers specializations in ceramics, drawing, metalsmithing, painting, printmaking, and sculpture.

The Master of Arts in Communication and the Master of Education are both offered in Communication.
The Graduate School

Harvey R. Knull, Dean

MISSION

The Graduate School has responsibility for all graduate work at the University. It is the purpose of this 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 (about 1,500 students) and most diversified (50 programs) graduate program in the region. A number of unique facilities and support resources augment the instructional and research program.

Each year approximately 400 new students enroll for degrees in the Graduate School, and approximately 270 students receive master’s degrees and 40 students receive doctoral degrees. In addition, the Graduate School and the Division of Continuing Education offer an extensive program of off-campus graduate work.

DEGREES GRANTED

The degrees conferred for graduate work are the Master of Arts, Master of Science, Master of Education, Master of Business Administration, Master of Engineering, Master of Fine Arts, Master of Music, Master of Physical Therapy, Master of Public Administration, Master of Social Work, Doctor of Arts, Doctor of Education and Doctor of Philosophy. The Specialist’s Diploma is offered in Educational Administration.

GRADUATE PROGRAMS

The University offers work leading to the doctorate in 16 fields. Forty-eight programs 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.

For information on graduate courses, prospective students should refer to the departmental statements in other parts of this Bulletin and to the Bulletin of the Graduate School. Courses with 500- and 900-series numbers are graduate courses and are normally open only to graduate students. All courses listed in the Graduate Bulletin carry graduate credit. Courses numbered over 300 in this Undergraduate Bulletin may, in certain instances, carry graduate credit toward a cognate area.

For a listing of the fields in which graduate degrees may be obtained, see the table below.

ADDITIONAL INFORMATION

For detailed information students should consult the Graduate Bulletin or address inquiries to the Dean of the Graduate School, Box 8178, University of North Dakota, Grand Forks, ND 58202; Telephone (701) 777-2784.
# GRADUATE PROGRAMS AND DEGREES

<table>
<thead>
<tr>
<th>Program</th>
<th>Degrees Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy and Cell Biology</td>
<td>MS, Ph.D.</td>
</tr>
<tr>
<td>Art (See Visual Arts)</td>
<td>MS, Ph.D.</td>
</tr>
<tr>
<td>Biochemist and Molecular Biology</td>
<td>MS', D.A., Ph.D.</td>
</tr>
<tr>
<td>Biology</td>
<td>MBA'</td>
</tr>
<tr>
<td>Business Administration</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Business Education</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Chemistry</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Child Study and Education</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Communication</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Communication Disorders (See Speech Pathology)</td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Counseling</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Counseling Psychology</td>
<td>MA'</td>
</tr>
<tr>
<td>Economics</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Education — General Studies</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Educational Administration</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Elementary Education</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Energy, Engineering</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>English Language and Literature</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Geography</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Geology</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>History</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Industrial Technology</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Linguistics</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Mathematics</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Medical Technology</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Microbiology and Immunology</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Music</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Nursing</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Pharmacology and Toxicology</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Physical Education</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Physics</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Political Science</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Psychology</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Public Administration</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Reading Education</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Research Methodologies</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Secondary Education (see Education-General Studies)</td>
<td></td>
</tr>
<tr>
<td>Social Work</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Sociology</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Space Studies</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Special Education</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Speech (see Communication)</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Speech-Language Pathology</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Teaching and Learning</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Theatre Arts</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Visual Arts</td>
<td>MS'. M. Engr</td>
</tr>
<tr>
<td>Vocational Education</td>
<td>MS'. M. Engr</td>
</tr>
</tbody>
</table>

Won-thesis option is available.

2 Non-thesis degree only.
The College for Human Resources Development*

Sue Schmitt, Dean

HISTORY AND ORGANIZATION

The College for Human Resources Development (HRD), established in 1972, includes faculty and students who are concerned with the enhancement and realization of human potential. The College consists of the following academic departments: Counseling; Home Economics and Nutrition; Health, Physical Education and Recreation; Library Science and Audiovisual Instruction; Occupational Therapy; and Social Work. In addition, other colleges work cooperatively with the College for Human Resources Development in offering coursework and other educational experiences for students.

MISSION

The mission of the College is to prepare students for careers in human service professions including teaching. To achieve this purpose, most departments offer a variety of educational programs within their own areas of specialization, cooperate in team teaching efforts, make joint use of existing courses, create new interdisciplinary coursework, and offer person-to-person opportunities in practicum, field work, internship and co-op experiences.

In addition to offering instructional programs, the College strives to play an important role in facilitating and coordinating the University’s service and research functions in human development fields. For example, specific areas in which the faculty and students apply their education include: services to persons with physical and mental disabilities, family development services, programs and services to minority groups, recreational programs, marriage and personal counseling, career guidance programs, industrial-technical services, and library and other audiovisual services. Faculty members in the College are also engaged in research efforts supported by the University, state and federal grants, and other funding sources.

ADMISSION

Admission to the College for Human Resources Development requires fulfillment of the following conditions:

1. Completion of at least 24 semester hours of credit.

2. Satisfaction of any special admission requirements established by the department in which the student plans to major. Students should contact the chairperson of the department and departmental listings to determine admission policies and procedures.

DEGREES

The following baccalaureate degrees are conferred upon HRD students who complete the prescribed courses of study in their major and who satisfy the degree requirements of the University and of the College for Human Resources Development: B.S. in Physical Education; B.S. in Recreation and Leisure Services; B.S. in Home Economics; Coordinated

*The University of North Dakota collegiate restructuring will affect the college of Human Resources Development and the departments currently housed within the College.
Program in Dietetics; B.S. in Home Economics: Textiles, Clothing & Merchandising; B.S. in Library Science and Audiovisual Instruction; B.S. in Occupational Therapy; and B.S. in Social Work.

It is also possible for a student to major in an HRD department and pursue a degree in another college. Students should consult the departmental listings to determine if the department in which they plan to major offers degree programs in other colleges.

**DEGREE REQUIREMENTS**

The following are degree requirements for students enrolled in the College for Human Resources Development.

1. Completion of all coursework required by the department in which the student majors.
2. Completion of University graduation requirements. See pages 32-41.
3. Completion of a minimum of 40 semester credits in coursework outside the College for Human Resources Development.
4. A minimum of 2.20 Grade Point Average GPA in all work taken and, in the case of transfer students, a minimum of 2.20 GPA in all UND work.

**SPECIAL PROGRAMS**

**Teacher Certification.** The Departments of Health, Physical Education and Recreation and Library Science and Audiovisual Instruction offer programs to prepare students for careers as public school teachers. To qualify for a permanent certificate to teach, students must satisfy the requirements established by the State Department of Public Instruction. This may be accomplished by completing the necessary departmental and teacher education course requirements.

Two options are available to qualify for teacher certification. (1) A student may pursue the Bachelor of Science in Education degree. In choosing this option, the student must enroll as a degree student in the Center for Teaching and Learning and satisfy the graduation requirements of the Center. (2) The student may pursue the professional degree field (Bachelor of Science in Physical Education and Library Science and Audiovisual Instruction) and also complete required teacher education coursework offered by the Center for Teaching and Learning.

Students choosing the second option must enroll for degrees in the College for Human Resources Development and complete the admission and teacher education program requirement of the Center for Teaching and Learning. This option is available for those who wish to pursue the professional degree in the major rather than the professional degree in education, and still qualify for teacher certification.

**Cooperative Education.** The college encourages its students to gain practical on-the-job experience in their chosen field prior to graduation. Cooperative Education 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.

**Graduate Studies.** The Departments of Counseling; Health, Physical Education and Recreation; and Social Work offer graduate coursework leading to the Master of Arts, Master of Science or Master of Education degrees. In addition, the Department of Counseling offers a graduate program leading to the Doctor of Philosophy degree. Students interested in graduate study should consult the Graduate School Catalog for descriptions of these degree programs.

The College for Human Resources Development sponsors interdisciplinary minors in Chemical Use/Abuse Awareness, Health Education, Rehabilitation Services, and Gerontology (see detailed listings under the Departments of Health, Physical Education and Recreation and Social Work).
The School of Law

W. Jeremy Davis, Dean

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 to educate and train legal professionals in a program blending fundamental substantive law teaching with opportunities for practical application of legal theory. The law school focuses its resources on research and on service to the State, its citizens and the legal profession. 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 college or university and must have taken the Law School Admission Test. Admission is competitive. Applicants accepted for the 1993-94 entering class had an average undergraduate Grade Point Average GPA of 3.19 and an average LSAT score of 154. The deadline for applications and all supporting documentations is April 1 of the spring preceding entry.

It is the policy of the School of Law to attempt to admit all qualified North Dakota residents seeking to enroll. Because a diverse student body provides the best medium for education, the School of Law encourages application from all regions and all economic backgrounds, as well as from women and members of racial, ethnic and religious minorities.

Students wishing to enter the School of Law should request an application packet from the Office of the Dean, School of Law, University of North Dakota, P.O. Box 9003, Grand Forks, ND 58202-9003. The University of North Dakota School of Law is a participating law school in the Law School Data Assembly Service. In order that the admission procedures be completed by April 1 of each year, the applicant is strongly urged to make application directly to the School of Law the preceding fall.

Applicants for advanced standing may be admitted and given credit for satisfactory work completed in other accredited law schools, provided they otherwise comply with the admission requirements of the School.
STUDENTS IN OTHER COLLEGES OR SCHOOLS ELECTING LAW COURSES

Students registered in other colleges or schools of the University of North Dakota who desire to enroll in one or more courses in the School of Law may do so, on a limited basis, provided they obtain the permission of the Dean of the School of Law and the instructor of the particular course. No credit in the School of Law will be given for these classes, however.

LIBRARY

The Thormodsgard Library of the School of Law has more than 230,000 volumes, including 100,000 microform volumes and over 2,400 serial subscriptions. Audiovisual materials are also in the collection. The facility is a research library designed to serve law, students, the profession, and the legal resource needs of the University and the State. The library subscribes to LEXIS® and WESTLAW® computer assisted legal research services.

ADDITIONAL INFORMATION

A separate Law School Catalog describing degree requirements, course offerings, financial aid and scholarships, student organizations and activities, faculty biographies, placement and other miscellaneous information may be requested from the office of the Dean, School of Law, University of North Dakota, P.O. Box 9003, Grand Forks, ND 58202.
The School of Medicine
Clayton E. Jensen, Interim Dean

HISTORY AND MISSION

The School of Medicine was established in 1905 as a basic science school offering the first two years of medical education. In 1973, legislative action approved a four-year curriculum and authorized the granting of the doctor of medicine degree. As an interim plan, the curriculum known as the 2:1:1 plan was instituted, consisting of the freshman and sophomore years at UND the junior year at the University of Minnesota School of Medicine or Mayo Medical School, and the final year back in North Dakota for elective rotations at community hospitals and clinics within the state. The 1981 Legislature authorized the teaching of the third year in North Dakota, thus providing for a complete, in-state medical education program.

The primary purpose of the School of Medicine is to provide qualified students with thorough training in the medical sciences. Although the curriculum has been developed with an emphasis on primary care, students are prepared to enter any specialized, post-M.D. residency training program. The School of Medicine also offers accredited undergraduate degrees in the allied health fields of athletic training, medical technology and cytotechnology; a graduate degree in physical therapy, and a certificate through its Physician Assistant Program. Graduate degrees in anatomy and cell biology, biochemistry and molecular biology, microbiology and immunology, pathology (medical technology), pharmacology and toxicology, and physiology are offered as well as post-M.D. residency training programs in internal medicine, family practice, pathology, psychiatry and general surgery and a one-year transitional program.

The School of Medicine is fully accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges.

Departments in the school, many of which do not offer undergraduate courses, include anatomy and cell biology, biochemistry and molecular biology, community medicine and rural health, family medicine, internal medicine, microbiology and immunology, neuroscience, obstetrics and gynecology, pathology, pediatrics, physical medicine and rehabilitation, physical therapy, physiology, pharmacology and toxicology, radiology and surgery. The statewide educational program of the School is coordinated through clinical campuses based at Grand Forks, Fargo, Bismarck, and Minot.

The School of Medicine issues a catalog biennially containing information concerning application, registration, fees, admissions, standards of scholarship and courses. Interested students may write for the catalog or for other information to the Office of Student Affairs and Admissions, School of Medicine, University of North Dakota, P.O. Box 9037, Grand Forks, ND 58202-9037.

SUGGESTED UNDERGRADUATE COURSES FOR STUDENTS PLANNING TO STUDY MEDICINE

Four years of college preparation are recommended for students wishing to enter the University of North Dakota School of Medicine, 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:
Like most medical schools, the University of North Dakota School of Medicine recommends that students take elective courses that include subjects of liberal arts value such as humanities, economics, psychology and sociology so that the student’s educational experience will be broad and well-rounded. Computer literacy is also highly recommended. Students are urged to see their advisers regularly.

**Application for admission** to the School of Medicine must be received no later than Nov. 1 of the year preceding desired admission.

**INDIANS INTO MEDICINE PROGRAM**

The INMED Program was adopted in 1973 to serve Native Americans in an eight-state region. 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 junior high level. The program is committed to preparing professionals in all related health care fields. Each year the School of Medicine allocates places in its first-year medical class to qualified American Indian students. In 1991, the INMED program was named as a Native American Center of Excellence by the United States Department of Health and Human Services.

**UNDERGRADUATE PROGRAMS**

The following two undergraduate degree programs in allied health fields are administered by the School of Medicine. See also the departmental listings which begin on page 129.

**Cytotechnology**

The Department of Pathology offers a four-year degree-granting program leading to the bachelor of science in cytotechnology. The program has been fully approved by the AMA Board of Schools since 1967 and became a degree-granting program in 1975. Applications are available from the cytotechnology program director in the Department of Pathology, and must be submitted by Jan. 1 for the senior year program beginning the following Fall semester.

**Medical Technology**

A four-year academic program leading to the degree of bachelor of science in medical technology was first instituted in 1949. Students enroll in the University College for the freshman year and are advised by instructors from the medical technology curriculum. At the beginning of the sophomore year students transfer to the School of Medicine where the program is supervised by the director and associate director of medical technology in the Department of Pathology. The master of science degree is also offered in medical technology. Details are available in the Graduate School Catalog.
PHYSICAL THERAPY

The physical therapy curriculum is accredited by the American Physical Therapy Association. The five-and-one-half year program leads to the degree of Master of Physical Therapy, a rural-oriented first professional degree.

Applications for admission to the professional program may be obtained from the Department of Physical Therapy after Jan. 1, and must be returned by Mar. 1 of the calendar year the student wishes to gain entrance into the professional program.

PHYSICIAN ASSISTANT PROGRAM

The Physician Assistant Program is administered by the Department of Community Medicine and Rural Health through its Division of Health Practitioners. This 12-month, competency-based certificate program is accredited by the American Medical Association’s Committee on Allied Health Education and Accreditation (CAHEA). Enrollment is limited to licensed registered nurses with a minimum of two years professional nursing experience and sponsorship by a practicing primary care physician. For more information contact the Department of Community Medicine and Rural Health at (701) 777-2344.

NORTH DAKOTA MEDICAL CENTER

The Medical Center, created by an act of the Legislature of the State of North Dakota in 1945, is an administrative unit of the University. Its purpose is to provide facilities for the “coordination, improvement, expansion, and unification of health and welfare activities of the State, its agencies, its political subdivisions and its private practitioners.” The Center is “concerned with the training of physicians, nurses and all other personnel concerned with the improvement and preservation of the health of the people of North Dakota.”

The Medical Center includes the School of Medicine, the USDA Human Nutrition Research Center, and the Rehabilitation Hospital.

IRELAND RESEARCH LABORATORY

Basic science research efforts at the Ireland Research Laboratory, connected to the Medical Science South Unit, are devoted entirely to biomedical research and to graduate education in the medical sciences. The laboratory began as one room in the Medical School in 1953 as a result of a bequest of the late Guy L. Ireland. In 1958 the first floor was constructed with a gift from Mrs. Bertha Ireland as a memorial to her husband, a grant from the National Institutes of Health, and an appropriation from the North Dakota Medical Center. Additional grants from the National Cancer Institute and funds from the Medical Center provided for the construction of four additional floors in the early 1960s.

INSTITUTE FOR AGRICULTURAL HEALTH SCIENCES AND RURAL MEDICINE

Construction of two major additions is underway at Medical Science–North: the Edwin C. James Medical Research Facility and the Bio-Information Learning Resources Center. With the completion of this building project in 1994, the activities of the School of Medicine will be concentrated in Medical Science–North, to be renamed the Institute for Agricultural Health Sciences and Rural Medicine.
The College of Nursing

Lois Merrill, Dean

MISSION

The mission of the College of Nursing is to serve society through teaching, scholarship, research, and service in nursing and health care. Within a comprehensive university environment, the College provides education for beginning professional nursing practice at the baccalaureate level and for advanced nursing practice at the master’s degree level. The College is committed to fostering critical thinking and intellectual inquiry in a caring environment which assumes a positive regard for others and which 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 which is essential to meeting the needs of society in a constantly changing environment. Education in nursing at the baccalaureate level prepares nurse generalists for the provision of comprehensive nursing and health care characterized by a holistic, caring, collaborative, professional approach. Education in nursing at the master’s degree level builds upon the baccalaureate and prepares advanced nurse clinicians in specialized areas of nursing for leadership roles in nursing practice, education, and administration. As the only state assisted institution in North Dakota authorized to offer graduate education in nursing, the College has a distinctive responsibility to provide distance learning opportunities for access to the master’s degree program.

The college promotes improvement of nursing and health care through the conduct and dissemination of research and scholarship regionally, nationally, and internationally. The College further contributes to the well being of society through the participation of faculty, students, and graduates in service activities concerned with the quality of nursing and health care. The College of Nursing has a particular commitment to advancing the quality of health care in North Dakota.

ACCREDITATION

The graduate and undergraduate nursing programs are approved by the State Board of Nursing and accredited by the National League for Nursing.

PHILOSOPHY

The foundation of all College activities is scholarship in nursing and health care, broadly defined to include teaching, discovery (e.g., research), and application (e.g., service).

The discipline of nursing is concerned with principles and laws governing the health of persons, the processes by which changes in health are effected, and the patterning of human behavior in interaction with environment during critical life events and normal life events.

Diagnosis and treatment of human responses to actual or potential health problems comprises the professional practice of nursing. The hallmark of professional nursing is the caring, thoughtful application of the knowledge of the discipline in accordance with recognized standards of practice. Nurses collaborate with recipients of nursing care and others to promote, protect, maintain, and restore the health of individuals, families, and communities.

Health may reflect absence of clinical signs and symptoms, flexibility in response to environmental challenge, capacity to assume and carry out social roles, or general well-
being and self-realization. Disease refers to identifiable pathological processes whereas illness refers to the human experience of disease. Health and illness may coexist. The health of individuals, families, and communities is influenced by perception, adaptation, and function.

Persons are unique, complex, and evolving holistic beings. Persons exist dependently, independently, and interdependently within the environment.

The environment is dynamic, complex and multidimensional, and includes natural, economic, industrial, cultural, social, historical, and political factors. All conditions, circumstances, and influences affecting the development, behavior, and health of persons (individuals, families, groups, or communities) makeup the environment.

The social environment includes groups whose members have developed patterns of relationships through communication with one another. It includes group functions within the context of the family and other communities. The group functions of society affect and are affected by individuals.

Nursing education at the baccalaureate level includes a liberal education in the arts, sciences, and behavioral disciplines as well as study of the discipline of nursing and its application in professional practice. Classroom and clinical learning, which incorporate theoretical formulations, intellectual inquiry and research, coupled with life experience, provide opportunity to develop critical thinking skills essential to the generalist in nursing. Graduate education in nursing builds on basic professional nursing education and prepares graduates who apply the knowledge of the discipline in specialized nursing situations.

Learning is the acquisition of knowledge, skills, and attitudes. Learning is the responsibility of the student and is enhanced by active involvement and a readiness to obtain new knowledge.

Teaching is a process designed to facilitate learning. It involves the guidance and encouragement of students in the development of independent intellectual inquiry and self-direction in learning.

CURRICULUM OBJECTIVES

The Graduate:

1. Integrates the caring, collaborative, professional approach into a variety of nursing roles.
2. Synthesizes knowledge and research from the arts, sciences, and nursing as a basis for rural and urban nursing practice.
3. Employs intellectual inquiry in the problem-solving and decision-making inherent in nursing.
4. Communicates effectively.
5. Incorporates cultural, social, economic and environmental factors into nursing practice.
6. Applies the nursing process in providing holistic, comprehensive care in a variety of nursing situations to promote, maintain, and restore optimal health throughout all stages of human development.
7. Provides leadership in collaboration with colleagues and clients in the management of evolving health care.
8. Evaluates nursing practice of self and others in relation to competence, accountability, and professional development.
ADMISSION TO THE COLLEGE OF NURSING

All freshman students in the University are admitted to the University College according to the University admissions policy. Admission to the College of Nursing is at the sophomore level.

Admission from University College or other Colleges of the University. All persons enrolled who wish to apply for admission to the College of Nursing are advised to follow the suggested curriculum leading to the Bachelor of Science in Nursing (see page 317). Since the College of Nursing tries to reflect current trends in the nursing profession, there may be changes in the curriculum.

Students must complete a formal application to the College of Nursing and be approved for admission by the College before enrolling in the College. To be eligible for consideration for admission to the College of Nursing, the student must have: completed 24 semester hours of credit, including general chemistry, organic biochemistry, human anatomy, introduction to psychology, introduction to sociology (cultural anthropology or social problems can be taken in place of introduction to sociology), and a course in English composition; have earned at least a 2.50 overall and UND GPA have earned a grade of “C” or better on English composition, organic and biochemistry, psychology, sociology (or cultural anthropology or social problems), and anatomy. College Level Examination Program (CLEP) subject exam results will be accepted according to the current University policy.

The College of Nursing admits students once a year to fill the fall and spring classes. In the event of vacancies for the spring classes, a December/January review will be held; however, Physiology 301 must have been completed with a grade of a “C” or better prior to admission for the spring semester. Contact the Director of Student and Alumni Affairs at the College of Nursing for application deadlines.

The number of students admitted is determined by the availability of faculty and clinical facilities. Selection is made on the basis of academic record (contact the College of Nursing Director of Student and Alumni Affairs or your adviser for the specifics of the selection process and procedures).

Students may petition to establish credit through special examinations according to University policy (see page 40). Equivalency of courses (e.g., sciences) 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 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. Because of the number of applicants, students cannot be guaranteed admission to the College of Nursing. All qualified students are considered on merit.

Transfer students who plan to enter the College of Nursing must fulfill the same minimum prerequisite requirements as students seeking admission from other units of the University of North Dakota. The dates for submission of the application and consideration of applicants are the same for all students.

Registered Nurses (RNs) and Licensed Practical Nurses (LPNs). RNs and LPNs interested in pursuing a bachelors degree are considered for admission as transfer students. An upper division RN/BSN completion track which builds upon previous learning is available for part-time or full-time students. Further information concerning the progression of the RN/LPN student can be obtained by contacting the College of Nursing. Transcripts of previous academic work must be submitted as part of the application to the University and to the College.
The University of North Dakota College of Nursing is a member of the Agassiz Region Nursing Education Consortium (ARNEC) along with other regional institutions.

DEGREE REQUIREMENTS FOR GRADUATION

All candidates for the degree, Bachelor of Science in Nursing, must fulfill the following requirements:

1. Completion of all University graduation requirements, including residence, as well as the required courses in the College of Nursing. See pages 32-40, 313.
2. A minimum of 129 semester hours.
3. A minimum grade point average of 2.50 overall.

ACADEMIC REQUIREMENTS DURING ENROLLMENT

1. A 2.50 overall is required each semester for progression to the next semester of sophomore, junior, or senior nursing courses.
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 within the College of Nursing.
3. The following verifications are required annually of sophomore, junior, and senior students for admission to nursing classes, labs, and clinicals:
   a. current certification by the American Red Cross or American Heart Association in Basic Life Support;
   b. tuberculin skin tests or, if positive, a negative chest x-ray; and
   c. current medical/hospitalization insurance or certify assumption of full responsibility for health costs incurred.
   d. A hepatitis B vaccine series is encouraged.
   e. proof of immunity to measles (Rubeola)
4. A student repeating a “D” or an “F” in a clinical nursing course may repeat it only once.
5. A student may not repeat more than two clinical nursing courses.

PROGRESSION

College of Nursing courses are sequenced to build on one another over six 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.

PROBATION AND DISMISSAL

A student who does not meet the academic requirements of the College of Nursing is placed on probation in the College of Nursing. If, at the end of probation, criteria for resolution of the probationary standing are not met, the student is dismissed from the College of Nursing. Continuation in the College of Nursing will then require reapplication to the College of Nursing.

The College of Nursing also reserves the right to place on probation, to suspend or to dismiss any student in nursing whose performance in relation to client care is unsatisfactory. Additional details and any modifications in policies may be obtained from the office of the Dean of the College of Nursing and are available in the College of Nursing Student Handbook.
EXPENSES

Students in the College of Nursing are responsible for regular University fees and for board, room and other maintenance costs throughout the four years. A pin, uniform, watch, thermometer, stethoscope, sphygmomanometer, and pen light are required for clinical courses. An additional tuition fee for nursing courses will be charged each semester. Additional expenses related to graduation and licensure occur during the senior year. An estimated expense sheet is available at the College of Nursing.

Students are responsible for transportation related to clinical experience. Use of a car, especially for Parent-Child Nursing and Community Health Nursing, is necessary. Affiliation expenses of $80 to $100 can be expected for Mental health nursing. There will be expenses associated with laboratory tests required for the protection of the student and client (e.g., TB skin test).

Students in the College of Nursing are eligible to apply for Federal Nursing Student Loans and/or North Dakota State Nursing Scholarship/Loans and institutional grants.

AWARDS

Each year students with high academic averages are nominated for College of Nursing Memorial awards. Awards and criteria are listed in the College of Nursing Student Handbook. Additional information is available in the College.

GRADUATE STUDIES

The College of Nursing offers graduate coursework leading to a Master of Science degree in Nursing. Students interested in graduate study may contact the director of graduate studies in the College of Nursing or consult the Graduate School Bulletin for further information.
The Center for Teaching and Learning

Mary Harris, Dean

HISTORY AND MISSION

The University of North Dakota has offered teacher education programs since its founding in 1883. The Center for Teaching and Learning is a comprehensive, accredited, undergraduate and graduate school of education. Organized in 1972 to support a broader view of education, it seeks to serve preservice and inservice teachers, administrators and other education personnel with intensive, intellectually challenging, integrated programs of study.

The Center strives to model the kind of educational environment it is promoting in elementary 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 Center provide for personalized learning.

The Center for Teaching and Learning is a service institution for elementary and secondary schools, colleges and communities in North Dakota and the Upper Midwest. The Center is particularly committed to active community participation in the formation of goals and policy at all levels of education, to Indian communities in their efforts to improve education, and to classroom teachers and administrators committed to continue their personal and professional learning.

Teacher education programs of the University of North Dakota are approved by the State of North Dakota and accredited by the National Council for the Accreditation of Teacher Education. The University is accredited by the North Central Association.

DEGREE PROGRAMS

The Center offers degree programs at the undergraduate level in the preparation of elementary, middle/junior high school and secondary school teachers. Students studying elementary education are also able to pursue specialized study resulting in a combined major in visual arts, early childhood education, special education, library science and audio visual instruction, physical education, music, and mathematics. At the secondary level students must, in addition to their professional coursework, concentrate in an area typically taught at the secondary school. At the present time, the following areas have been approved:

- Business Education
- English
- Foreign Language
- French
- German
- Spanish
- Geography
- Industrial Technology
- Marketing Education
- Mathematics
- Music
- Physical Education
- Science
- Biology
- Biological and Physical Science
- Chemistry
- Earth Science
- Physical Science
- Physics
- Social Science
- Combined Social Science major and minor
- Speech
- Visual Arts
The appropriate sequences of courses and experiences for these majors are outlined in the Center for Teaching and Learning sections of this catalog and under the specific Program Areas offering the majors. (See the listings beginning on page 129). Minors may be taken in a wide variety of University departments including special education. Faculty advisers can assist students in selecting a minor field of study.

At the graduate level, preparation programs exist for teachers, administrators, and other specialized educational personnel in local school districts and institutions of higher education. Current graduate level programs include: child study and education, elementary education, educational administration, general studies in education, reading education, research methodologies, special education, and teaching and learning. Those who complete a graduate degree program and/or sixth-year specialist diploma in educational administration meet the qualifications for administrative certification in North Dakota, Minnesota and most other states.

ADMISSION TO TEACHER EDUCATION

Regardless of the college in which their degree is being earned, students intending to become teachers must apply to Teacher Education. Students apply for admission after completion of 45 semester hours, normally while enrolled in an entry level course: CTL 330 for elementary; CTL 350 for middle level/junior high; and CTL 215 in the secondary programs. Students transferring an entry level course from another institution may apply in the first semester at the University of North Dakota. Application materials are available in the Office of the Dean, Center for Teaching and Learning.

Regular admission to Teacher Education requires a minimum CPA of 2.5, completion of written statements which convey commitment, experience, and interests appropriate to becoming a teacher and ability to express oneself clearly and effectively. A personal interview may be part of the application process.

Applications are screened by committees after the first Friday in October and in February each year. Notification of admission is generally made in 20 working days.

Acceptance to Elementary Education is on a competitive basis, with consideration given to overall and general education made point average, writing skill, evidence of commitment to teaching, and performance in CTL 330 Introduction to Teaching and Learning. The Elementary Education admission process will be concurrent with CTL’S admission process (see above). The faculty reserves the right to place on professional probation or to cancel the registration of any student in Elementary Education whose performance in the classroom or field settings is unsatisfactory.

CONTINUOUS ASSESSMENT

Student progress in teacher education programs is evaluated through regular review of portfolios assembled by students. Students are asked to save and file all work completed in courses of their teacher education programs. At several points in each program, students review their work with faculty and other students. Portfolio assessment offers students and faculty opportunities to discuss what it means to grow as a teacher and learner and to recognize growth and development.

Writing is an important means by which teachers communicate. Most courses in the Center for Teaching and Learning require considerable writing. Effective use of writing in many situations is considered necessary for successful completion of the program and is part of the portfolio assessment.
ADMISSION TO STUDENT TEACHING

Student teaching is part of all programs in the Center for Teaching and Learning. Each student teaching placement requires work and planning on the part of the faculty, the cooperating faculty in the schools, and the student. Application for student teaching is made for a spring semester placement by the preceding October 1 and for a fall placement by the preceding February 15. Late applicants cannot be guaranteed placement in their preferred semester. Acceptance for student teaching requires that students in Elementary Education and its dual majors and in Middle Level/Junior High Education complete each course in Teacher Education through Applied Methods (TEAM) with a minimum grade of C, satisfactorily complete a field experience, earn a minimum overall GPA of 2.5 based on at least 76 hours of work, and have the recommendation of the faculty in the area(s) of student teaching. Admission to student teaching in secondary education requires that the student have completed or be enrolled in the courses of the major and in the professional education component with an overall GPA of at least 2.5 and a GPA of at least 2.75 in the major coursework completed at the time of application, and have the recommendation of the secondary faculty and advisor. Student teacher placement in the area of social science may be limited by availability of cooperating teachers.

GRADUATION AND TEACHER CERTIFICATION

Students who complete undergraduate programs in the Center for Teaching and Learning are awarded the degree Bachelor of Science in Education. The Bachelor’s degree is granted after successful completion of a minimum of 125 semester hours and successful completion of the General Education and specific requirements of the teacher education program to which the student was admitted. Specific requirements include successful completion of Student Teaching and the recommendation of the faculty through the continuous assessment process of the program to which the student was admitted. Candidates for degrees must make formal application to the Registrar for the degree sought within four weeks of the beginning of the semester of expected graduation.

Students who complete an undergraduate program in the Center, receive a Bachelor’s degree, and have an overall GPA of at least 2.5 are eligible for certification to teach in North Dakota. Students apply for certification by completing forms which are available in the, Office of the Dean. The application process should be completed prior to graduation.

ELEMENTARY EDUCATION

The Elementary Education major has six main parts: General Education, Area of Concentration, Introductory Elementary Education Courses, TEAM, Advanced Elementary Education Courses, and Student Teaching.

General Education

General Education requirements for the Elementary Education major exceed and are more specific than those of the University because of the wide variety of subjects with which an elementary teacher must be familiar. Each student entering Elementary Education must complete 6 semester hours of English Composition; 12 hours in the Social Sciences including Psychology 251 or Home Economics 252 and 9 additional hours from selected areas; 15 hours in the Arts and Humanities from three departments to include 9 hours in at least two departments to include English, History, or Humanities I and II, 3 hours from designated areas, and 3 hours selected from the University General Education Requirements; and 12 hours in Mathematics, Science, and Technology from at least two departments to include 4 hours of a laboratory science and Mathematics 103, 104, 105, or a course for which one of these is a prerequisite, or a score on the Mathematics Department placement test that qualifies the student to register in Mathematics 211. The
complete program of a student must include coursework in biological, physical, and earth science. Lists of courses which meet the requirements appear on pages 30-39.

Area of Concentration

Beyond breadth of knowledge in many disciplines, an elementary teacher needs to acquire depth in a content field to which other learnings may be related. The Area of Concentration requires 15 or more semester hours in one of the following areas: Bilingual Education/ESL, English, history, fine arts, social science (anthropology, political science, geography as a social science, or economics), mathematics, science, a single foreign language, Indian Studies, Women’s Studies, psychology, sociology, special education, early childhood education, physical education, or library science. Except in science, social science, fine arts, or foreign language, 9 of the 15 hours must be above the 100 level. Students who have a combined major use the dual major as an Area of Concentration.

Introductory Courses

Introductory and Advanced Elementary Education Courses are classified according to whether they are taken before or after TEAM. Three courses (9 semester hours) may be taken before TEAM; they include: CTL 330 Introduction to Teaching and Learning, Math 277 Mathematics for Elementary School Teachers, and CTL 410 Communication: Children’s or Young Adult Literature.

TEAM

Teacher Education through Applied Methods (TEAM) is a 14-hour block of corequisite courses taken in one semester. Entry into TEAM requires completion of the General Education requirements of the program, CTL 330, Math 277, and admission to Teacher Education. TEAM includes a field experience in a classroom.

Advanced Courses

Advanced Elementary Education Courses have TEAM as a prerequisite. They enable the student to gain the specialized knowledge that elementary teachers apply to help children learn. Advanced courses include CTL 410 Communication: Primary, Intermediate or, Corrective Reading, CTL 430 Human Relations: Classroom Management, CTL 301 Seminar: Physical Education and Health for the Elementary Teacher, CTL 315 Education of the Exceptional Student, CTL 430 Multicultural Education, and CTL 420 Creative Expression: Fine Arts methods courses.

Student Teaching

Student Teaching is required for a minimum of 10 hours and may be completed any semester after TEAM. Sixteen semester hours of Student Teaching is normally recommended. A maximum of 24 hours in CTL 487 Student Teaching and CTL 486 Field Experience may be elected in a program. Entry into Elementary Student Teaching requires satisfactory completion of each course in TEAM, satisfactory completion of a field experience, an overall GPA of at least 2.5, and the recommendation of the Elementary Education faculty. Students earning a D or F in a TEAM course must repeat the course or an alternative experience agreed to by the faculty.

EARLY CHILDHOOD EDUCATION

The Early Childhood/Elementary Education combined major is designed to provide the student an opportunity to integrate theory and practice in the education of young children. The Early Childhood Education curriculum includes coursework and learning
experiences in the following areas: knowledge of the field of early childhood education; knowledge of young children; and knowledge of methods and materials for working with young children and their families. The student is expected to work closely with advisers in order to coordinate the coursework and experiences offered in the Early Childhood Education Program with those offered in the Elementary Education Program.

Field experiences are an integral and regular part of the curriculum. The University Children’s Center serves as the major training site for students in Early Childhood Education and is the site for pre-kindergarten student teaching. Field experiences are also available in local kindergartens, child care centers, and in other pre-school environments.

In addition to elementary teacher certification, students completing the combined major are eligible for an endorsement in Early Childhood Education and, upon completion of student teaching in kindergarten, an endorsement for kindergarten teaching.

Individuals majoring in Elementary Education who do not wish to complete the combined major in Early Childhood Education may receive a kindergarten endorsement to their Elementary Teaching Certificate by completing 17 credits hours in Early Childhood Education and a student teaching experience in kindergarten: Selection of the 17 credit hours must occur in collaboration with the student’s adviser.

MIDDLE/JUNIOR HIGH SCHOOL EDUCATION

The Middle/Junior High School program is for students preparing to teach in a self-contained classroom or a departmentalized setting with young adolescents in grades 5 through 8. The program reflects the growing national recognition that students in the middle years are best served by programs that are personalized and responsive to their developmental needs. The Middle/Junior High School program reflects a commitment to new directions in education by providing: clinical experiences in self-contained classroom and departmentalized settings, subject area concentrations that allow students to prepare for interdisciplinary teaching and learning, general education with many options, a student-centered approach responsive to individual differences among students, specific attention to the developmental needs of young adolescents.

The Middle/Junior High School program requires completion of the General Education Requirements of the University, 45 hours of subject matter coursework in two of the areas that are part of the Middle/Junior High School curriculum, 45 hours of professional coursework that includes TEAM, and 16 weeks of student teaching in two settings. Professional courses of the program help the student: (1) meet the educational needs of young adolescents; (2) work with students in individualized and group learning settings; (3) diagnose learning characteristics and assist students in overcoming difficulties; (4) work and plan with other professional educators in team teaching, individualized instruction, and crossdisciplinary teaching; and (5) engage in crossdisciplinary subject teaching with awareness of the developmental needs of early adolescents. For admission to TEAM, students in the Middle/Junior High School program need to have completed the University General Education Requirements and CTL 350 Development and Education of Adolescents and to have been admitted to teacher education. Admission to student teaching requires that the student meet the requirements of the Center for Teaching and Learning.

Students planning to teach in Minnesota should be aware that Middle/Junior High School preparation in that state is recognized only as a combined major with elementary or secondary education.

SECONDARY EDUCATION

The professional education component consists of a series of courses, each of which is important to the development of secondary teachers. Students are encouraged to begin
their education courses in their sophomore year and to work closely with their advisors in planning their schedules. Formal admission to the Center for Teaching and Learning is required prior to enrollment in all secondary courses above the 200 level.

An introductory course which allows the student to examine his or her commitment to teaching, facilitated by a co-required field experience in a secondary school classroom; the study of curriculum and instruction which acquaints the student with an operating philosophy and its effects on teaching, the development of curriculum; the study of adolescent development and the implications of that development for education at the secondary level; the development of teaching skills through the following activities: (1) micro-teaching, (2) a broad spectrum of special topics, (3) multicultural education, and (4) methods and materials used in teaching various subject areas.

In addition to the coursework the student is required to complete supervised student teaching in a university-approved cooperating school, and field experiences which include supervised apprenticeships, internships or tutorial opportunities. The nature of the student teaching and field experiences will be determined through advisement. A 16 week professional semester is required in the program. To be accepted for student teaching a student must have a 2.75 GPA in the major and a 2.5 GPA overall in all coursework attempted up to the time of the student teaching application.
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 200 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 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.

TWELVE-WEEK SUMMER SESSION

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. Numerous courses meet for twelve weeks while others meet for six weeks.

In some instances courses may be taught in sequence. For instance, Spanish 101 may be offered during the first six weeks and Spanish 102 maybe offered during the second six weeks of the twelve-week Summer Session.

Along with the twelve- and six-week courses, some courses will be one, two, four and eight-weeks in length. Normally, a student will not be allowed to enroll in more than 15 semester hours during the twelve-week Summer Session.

Summer Session Deadlines

Deadlines, such as last day to drop a full-term course, last day to drop a part-term course, last day to change to and from S/U grading, last day to apply for graduation, last day to change from and to audit, last day to drop a course or withdraw from the institution, are calculated by using time guidelines which are proportionate to those established for the academic year (fall and spring) semester.

Specific dates are provided in the Summer Session Time Schedule of Classes.

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 six credit hours during the eight-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 six hours of credit during the eight-week Summer Session. A student must be enrolled in a minimum of one semester hour to be within this part-time classification.

ADDITIONAL INFORMATION

The Summer Session is administered by the Dean of the University College and Summer Sessions. For detailed information on the summer program, students should consult the Summer Session Bulletin/Time Schedule of Classes which is published in the spring of each academic year, or contact the Summer Session Office, University of North Dakota, P.O. Box 8026, University Station, Grand Forks, ND 58202.
The Division of
Continuing Education

Robert Boyd, Dean

HISTORY AND MISSION

An organized program of extension activities was first established at the University of North Dakota in 1910. Since 1921 the University has been a member of the National University Extension Association. The Association promotes and upholds standards for extension services by imposing strict procedures for the admission of colleges and universities. Outreach Programs is also an active member of the Council on General Extension of the National Association of State Universities and Land Grant Colleges.

In 1968 the name of the 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.

The role of the Division of Continuing Education is to assist in extending the resources of the University. The Division attempts to determine the educational and informational needs of the citizenry of North Dakota which cannot be provided through the regular on-campus programs. Once determined, the goal is to serve those needs whenever 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 vanes according to situation and need. The Division administers the following: correspondence study, educational television courses, extension courses, conferences, seminars, workshops, Learning After Hours, a Resident Center at the Grand Forks and Minot Air Force Bases and Extended Graduate Degree Programs at the UND Graduate Center at Bismarck and other locations in the state.

DEPARTMENT OF ACADEMIC PROGRAMS

Extension Classes

Extension classes are regular University of North Dakota class offerings at a location away from the University. They are intended to meet the needs of: (1) those who cannot immediately leave home after finishing high school to continue their formal education, (2) those who have had their education interrupted, (3) those who would like to broaden their professional and cultural background and (4) those who are working toward an advanced degree. These classes are also available to adults who can profit from the experience, but are not working in a degree program.

Qualified instructors, approved by the chairperson and the dean of the academic department involved, conduct the classes where the demand warrants. The size of the class required in each instance depends upon the distance the instructor must travel to class. The number and length of the class periods are determined by the amount of credit allowed for the course, based on a minimum of fifteen hours of class per credit hour.
Requests for additional information concerning the establishment of off-campus classes should be addressed to the Division of Continuing Education, University of North Dakota, Box 8277, University Station, Grand Forks, ND 58202.

**Learning After Hours**

The Division of Continuing Education provides classes on weekends and evenings at the Grand Forks Air Force Base and on campus. This convenient schedule makes it possible for students who would otherwise be unable to attend classes to continue their education.

Courses designed to meet general education requirements are offered fall and spring semester on campus and in five terms at the Grand Forks Air Force Base. Upon completing the general education requirements, many students matriculate to the University campus to seek undergraduate degrees.

The Center for Aerospace Sciences and the Division of Continuing Education also offer a Master of Science in Space Studies degree at the Grand Forks Air Force Base. Students may apply for admission to the program following the graduate school admission procedures.

Further information on the Learning After Hours Programs at the Grand Forks Air Force Base and on the University campus may be obtained by contacting the Division of Continuing Education, University of North Dakota, Box 9021, Grand Forks, ND 58202-9021 or by calling (701) 777-2661 or the toll-free number 1-800-342-8230.

**Correspondence Study**

Correspondence Study offers more than 80 courses from 25 UND departments. Both credit and non-credit college level courses are available. Correspondence Study is flexible. Students may enroll in courses at any time. They study and learn at their own pace and within the constraints on their individual lifestyles.

Additional information on credit correspondence courses may be obtained by writing or calling the Department of Correspondence Study, Division of Continuing Education, University of North Dakota, Box 9021, Grand Forks, ND 58202-9021, (701) 777-3044 or toll-free 1-800-342-8230. Information on non-credit courses can be obtained by calling (701) 777-4204 or toll-free 1-800-342-8230 or writing to the address above.

Courses available by Correspondence Study are:

**Accounting and Business Law**
- 200 Elements of Accounting, 3 credits
- 201 Elements of Accounting, 3 credits

**Anthropology**
- 171 Introduction to Cultural Anthropology, 3 credits
- 340 Medical Anthropology, 3 credits

**Business and Vocational Education**
- 421 Coordinating Techniques, 2 credits
- 444 Philosophy of Vocational Education, 3 credits

**Chemical Engineering**
- 201 Stoichiometry, 3 credits

**Computer Science**
- 101 Introduction to Computers, 2 credits
- 101 Introduction to Computers Laboratory, 1 credit

**Economics**
- 105 Elements of Economics, 3 credits
- 201 Principles of Economics I, 3 credits
- 202 Principles of Economics II, 3 credits
### Engineering
- **101** Engineering Graphics, 2 credits
- **102** Descriptive Geometry, 2 credits

### English Language and Literature
- **101** Composition I, 3 credits
- **102** Composition II, 3 credits
- **203** Composition III, 2 credits
- **209** Technical and Business Writing, 3 credits
- **211** Introduction to Fiction, 2 credits
- **303** Survey of American Literature, 3 credits
- **304** Survey of American Literature, 3 credits
- **305** Creative Writing, 2 credits

### Fine Arts
- **150** Introduction to Fine Arts, 3 credits

### Geography
- **151** Cultural Geography, 3 credits
- **161** World Regional Geography, 3 credits
- **319** Geography for Teachers, 2 credits
- **361** Geography of Canada, 3 credits
- **369** Geography of North Dakota, 3 credits

### History
- **101** Western Civilization to 1500, 3 credits
- **102** Western Civilization since **1500**, 3 credits

### Home Economics
- **240** Fundamentals of Nutrition, 3 credits

### Humanities
- **101** Humanities II, 4 credits
- **102** Humanities II, 4 credits

### Industrial Technology
- **440** Industrial Safety, 2 credits

### Languages: Modern and Classical

#### French
- **101** Beginning French, 4 credits
- **102** Beginning French, 4 credits
- **201** Second-Year French, 4 credits
- **202** Second-Year French, 4 credits

#### German
- **101** Beginning German, 4 credits
- **102** Beginning German, 4 credits

#### Norwegian
- **101** Beginning Norwegian, 4 credits
- **102** Beginning Norwegian, 4 credits

#### Spanish
- **101** Beginning Spanish, 4 credits
- **102** Beginning Spanish, 4 credits
- **201** Second-Year Spanish, 4 credits
- **202** Second-Year Spanish, 4 credits

### Management
- **305** Managerial Concepts, 3 credits

### Mathematics
- **102** Intermediate Algebra, 3 credits
- **103** College Algebra, 3 credits
- **104** Finite Math, 3 credits
- **105** Trigonometry, 2 credits
- **208** Discrete Mathematics, 3 credits
- **211** Calculus I, 4 credits
- **212** Calculus II, 4 credits
- **213** Calculus III, 4 credits

### Music
- **100** Introduction to the Understanding of Music, 3 credits
Occupational Therapy

**200** Introduction to Occupational Therapy, 2 credits

**205** Medical Terminology, 1 credit

Pharmacology and Toxicology

**204** Elementary Pharmacology and Toxicology, 3 credits

Philosophy and Religion

Phil 210 Contemporary Moral Issues, 3 credits
Rel 101 Introduction to Religion (West), 3 credits
Rel 203 World Religions, 3 credits
Rel 345 Death and Dying, 2 credits

Political Science

**102** American Government 11, 3 credits

Psychology

**101** Introduction to Psychology, 3 credits

**241** Introduction to Statistics, 4 credits

**251** Developmental Psychology, 4 credits

**370** Abnormal Psychology, 3 credits

Sociology

**101** Introduction to Sociology, 3 credits

**102** Social Problems, 2 credits

**331** Rural Sociology, 3 credits

**335** The Family, 3 credits

**352** Aging, 3 credits

**353** Sociology of Death and Dying, 3 credits

**361** Social Psychology, 4 credits

Visual Arts

**120** Introduction to Drawing and Color Materials, 3 credits

**391** Special Topics: Visual Thinking, 3 credits

Non Credit Courses

Food Service and Nutrition

Basic Nutrition Principles for Dietary Supervisors, 4.8 Continuing Education Units (CEUs)
Clinical Applications of Nutrition for Dietary Supervisors, 4.8 Continuing Education Units
Dietary Managers Course, 15 Continuing Education Units
Menu Planning for Health Care Facilities, 3.0 Continuing Education Units
Nutrition and Aging, 3.0 Continuing Education Units
School Food Service, 4.2 Continuing Education Units

Mathematics

Math 100, A Refresher Course in Mathematics, 5.4 Continuing Education Units

Real Estate

Mortgage Analysis Concepts and Techniques, .7 Continuing Education Units
The Appraisal Process, .7 Continuing Education Units
Real Estate Brokerage Liability, .7 Continuing Education Units
Closing Real Estate Transactions, .7 Continuing Education Units
Real Estate Finance, 3.6 Continuing Education Units
Real Estate Investment, 3.6 Continuing Education Units
Real Estate Appraisal, 3.6 Continuing Education Units
Real Property Management, 3.6 Continuing Education Units
North Dakota Principles of Real Estate, Pre-licensure Course, presented on the North Dakota Interactive Video Network, 3.6 Continuing Education Units

Regularly enrolled University students may enroll in the Division’s extension or correspondence study courses upon providing written approval from the Dean of their college.

All matters pertaining to registration and credit are handled through the Division of Continuing Education.

Further information may be obtained by writing the Division of Continuing Education, University of North Dakota, Box 9021, Grand Forks, ND 58202-9021, or phoning (701) 777-2661, or Toll-Free 1-800342-8230.
Admission

A correspondence study student or an extension class student is not required to apply for admission to the University. If correspondence study or extension class students later desire to be admitted to the University for study in residence, a regular and separate application must be filed with the Office of Admissions.

Upon satisfactory completion of a course, correspondence study grades are forwarded to the Registrar’s Office. Transcripts may be requested from the Registrar’s Office and may be sent to another institution upon written request.

General Information for Bismarck/Mandan Area

Information and requests concerning any of the Division of Continuing Education programs or activities for residents of the Bismarck/Mandan area may be directed to the UND Graduate Center at Bismarck, Schafer Hall, Bismarck State College, Bismarck, North Dakota 58501. Telephone 224-5437.

DEPARTMENT OF PROFESSIONAL AND COMMUNITY PROGRAMS

Conferences, non-credit correspondence courses, public seminars, in-house professional development programs and summer camps for young people are all examples of programs sponsored by the Department of Professional and Community Programs. Most programs at UND are designed to meet the professional development needs of people working in both public and private sector organizations. Others bring young people to the UND campus or meet the personal development needs of area residents.

Office of Conference Services

The Office of Conference Services offers the rich resources of the University Of North Dakota shaped to fit conference and seminar needs. These services can be provided to ensure a program’s success: professional program development, financial management, promotion, registration, instructional support, program management, evaluation, and record keeping. For more information about Conference Services, call (701) 777-2663.

Office of Correspondence Programs (Non Credit)

The Office of Correspondence Programs (Non Credit) offers courses through self-study. Most of the courses are aimed at professional development including the Dietary Managers Course and the Real Estate courses. For more information, call (701) 777-4204.

Office of Management Development

The Office of Management Development offers management supervisory, and professional development seminars. These seminars are offered to the public or presented to a private audience at a business location. To ensure the success of these seminars, we select program leaders from the faculty and staff at UND professional consultants and trainers, and area business professionals. For more information, call (701) 777-3633.
Courses of Instruction

This section of the catalog includes, in alphabetical order, department and program area requirements and course descriptions. University graduation requirements are found on pages 32-40, and the requirements of the degree-granting colleges and schools are found beginning page 70.

The University publishes an official timetable of classes 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. On request to Enrollment Services, a copy of the timetable will be mailed.

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.

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 the 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
Accounting

H. Wilde (Chair), Bostrom, Ellingson, Hansen, Harmeson, Hiltner, Loyland, Medalen, Ness, Wacker and Wambsganss

College of Business and Public Administration

Business courses in Accounting curricula, in addition to the accounting subjects, form a vital part of the background of the accountant whether in a public or private practice. The accountant today must have a broad understanding of business principles. All B. Acc. and B.B.A. students must fulfill College of Business requirements (see page 85).

BACHELOR OF ACCOUNTANCY

Required 125 hours including:

I. General Graduation Requirements, see pages 30-39.

II. College of Business and Public Administration Requirements, see page 85 and including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acct 200, 201</td>
<td>Elements of Accounting</td>
<td>6</td>
</tr>
<tr>
<td>BVED 217</td>
<td>Fundamentals of Management Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>Econ 201</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 202</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 280</td>
<td>Introduction to Business and Economic Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Math 104</td>
<td>Finite Mathematics</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>Production Management</td>
<td>3</td>
</tr>
<tr>
<td>Econ 310</td>
<td>Principles of Financial Management</td>
<td>2</td>
</tr>
<tr>
<td>Econ 310L</td>
<td>Problems in Financial Management</td>
<td>1</td>
</tr>
<tr>
<td>Mgmt 475</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>Mrkt 301</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>PSci 101</td>
<td>American Government I</td>
<td>3</td>
</tr>
<tr>
<td>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>Math 104</td>
<td>Finite Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 301</td>
<td>Production Management</td>
<td>3</td>
</tr>
<tr>
<td>Econ 315</td>
<td>Business in the Legal Environment</td>
<td>3</td>
</tr>
<tr>
<td>Acct 316</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>Acct 401</td>
<td>Accounting Problems</td>
<td>3</td>
</tr>
<tr>
<td>Acct 405</td>
<td>Auditing</td>
<td>3</td>
</tr>
<tr>
<td>Acct 410</td>
<td>Income Tax I</td>
<td>3</td>
</tr>
<tr>
<td>Acct 306</td>
<td>Cost Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>Acct 309</td>
<td>Contemporary Accounting Systems</td>
<td>3</td>
</tr>
<tr>
<td>Acct 403</td>
<td>Contemporary Accounting Theory</td>
<td>3</td>
</tr>
<tr>
<td>Acct 406</td>
<td>Auditing Problems</td>
<td>3</td>
</tr>
<tr>
<td>Acct 411</td>
<td>Income Tax II</td>
<td>3</td>
</tr>
<tr>
<td>Acct 412</td>
<td>Income Tax III</td>
<td>3</td>
</tr>
<tr>
<td>Acct 416</td>
<td>Advanced Business Law</td>
<td>3</td>
</tr>
</tbody>
</table>

One course selected from the following:

- Psy 101: Introduction to Psychology
- Soc 101: Introduction to Sociology
- Anth 171: Introduction to Cultural Anthropology

III. The following Major Requirements:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acct 218</td>
<td>Computer Applications in Business</td>
<td>2</td>
</tr>
<tr>
<td>Acct 301, 302</td>
<td>Intermediate Accounting</td>
<td>8</td>
</tr>
<tr>
<td>Acct 305</td>
<td>Cost Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>Acct 312</td>
<td>Fund Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Acct 315</td>
<td>Business in the Legal Environment</td>
<td>3</td>
</tr>
<tr>
<td>Acct 316</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>Acct 401</td>
<td>Accounting Problems</td>
<td>3</td>
</tr>
<tr>
<td>Acct 405</td>
<td>Auditing</td>
<td>3</td>
</tr>
<tr>
<td>Acct 410</td>
<td>Income Tax I</td>
<td>3</td>
</tr>
<tr>
<td>Acct 306</td>
<td>Cost Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>Acct 309</td>
<td>Contemporary Accounting Systems</td>
<td>3</td>
</tr>
<tr>
<td>Acct 403</td>
<td>Contemporary Accounting Theory</td>
<td>3</td>
</tr>
<tr>
<td>Acct 406</td>
<td>Auditing Problems</td>
<td>3</td>
</tr>
<tr>
<td>Acct 411</td>
<td>Income Tax II</td>
<td>3</td>
</tr>
<tr>
<td>Acct 412</td>
<td>Income Tax III</td>
<td>3</td>
</tr>
<tr>
<td>Acct 416</td>
<td>Advanced Business Law</td>
<td>3</td>
</tr>
</tbody>
</table>

Two courses selected from the following:

- Acct 306: Cost Accounting II
- Acct 309: Contemporary Accounting Systems
- Acct 403: Contemporary Accounting Theory
- Acct 406: Auditing Problems
- Acct 411: Income Tax II
B.B.A. WITH MAJOR IN ACCOUNTING

Required 125 hours including:

1. General Graduation Requirements, see pages 30-39.

H. College of Business and Public Administration Requirements, see page 85 and including:

Acct 200, 201: Elements of Accounting (6)

BVED 217: Fundamentals of Management Information Systems (4)

Econ 201: Principles of Microeconomics (3)

Econ 202: Principles of Macroeconomics (3)

Econ 210: Elementary Business and Economic Statistics (5)

Math 104: Finite Mathematics (3)

Math 201: Survey of Calculus (3)

Mgmt 300: Principles of Management (3)

Mgmt 301: Production Management (3)

Fin 310: Principles of Financial Management (2)

Fin 310L: Problems in Financial Management (1)

Mgmt 475: Strategic Management (3)

Mrkt 301: Principles of Marketing (3)

PSci 101: American Government I (3)

Comm 161: Fundamentals of Public Speaking (3)

One course selected from the following:

Psy 101: Introduction to Psychology (3)

Soc 101: Introduction to Sociology (3)

Anth 171: Introduction to Cultural Anthropology (3)

III. The following Major Requirements:

Acct 218: Computer Applications in Business (2)

Acct 301, 302: Intermediate Accounting (8)

Acct 305: Cost Accounting I (3)

Acct 306: Cost Accounting II (3)

Acct 315: Business in the Legal Environment (3)

Acct 316: Fund Accounting (3)

Acct 312: Fund Accounting Systems (3)

Acct 316: Business Law (3)

Acct 401: Accounting Problems (3)

Acct 403: Contemp Accounting Theory (3)

Acct 406: Auditing Problems (3)

Acct 411: Income Tax I (3)

Acct 412: Income Tax II (3)

Acct 416: Advanced Business Law (3)

BVED 320: Business Communications (3)

Upper division courses in Mgmt Mrkt, Econ, Fin.

Courses in the Department of Computer Science (except CSci 101)

THE CERTIFIED PUBLIC ACCOUNTANT CERTIFICATE

According to North Dakota law pertaining to the granting of the certificate of Certified Public Accountant, a student meets the eligibility requirements for the examination with a degree from an accredited college or university. A student may take the C.P.A. examination upon the completion of the B.Acc. or B.B.A. curriculum in accounting.

Courses

200. Elements of Accounting, 3 credits. Basic principles of the complete accounting cycle. F,S

201. Elements of Accounting, 3 credits. Prerequisite: Acct 200 or Acct 295. Special emphasis on partnership, corporate accounting, and the uses of accounting information by managers. F,S

207. Managerial Accounting, 2 credits. Prerequisite: Acct 201 or Acct 295. The application of accounting concepts and techniques to managerial problems of planning, control and decision making. For non-accounting majors only. F,S
218. Computer Applications in Business. 2 credits. Prerequisite or Corequisite: Acct 201. The fundamentals of digital computer programming using Electronic Spreadsheets with special emphasis on business applications. F,S
295. Survey of Accounting Principles. 3 credits. No credit allowed to students who have completed Acct 201. Fundamentals of the financial accounting system, managerial accounting content, generally accepted accounting principles, financial statements and the analysis and interpretation of financial information. F,S
301. Intermediate Accounting. 4 credits. Prerequisites: Acct 201, junior standing or consent of instructor, and Acct 218. Concepts, time value of money, current assets, current liabilities, plant and equipment, and intangibles. F,S
302. Intermediate Accounting. 4 credits. Acctg 301 or consent of instructor. Corporations, long-term Inabilities, investments, statement analysis, and cash flow statement. F,S
305. Cost Accounting I. 3 credits. Prerequisites: Acct 201 and 218. The introduction of modern cost accounting with insight and breadth regarding both the accountant’s and manager’s role in an organization. F,S
306. Cost Accounting 11.3 credits. Prerequisite: Acct 305, Econ 210. Analytical applications of accounting information for product costing, financial reporting, executive decision making, and organizational planning and control. F,S
309. Accounting Information Systems. 3 credits. Prerequisites: Acct 302 or consent of instructor. Problems of systems design and installation. F,S
312. Fund Accounting. 3 credits. Prerequisites: Acct 200, 201. Financial accounting, control, and reporting for governmental and not-for profit entities. F,S
320. Accounting for Management. 3 credits. Prerequisites: Acct 295. Accounting statements and theories, ratio analysis, effects of accounting methods, common size statements, cash flow, fund statements and price level impact. Cost accounting (job order, process and standard), break even charts, budgeting, capital investments, price policies. On demand.
322. Quantitative Applications in Accounting. 2 credits. Prerequisite: Econ 210. Accounting problems with quantitative applications. F,S
337. Cooperative Education. 1 to 8 credits; may be repeated to a total of 12 credits. Prerequisites: Acct 301, 305; minimum 2.7 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
401. Accounting Problems. 3 credits. Prerequisites: Acct 301, 302. Special problems in accounting including consolidated statements, partnerships, and foreign exchange. F,S
403. Contemporary Accounting Theory. 3 credits. Prerequisites-Corequisites: Acct 401 or consent of instructor. 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. Auditing. 3 credits. Prerequisites: Acct 301, 302, Econ 210. Procedures, duties, responsibilities and ethics of an auditor; problems that arise in the course of an audit. F,S
406. Auditing Problems. 3 credits. Prerequisites: Acct 405 or consent of instructor. The application of auditing theory to practical problems. F,S
410. Income Tax I. 3 credits. Prerequisites: Acct 200, 201. Federal income tax relating to individuals. F,S
411. Income Tax IL 3 credits. Prerequisites: Acct 410. Federal income tax relating to corporations and partnerships. F,S
412. Income Tax III. 3 credits. Prerequisites: consent of instructor. Unified transfer tax, trusts and estates, other contemporary topics as appropriate, and techniques of tax research. S
475. Seminar. 1 to 4 credits. Prerequisite: Senior standing and consent of instructor. Research and discussion of selected issues in accounting. F,S
483. Internship in Accounting. 1 to 8 credits. Prerequisites: Acct 302 and 306 or consent of instructor. Off-campus practical experience for senior accounting majors. S-U grading only. F,S
490. The Literature of Accounting. 1 to 4 credits. Prerequisites: Acct 302, 306 and consent of instructor. Directed studies in the recognized journals, periodicals, and professional publications of the field.

Business Law

315. Business in the Legal Environment. 3 credits. The legal environment of business, governmental regulation, contracts, and property. F,S
316. Business Law. 3 credits. Prerequisite: Acct 315. Commercial paper, secured transactions, business organizations, and liability of professionals. F,S
416. Advanced Business Law. 3 credits. Prerequisite: Acct 316. Coverage of topics included in professional qualifying examinations. F,S
American Studies

Thomas Howard (History) and Robert Lewis (English), Coordinators

The American Studies related-fields concentration is designed to introduce the student to the cultural and intellectual heritage of the United States.

The concentration offers students a wide range of courses that are coordinated by their advisors, and the programs of study are individually determined according to the student’s backgrounds, preparation, needs, and interests. Students should plan to study American history, literature, philosophy, and political and economic theory. Cognate courses in American culture in related fields, such as fine arts, are also encouraged. The field of American Studies offers excellent preparation for careers in professions such as law, medicine, teaching, the ministry, government service, social work, writing, publishing, and areas of business where other than a narrow specialization is required. Graduates may expect to achieve a broad liberal education that is also coherent and purposive. And the bachelor’s degree may be terminal or an excellent stepping-stone to graduate or professional study in many fields. Students who desire to become certified public school teachers may satisfy CTL requirements in one field, such as social sciences or English, and be well qualified as a teacher of several subjects. For those who plan to enter graduate work, History 440 is strongly recommended.

Each student’s program will be devised by the student and the coordinators. In the Freshman year, students ordinarily take History 103 and 104, English Composition I and II, levels I and 11 of a language other than English, and two semesters of introductory courses in the social sciences (e.g., American Government I and II) or humanities (e.g., courses in Philosophy or Religious Studies). During the second semester of the Freshman year or as soon thereafter as the student decides to concentrate in American Studies, he/she should consult with the coordinator in order to plan future work.

College of Arts and Sciences

B.A. WITH MAJOR IN AMERICAN STUDIES

Required 125 hours including:

I. General Graduation Requirements, see pages 30-39.

II. The Following Curriculum:

36 hours, including:

Hist 103..........................United States to 1877.........................................................(3)
Hist 104..........................United States since 1877......................................................(3)
Engl 303, 304......................Survey of American Literature I and II..........................(6)
Electives as approved and as described above.................................................(24)

At least 18 hours must be upper level work.

Language requirement: Level IV proficiency in a language other than English.

Anatomy and Cell Biology

(Anat)

E. Carlson (Chair), McCormack, J. C. Oberpriller, J.O. Oberpriller, Olson, Rieke, and Ruit

Courses

204. Anatomy for Paramedical Personnel. 3 credits. This series of three lectures per week presents a systematic study of the human body. F,S
University of North Dakota

204L. Anatomy for Paramedical Personnel. 2 credits. A basic laboratory to complement Anatomy 204. Prerequisite or Corequisite: Anat 204. F,S

490. Directed Studies in Anatomy. 1-3 credits (repeatable to a maximum of 6 credits). Supervised studies and/or laboratory experiences in morphology for one or more students. F,S,SS

498. Internship in Anatomy. 1-15 credits (repeatable to a maximum of 15 credits). Prerequisite: Junior or Senior status and instructor consent. This course will provide in-depth study and/or laboratory experiences in morphology in fields of faculty specialization. F,S,SS

Anthropology

J. Williams (Chair), Lang, Leach and Schneider

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 and museums. American anthropology is divided into four main sub-areas—archaeology, cultural anthropology, linguistics, 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 A MAJOR IN ANTHROPOLOGY

Required 125 hours including:

1. General Graduation Requirements, see pages 30-39.

11. The Following Curriculum:

33 Major Credits including:

Anth 170 .......................................Introduction to Biological Anthropology. .....................................(3)

Anth 171 .......................................Introduction to Cultural Anthroplogy..........................................(3)

Anth 172 .......................................Introduction to Archaeology and World Prehistory. ..................... (3)

Anth 480 ......................................Senior Seminar ..........................................................(3)

Method and Theory ..........................................................(9)

3 hours from (Cultural)

Anth 371 Cultural Dynamics

Anth 372 Culture Theory

Anth 350 Ethnographic Methods

3 hours from (Archaeology)

Anth 200 Archaeology Laboratory Methods

Anth 380 Field Techniques in Archaeology

Anth 388 Method and Theory in Archaeology

3 hours from (Physical)

Anth 378 Physical Anthropology Method and Theory

Electives ..........................................................[12]

Required in other departments:

A concentration in a single supplementary field other than anthropology is also required of all anthropology 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 9 of which must be numbered 300 or above, in any single subject matter taught at this university.
MINOR IN ANTHROPOLOGY
Required 21 hours, including:

- Anth 170. Introduction to Biological Anthropology (3)
- Anth 171. Introduction to Cultural Anthropology (3)
- Anth 172. Introduction to Archaeology and World Prehistory (3)

3 hours from:

- Anth 200. Archaeology Laboratory Methods (3)
- Anth 350. Ethnographic Methods (3)
- Anth 371. Cultural Dynamics (3)
- Anth 372. Culture Theory (3)
- Anth 378. Physical Anthropology Method and Theory (3)
- Anth 380. Field Techniques in Archaeology (1-6)
- Anth 388. Method and Theory in Archaeology (3)

Electives in Anthropology (9)

Courses

100. Introduction to Anthropology. 3 credits. An introduction to physical and cultural anthropology with an overview of human evolution and human culture. F,S

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. F,S

171. Introduction to Cultural Anthropology. 3 credits. The nature and development of culture, utilizing illustrative data drawn from literate and nonliterate peoples of the world. F,S

172. Introduction to Archaeology and World Prehistory. 3 credits. An introduction to 1) the basic field and laboratory methods used by archaeologists as they seek to describe and explain the events of world prehistory, and 2) the major milestones in the evolution of societies, including the cultural advancement of our earliest hominid ancestors, the three million year-long persistence of the hunting and gathering lifeway, the origins of agriculture, and the rise and collapse of civilizations. F,S

200. Archaeology Laboratory Methods. 3 credits. Prerequisites: Anth 170, 171, or 172. An introduction to the preparation and analysis of excavated archaeological materials, and use of standard laboratory techniques. Includes lecture and lab. On demand.

209. Special Topics. 1-4 credits. F,S

220. Native American Technology. 1-4 credits. Prerequisites: Anth 170, 171, or 172. An introduction to the techniques and methods employed by non-western peoples to construct tools and artifacts. Includes practical application. F

230. Women and Men in Society & Culture. 3 credits. Prerequisite: Anth 171 or consent of instructor. A comparative survey of women’s and men’s roles, including a consideration of early societal organization, the range of variation in sexual differentiation, and the interacting of biological and sociocultural factors in shaping sex roles.

299. Special Topics. 1-4 credits. F,S

325. Human Origin. 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 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 in an anthropological perspective. F

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. Once every third semester.

370. Language and Culture. 3 credits. Prerequisites: Anth 170, 171, or 172 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. An examination of the problems, theories and consequences of cultural change. S

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 or consent of instructor. Examination of traditional and modern Indian cultures of Latin America. Focus on the adaptation to cultural change, the impact of world economy and resource exploitation on indigenous peoples. Every third semester.

374. Old World Prehistory. 3 credits. Prerequisites: Anth 172 or consent of instructor. The origins and development of human culture in Africa, Asia, and Europe from the lower stone age to the beginning of farming communities. Major archaeological sites will be critically examined and an interdisciplinary approach will be stressed. F/S

375. North American Indian. 3 credits. Prerequisite: Anth 171 or consent of instructor. Origins and nature of cultures in America north of Mexico. Study of basic culture areas and representative groups, culminating with a view of the status and prospects of the modern Indian and Eskimo in Canada and the United States. Field trip to area reservation when possible. F

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. Early man and the development of American Indian cultures from the Arctic to the Rio Grande. S

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. Maybe repeated to maximum of 6 credits. Prerequisites: Anth 170 or 171 or consent of instructor. A survey of peoples and cultures of selected areas. Selections based upon staff and student interest. F/S

380. Field Techniques in Archeology. 1-6 credits. Prerequisites: Anth 172, and consent of instructor. SS

381. Method and Theory in Archaeology. 3 credits. Prerequisites: Anthro 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 analytical tools they employ; and how they use data, models, and theory to explain culture change. Techniques, methods, and theoretical frameworks used in modern prehistoric archaeology are examined. Readings in the professional literature, case studies, and guest lecturers provide vivid examples of archaeologists in thought and action. S

382. Historic Preservation. 3 credits. A detailed examination of the concept of historic preservation in the United States. Various processes for completing historic preservation programs are presented.

424. Plains Prehistory. 3 credits. Prerequisites: Anth 377 or consent of instructor. An overview of the prehistoric cultures of the Plains region from the Paleo Indians to the beginning of the Historic period. F

426. Lithic Technology. 3 credits. Prerequisites: Anth 172 or consent of instructor. Study of the techniques and methods of manufacturing chipped stone tools and artifacts and the basis for analyzing such materials in the archeological record.

440. Human Osteology. 3 credits. Prerequisites: Anth 170 or consent of instructor. The description of the human skeleton with emphasis on prehistoric skeletal analysis.

460. Methods in Cultural Anthropology. 3 credits. Prerequisites: Anth 171 and 371. Examination of research methods employed by cultural anthropologists. On demand.

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. S

470. History of Anthropology. 3 credits. Prerequisites: Anth 170, 171, or 172 or consent of instructor. Historical survey of anthropological theories and concepts with attention to contributions of the major figures in anthropology. On demand.

478. Studies in Anthropology. 1-4 credits. Prerequisites: Anth 170, 171, or 172 or consent of instructor. Study topic varies with interests of staff and students: projected topics include: technology and culture, Central Asian ecology, economy and social organization. F/S

480. Senior Seminar. 3 credits. Prerequisite: Senior major. The seminar will examine a current debate 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. S

490. Independent Studies. 1-4 credits. Consent of instructor. Independent research conducted under advisement with department faculty. Research is student originated and developed. F/S

497. Readings in Anthropology. 1-5 credits. Prerequisites: Anth 170, 171, or 172 and 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. F/S
Arts and Sciences
(A & S)

The College of Arts and Sciences offers a limited number of non-departmental courses. Arts and Sciences 250 and 290 are non-departmental, and are intended to serve a variety of purposes. 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 250 or 290 should present their proposals in writing to the Dean of the College. No more than 21 credits maybe earned in any combination of these courses over four years.

Courses

225. Introduction to the Study of Women. 4 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 prised by the new scholarship on women, and introduce students to Ore perspectives and methodologies of a variety of disciplines. F

250. Arts and Sciences. 1-4 credits in any one course; note credit limitations mentioned above. 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.

290. Arts and Sciences. 1-4 credits in any one semester; note credit limitations mentioned above. Specially arranged tutorials or reading programs 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.

351. Introduction to Law and Legal Studies. 3 credits. Segments on Contracts, Criminal Law, Constitutional Law, and Torts, taught in customary law school manner to acquaint undergraduates and others interested in exploring a career in the legal profession with law school methodology and legal analysis.

Aviation

Avit

G. Hammond (Chair), Bergstrom, Bridewell, DeRemer, Island, Jackson, Jensen, Karim, Lindseth, Lovelace, McLean, Mead, Odegard, Robertson, Wagner and Zahradka

The Department of Aviation offers eleven different four-year degree options in three major categories: Administration, Aeronautical Studies, and Airway Science. The Bachelor of Business Administration degree may be earned in either Aviation Administration or Airport Administration, and is granted by the College of Business and Public Administration. The Bachelor of Science in Aeronautical Studies is available in three different options, and is granted by the Center for Aerospace Sciences. The Bachelor of Science in Airway Science is available in six different options, and is also granted by the Center for Aerospace Sciences.

A special program is available for advanced students interested in becoming weather modification pilots. The University of North Dakota, with the cooperation of the U.S. Bureau of Reclamation and the North Dakota Weather Modification Board, conducts classes in the ground and air technology of cloud modification. Classes are taught by leading research scientists and engineers from throughout the nation. The program provides for internships in which the professional pilots are selected for flying cloud modification missions during the summer.
A Rotorcraft-Helicopter option is available in Aviation degree programs. Students interested must contact their advisors.

A Cooperative Education program is offered by the Department of Aviation, which encourages students to obtain on-the-job experience while continuing their academic education. Semester cooperative internships are available offering opportunities at major airports, general aviation manufacturers, FAA air traffic control towers, airlines, and weather modification research operational contractors. Students can earn additional college credits through the cooperative internship program and at the same time obtain valuable on-the-job experience necessary to supplement their formal education.

Career services include the UND Career Planning and Placement Center, the Center for Aerospace Science’s Resource Center, and an industry and alumni career database, which is maintained by CAS. In addition, representatives of aviation industries, the Federal Aviation Administration, Transport Canada and airlines come to UND for career fairs and interviewing sessions.

All students, regardless of major, are required to have a minimum Grade Point Average GPA cumulative and institutional, of 2.50 in order to enroll in all 200-level and above aviation courses. Students taking 100-level aviation courses must have a GPA cumulative and institutional, of at least 2.00. All students who enroll in aviation courses who fall below the minimum GPA required are subject to withdrawal from the course by the Aviation Department.

**AVIATION DEPARTMENTAL POLICIES**

Flight costs are not included in 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.

Students enrolling in flight courses are required to deposit money into their flight accounts on a regular basis to cover their flight costs. Deposits should be in at least $500 increments. Students will not be permitted to fly if their minimum balance drops below $200. Students are encouraged to have a known source of income prior to enrolling in any flight training-related curriculum.

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 the Federal Aviation Administration Part 141, Appendix A—paragraph 2, and Appendix D—paragraph 2. Failure to meet these attendance requirements will disqualify the student for FAA pilot certification.

Students enrolled in flight courses are required to finish those flight lessons prescribed to each individual course during the semester enrolled. Failure to complete the lessons will result in an unsatisfactory grade.

**TRANSFER OF PILOT RATINGS**

Students who hold a Private Pilot certificate obtained without college credit are required to take Aviation 102, Introduction to Aviation, and complete the flight lessons contained in the Private Pilot Test Course. Students whose majors require only the Private Pilot certificate must also complete one flight course at UND beyond the private pilot test course. Students whose majors require additional flight courses must take the Private Pilot Test Course before taking Aviation 251, Aircraft Systems and Instruments.

Students who hold Commercial Pilot certificates and/or Instructor ratings obtained without college credit, and are majoring in a program that requires the commercial/instrument courses, are required to take Aviation 251, 252, 353, 354, 355, Meteorology 231, and complete the flight lessons contained in the Commercial Pilot Test Course. Students who hold a multi-engine rating obtained without college credit must also take the
Multi-engine Test Course. In addition, students must complete one advanced flight course at UND. These courses are CFI Certification, CFI with Instrument rating, Multi-engine Certification, CFI with Multi-engine Certification, Citation type rating, ATP, and any helicopter flight course.

Students who hold a Flight Instructor Certificate obtained without college credit and who are pursuing the Aircraft Systems Management curriculum are required to complete the flight course applicable to their flight instructor certificate and ratings held. In addition, students must complete a minimum of one advanced flight course at UND.

TRANSFER OF COLLEGE CREDIT/RATINGS

Aviation and related courses from other colleges and universities do not automatically transfer to UND. All Aviation transfer courses, 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.

Students with pilot certificates obtained with transfer college credit must demonstrate proficiency of each certificate and associated rating before the credits will be accepted to satisfy UND curriculum requirements. It is the student's obligation to make arrangements for the appropriate proficiency flight check(s).

FLIGHT POLICIES

Regardless of academic major, once a student has enrolled at UND, all subsequent flight training must be completed in residence at UND. Flight training at other schools while enrolled at UND is not permitted. Enrolled students who receive flight training outside UND which is required under specific curriculum will not receive credit for the courses taken and will be dismissed from the program.

MEDICAL CERTIFICATES

A current medical certificate is required for all students planning to begin flight training. The physical examination must be performed by an M.D. who is a designated FAA medical examiner.

There are three types of medical certificates-Class 111, Class II, and Class I. Students are advised to get a Class I certificate if they are planning to pursue a career in professional flight. Any physical limitations which may alter career plans will become evident at that time.

Students are encouraged to make plans to obtain their medical certificates long before they will begin flight training. This will ensure that any problems can be addressed before the student enrolls in flight training.

DRUG POLICY

The Center for Aerospace Sciences has adopted a “no tolerance” policy regarding the use of drugs and alcohol, reflecting a commitment to the highest safety standards. In accord with this policy, all students beginning flight training at UND will be required to present negative drug test results, along with their medical certificate, before they will be permitted to enroll in flight courses. Random drug testing will continue throughout the year for all flight students.

FINANCIAL AID INFORMATION

Students are encouraged to explore all financial aid options as outlined on pages 20-24. In addition to these forms of aid, the Aviation Department has a separate scholarship
fund for its students. All aviation students, including freshmen and new transfers, are eligible to apply. Forms are available at the beginning of the fall semester from the Aviation Department. Applications for scholarships are due by mid-September; therefore, students are encouraged to pick up their applications as soon as they arrive in the fall.

Financial aid is available only for those flight courses required for a particular curriculum. If the student desires to obtain additional ratings, he/she is responsible for the expenses incurred.

PROGRAM DESCRIPTIONS

The Aviation Administration curriculum is offered to those students whose career objectives are toward the management and operation of the airside activities of the aviation industry. Emphasis is placed on the relationship of modern management practices to airline, airport and general aviation management. Requires a commercial pilot certificate with instrument and multi-engine ratings.

The Airport Administration 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.

The Aeronautical Studies curriculum is offered to those students whose career objectives are toward the operation of the airside activities of the aviation industry and who desire a second field of study in addition to their aviation education. Under this program, the student elects to specialize in a specific area of concentration selected with the advice and approval of the Department of Aviation. A minimum of 20 semester hours must be earned in the area of concentration. Double majors within the Center for Aerospace Sciences and other colleges are available in accordance with university policy. Requires a commercial pilot certificate with instrument and multi-engine ratings. May require additional ratings depending upon the option chosen.

Aeronautical studies is available in the following three options:

I. General Emphasis: This degree offers in-depth study of the aviation field, coupled with a second field of study. In addition, it offers the flexibility to pursue other areas of interest, and provides the student with the opportunity to obtain a broad-based liberal education.

II. Professional Flight Emphasis: In addition to the second field of study, this degree adds a concentration in professional flight, combining instructor ratings with advanced aviation courses to provide a thorough background in aviation.

III. Air Transport Emphasis: This curriculum combines the Center’s SPECTRUM ab initio pilot training with the baccalaureate degree to give the student the best possible preparation for a career in airline piloting. A second field of study is strongly recommended.

The Airway Science curriculum is designed primarily to prepare graduates for entry level positions in the Federal Aviation Administration and the aviation industry. Airway Science is a rigorous program which stresses hard science, the human side of management, knowledge of computers and aviation to meet the challenge of coping with sociotechnological forces of the future. Airway Science degree programs are available in the following areas:

I. Aircraft Systems Management: Requires courses leading to flight certificates and ratings through Private, Commercial, Instrument, Multi-engine, Certified Flight Instructor-Airplane, and Instrument and Multi-engine Flight Instructor. Prepares the student for employment within the FAA, aviation industry, and military.
II. **Airway Science Management:** With its emphasis on communication and management courses, this curriculum provides a good general education for careers in the aviation industry that focus on the human side of aviation, including marketing, management, sales, personnel. Private pilot course required.

III. **Airway Computer Science:** This area provides strong preparation for a career in computer operations in aviation with the FAA or aviation industry. Private pilot course required.

IV. **Airway Electronic Systems:** This course qualifies the student as an electronics technician and provides the management skills and baccalaureate degree necessary for a career in management of electronics technicians, for job opportunities with the FAA or in the avionics industry. Private pilot course required.

V. **Aviation Maintenance Management:** This course gives the student the best career opportunity in this field. It combines the airframe and powerplant mechanic’s license with a baccalaureate degree strong in the sciences and management of human resources. Private pilot course required.

VI. **Air Traffic Control Operations:** This curriculum is designed to place students directly into field positions with the FAA in air traffic control, bypassing the FAA academy. It combines the baccalaureate degree with strong preparation in air traffic control, allowing the student to be placed “on-the-job” upon graduation. Private pilot course required.

**ADMINISTRATION PROGRAMS**

**College of Business and Public Administration**

**B.B.A. WITH A MAJOR IN AVIATION ADMINISTRATION**

Required: 130 hours, including:

2. College of Business and Public Administration Requirements, page 85.
3. The following curriculum:

**PRE-BUSINESS CURRICULUM**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acct 200</td>
<td>Elements of Accounting</td>
<td>(3)</td>
</tr>
<tr>
<td>Acct 201</td>
<td>Elements of Accounting</td>
<td>(~)</td>
</tr>
<tr>
<td>BVED 217</td>
<td>Fundamentals of Management Information Systems</td>
<td>(4)</td>
</tr>
<tr>
<td>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
<td>(3)</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>(~)</td>
</tr>
<tr>
<td>Econ 210</td>
<td>Intro to Business and Economic Statistics</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 101</td>
<td>Composition</td>
<td>(~)</td>
</tr>
<tr>
<td>Engl 209</td>
<td>Technical and Business Writing</td>
<td>(3)</td>
</tr>
<tr>
<td>Lang 101</td>
<td>Foreign Language</td>
<td>(4)</td>
</tr>
<tr>
<td>Math 104</td>
<td>Finite Mathematics</td>
<td>(3)</td>
</tr>
<tr>
<td>Metr 150</td>
<td>Survey of Calculus</td>
<td>(~)</td>
</tr>
<tr>
<td>Metc 200</td>
<td>Meteorology (Lab Science)</td>
<td>(4)</td>
</tr>
<tr>
<td>PSci 101</td>
<td>American Government I</td>
<td>(3)</td>
</tr>
<tr>
<td>Arts and Humanities (other than history or language)</td>
<td>(~)</td>
<td></td>
</tr>
<tr>
<td>History Elective (see available courses, page 35)</td>
<td>(~)</td>
<td></td>
</tr>
</tbody>
</table>

One of the following:

- Anth 171 Cultural Anthropology (3)
- Psy 101 Introduction to Psychology (3)
- Soc 101 Introduction to Sociology (3)
### AVIATION CORE

- Avit 102: Introduction to Aviation .................................................. (5)
- Avit 251: Aircraft Systems and Instruments .................................................. (2)
- Avit 252: Basic Attitude Instrument Flying .................................................. (2)
- Avit 303: Introduction to Air Traffic Control .................................................. (4)
- Avit 308: Aviation Safety .......................................................... (3)
- Avit 353: Aerodynamics—Airplanes .................................................. (2)
- Avit 354: IFR Regulations and Procedures .................................................. (2)
- Avit 355: Multi-Engine Systems and Procedures .................................................. (2)
- Avit 402: Airplane Operations and Administration .................................................. (3)
- Avit 403: Aerospace Law .......................................................... (3)

One of the following:

- Avit 407: General Aviation Operations and Management .................................................. (3)
- Avit 442: Airport Operations and Administration .................................................. (3)
- Metr 231: Aviation Meteorology .................................................. (3)

### ADVANCED BUSINESS CORE

- Acct 207: Managerial Accounting .................................................. (2)
- Acct 315: Business in the Legal Environment .................................................. (3)
- Fin 310: Principles of Finance .................................................. (2)
- Fin 315: Problems in Financial Management .................................................. (1)
- Mgmt 300: Principles of Management .................................................. (3)
- Mgmt 301: Production Management .................................................. (3)
- Mgmt 302: Human Resource Management .................................................. (3)
- Mgmt 310: Organizational Behavior .................................................. (3)
- Mgmt 475: Strategic Management .................................................. (3)
- Mkrt 301: Principles of Marketing .................................................. (3)
- Business Electives (required) .................................................. (8)

### B.B.A WITH A MAJOR IN AIRPORT ADMINISTRATION

**Required:** 125 hours, including:


II. College of Business and Public Administration Requirements, page 85

111. The following curriculum:

#### PRE-BUSINESS CURRICULUM

- Acct 200: Elements of Accounting .................................................. (3)
- Acct 201: Elements of Accounting .................................................. (3)
- BVED 217: Fundamentals of Management Information Systems .................................................. (4)
- Comm 161: Fundamentals of Public Speaking .................................................. (3)
- CSci 110: Computer Programming I .................................................. (3)
- Econ 201: Principles of Macroeconomics .................................................. (3)
- Econ 202: Principles of Microeconomics .................................................. (3)
- Econ 203: Intro to Business and Economic Statistics .................................................. (3)
- Engl 101: Composition I .................................................. (3)
- Engl 209: Technical and Business Writing .................................................. (3)
- Lang 101: Foreign Language .................................................. (4)
- Math 104: Finite Mathematics .................................................. (3)
- Math 204: Survey of Calculus .................................................. (3)
- Metr 150: Meteorology (Lab Science) .................................................. (4)
- PSci 101: American Government I .................................................. (3)
- History Elective (see available courses, page 35) .................................................. (3)
- Arts and Humanities (other than language or history) .................................................. (5)

One of the following:

- Anth 171: Cultural Anthropology .................................................. (3)
- Psy 210: Introduction to Psychology .................................................. (3)
- Soc 201: Introduction to Sociology .................................................. (3)
AVIATION CORE

Avit 102 .............................................. Introduction to Aviation ................................................. (5)
Avit 302 ............................................. Air Traffic Control ....................................................... (4)
Avit 303 ............................................. Introduction to Air Traffic Control ....................... (4)
Avit 304 ............................................. Aviation Safety ......................................................... (3)
Avit 402 ............................................. Airport Planning and Administration .................. (3)
Avit 403 ............................................. Aerospace Law ....................................................... (3)

One of the following:
Avit 405 ............................................. Airline Operations and Management .................. (3)
Avit 407 ............................................. General Aviation Operations and Management .... (3)
Avit 442 ............................................. Airport Operations and Administration .............. (3)

ADVANCED BUSINESS CORE

Acct 207 .......................................... Managerial Accounting ............................................ (2)
Acct 315 .......................................... Business in the Legal Environment ...................... (3)
Econ 303 .......................................... Money and Banking ............................................... (3)
Econ 355 .......................................... Economics of Regulation ........................................ (3)
Econ 341 .......................................... Labor Economics and Relations ......................... (3)
Fin 310 .......................................... Principles of Finance .................................................. (2)
Fin 310F ........................................ Problems in Financial Management ....................... (1)
Mgmt 300 .......................................... Principles of Management ....................................... (3)
Mgmt 301 .......................................... Production Management ......................................... (3)
Mgmt 302 .......................................... Human Resource Management .......................... (3)
Mgmt 310 .......................................... Organizational Behavior ..................................... (3)
Mgmt 475 .......................................... Strategic Management ........................................... (3)
Mrkt 301 .......................................... Principles of Marketing .......................................... (3)
Business elective .................................. .................................................................................. (2)

OTHER REQUIREMENTS

Comm 320 .......................................... Promotional Methods ............................................ (3)
PSci 404 ........................................... Urban Politics and Administration ......................... (3)

AERONAUTICAL STUDIES PROGRAMS

Center for Aerospace Sciences

B.S. IN AERONAUTICAL STUDIES

Required: 125 hours, including:
II. Center for Aerospace Sciences Requirements page 74.
III. The following curriculum:

GENERAL EMPHASIS

GENERAL STUDIES CURRICULUM

Comm 161 ............................................. Fundamentals of Public Speaking ....................... (3)
CSci 110 .......................................... Computer Programming I ....................................... (3)
Comm 201 .......................................... Principles of Macroeconomics .......................... (3)
Engl 101 ........................................... Composition I .......................................................... (3)
Engl 209 .......................................... Technical and Business Writing ......................... (3)
History Elective (see available courses, page 35) .................................................. (1-3)
Lang 101 .......................................... Foreign Language ...................................................... (4)
Lang 102 .......................................... Foreign Language ...................................................... (4)
Math 103 .......................................... College Algebra ....................................................... (3)
Met 150 .......................................... Meteorology .............................................................. (4)
Math, Science and Technology Elective ................................................................. (2)
Arts & Humanities (other than language or history) .............................................. (1-3)
Social Science Electives ......................................................................................... (3)

One of the following:
Anth 171 .......................................... Cultural Anthropology ............................................. (3)
Psy 101 .......................................... Introduction to Psychology .......................................... (3)
Soc 101 .......................................... Introduction to Sociology .......................................... (3)
AVIATION CORE

Avit 102  Introduction to Aviation ................................................................. (5)
Avit 104  Aviation History ................................................................. (3)
Avi 251  Aircraft Systems and Instruments ........................................... (2)
Avit 252  Basic Attitude Instrument Flying ............................................. (2)
Avit 302  Air Transportation ................................................................. (3)
Avi 30  Introduction to Air Traffic Control ............................................. (4)
Avi 88  Aviation Safety ................................................................. (3)
Avi 93  Aerodynamics—Airplanes ......................................................... (2)
Avi 94  IFR Regulations and Procedures ............................................. (2)
Avi 35  Multi-engine Systems and Procedures ..................................... (2)
Avi 40  Aerospace Law ................................................................. (3)
Avit 405  Airline Operations and Management ..................................... (3)
Avit 407  General Aviation Operations and Management .................... (3)

OTHER REQUIREMENTS

Metr 231  Aviation Meteorology ................................................................. (3)
Comm 320  Promotional Metissi ................................................................. (3)
Area of Concentration/Minor Field* ....................................................... (20) 25

* The area of concentration should be chosen in consultation with the student’s advisor, and must have the approval of the Aviation Department. In some fields, the area of concentration must be the minor as outlined in the catalog. Students must formally declare an area of concentration or minor, and are encouraged to do so as early in the program as possible. Currently approved areas of concentration are as follows: Chemistry, Communication, Computer Science, Criminal Justice, Economics, Fisheries and Wildlife Biology, Foreign Language, Geography, Geology, Industrial Technology, International Studies, Mathematics, Meteorology, Photography, Physics, Political Science, Psychology, Real Estate, Remote Sensing, Sociology and Space Studies.

** Econ 105 may be taken in lieu of Econ 201 with consent of advisor.

PROFESSIONAL FLIGHT EMPHASIS

GENERAL STUDIES CURRICULUM

Comm 161  Fundamentals of Public Speaking ........................................ (3)
CSci 110  Computer Programming I ....................................................... (3)
*Econ 301  Principles of Macroeconomics ........................................... (3)
Engl 101  Composition I ................................................................. (3)
Hist 20  Technical and Business Writing ............................................. (3)
History Elective (see available courses, page 35).................................. (1-3)
Lang 101  Foreign Language ................................................................. (4)
Lang 102  Foreign Language ................................................................. (4)
Math 103  College Algebra ................................................................. (3)
Metr 150  Meteorology ................................................................. (4)
Math, Science and Technology Elective ............................................... (2)
Arts & Humanities (other than language or History) .............................. (1-3)
Social Science Electives ................................................................. (1-3)

One of the following:

Anth 171  Cultural Anthropology ......................................................... (3)
Psy 101  Introduction to Psychology .................................................... (3)
Soc 101  Introduction to Sociology ................................................... (3)

Avit 102  Introduction to Aviation ......................................................... (5)
Avit 104  Aviation History ................................................................. (3)
Avi 251  Aircraft Systems and Instruments ........................................... (2)
Avit 252  Basic Attitude Instrument Flying ............................................. (2)
Avi 302  Air Transportation ................................................................. (3)
Avit 30  Introduction to Air Traffic Control ............................................. (4)
Avit 308  Aviation Safety ................................................................. (3)
Avit 353  Aerodynamics—Airplanes ..................................................... (2)
Avit 354  IFR Regulations and Procedures ........................................... (2)
Avit 355  Multi-engine Systems and Procedures .................................... (2)
Avi 40  Aerospace Law ................................................................. (3)
Avit 405 ...........................................Airline Operations and Management.........................(3)
Avit 407 ...........................................General Aviation Operations and Management...........(3)
Avit 408 ...........................................Flight Engineer Certification ..........................(3)
Avit 409 ...........................................Advanced Aircraft Operations .........................(3)
Avit 411 ...........................................International and Long-Range Navigation .............(3)
Avit 414 ...........................................Certified Flight Instructor ............................(5)
Avit 415 ...........................................Instrument Flight Instructor ..............................(4)
Avit 416 ...........................................Multi-Engine Flight Instructor .........................(2)

OTHER REQUIREMENTS

Comm 320 ........................................Promotional Methods...........................................(3)
Metr 231 ........................................Aviation Meteorology............................................(3)

Area of Concentration/Minor Field** .................................................................(20-23)

*The area of concentration should be chosen in consultation with the student’s advisor, and must have the approved of the Aviation Department. In some fields, the area of concentration must be the minor as outlined in the catalog. Students must formally declare an area of concentrating or minor, and are encouraged to do so as early in the program as possible. Currently approved areas of concentration are as follows: Chemistry, Communication, Computer Science, Criminal Justice, Economics, Fisheries and Wildlife Biology, Foreign Language, Geography, Geology, Industrial Technology, International Studies, Mathematics, Meteorology, Photography, Physics, Political Science, Psychology, Real Estate, Remote Sensing, Sociology and Space Studies.

** Econ 105 may be taken in lieu of Econ 201 with consent of advisor.

AIR TRANSPORT EMPHASIS

GENERAL STUDIES CURRICULUM

Comm 161 ...........................................Fundamentals of Public Speaking.........................(3)
CS-Sci 110 ...........................................Computer programming I.....................................(3)
**Econ 201 ...........................................of Microeconomics...........................................
Engl 101 ...........................................Composition I.........................................................(3)
Engl 2W...........................................Technical and Business Writing ......................(3)

History Elective (see available courses, page 35). .........................................................(1-3)
Lang 101 ...........................................Foreign Language.....................................................(4)
Lang 102 ...........................................Foreign Language.....................................................(4)
Math 103 ...........................................College Algebra.....................................................(3)
Metr 15O...........................................Meteorology..........................................................(4)

Math, Science and Technology Elective ...........................................................................(2)

Arts & Humanities (other than history or language) .........................................................(6-3)
Social Science Electives ....................................................................................................(3)

One of the following:

Anth 171 ...........................................Cultural Anthropology.............................................(3)
Psy IOl ...........................................Introduction to Psychology..........................................(3)
Soc 101 ...........................................Introduction to Sociology...........................................(3)

AVIATION CORE

Avit 102 ...........................................Introduction to Aviation...........................................(5)
Avit 104 ...........................................Aviation History......................................................(3)
Avit 221 ...........................................Aerodynamics..........................................................(3)
Avit 222 ...........................................Aircraft Systems.....................................................(3)
Avit 250 ...........................................Human Factor..........................................................(2)
Avit 302 ...........................................Air Transportation.....................................................(3)
Avit 303 ...........................................Introduction to Air Traffic Control.........................(4)
Avit 308 ...........................................Aviation Safety.........................................................(3)
Avit 309 ...........................................Flight Physiology....................................................(3)
Avit 324 ...........................................Instrument Procedures I...........................................(3)
Avit 325 ...........................................Instrument Procedures II........................................(3)
Avit 327 ...........................................Gas Turbine Engines.............................................(4)
Avit 329 ...........................................Multi-Engine Orientation...........................................(2)
Avit 335 ...........................................Air Transport Regulations.................................(2)
Avit 336 ...........................................Global Navigation....................................................(2)
Avit 403 ...........................................Aerospace Law....................................................(3)
Avit 405 ...........................................Airline Operations and Management...................(3)
Avit 407 ...........................................General Aviation Operations and Management...........(3)
Avit 421 .................................................................Advanced Aerodynamics..............................................................(3)
Avit 428 .................................................................Transport Category Aircraft Systems..............................................(4)
Avit 429 .................................................................Turboop Prop Operations..............................................................(4)
Avit 430 .................................................................Cockpit Resource Management.........................................................(2)

OTHER REQUIREMENTS
Comm 320 .................................................................Emotional Methods.................................................................(3)
Metr 231 .................................................................Aviation Meteorology .......................................................(3)
Metr 301 .................................................................High Altitude Meteorology ......................................................(4)
Electives .........................................................................................................................................................(6)

It is recommended that any student majoring in Aeronautical Studies with the Air Transport emphasis also acquire a minor or area of concentration in Arts and Sciences or an area of concentration approved by the Aviation Department. A plan concerning this area of concentration should be developed early, at the time the student declares a major. It is each student’s responsibility to develop such a plan, in cooperation with the student’s advisor.

The number of students admitted is determined by the availability of faculty and physical facilities. Selection is made on the basis of academic record, medical certification and other information. *Econ 105 may be taken in lieu of Econ 201 with consent of advisor.

AIRWAY SCIENCE PROGRAMS
Center for Aerospace Sciences

B.S. IN AIRWAY SCIENCE: AIRWAY SCIENCE MANAGEMENT
Required: 125 hours, including:
   II. Center for Aerospace Sciences Requirements, page 74.
   III. The following curriculum:

AIRWAY SCIENCE CORE
Avit 102 .................................................................Introduction to Aviation..............................................................(5)
Avit 303 .................................................................Introduction to Air Traffic Control.................................................(4)
Avit 308 .................................................................Aviation Safety ..................................................................(3)
Avit 403 .................................................................Aerospace Law ....................................................................(3)
Comm 161 .................................................................Fundamentals of Public Speaking ...........................................(3)
CSci Electives (approved by advisor, but must include CSci 110 or 160) .........................................................(9)
Econ 201 .................................................................Principles of Microeconomics ..................................................(3)
Econ 210 .................................................................Intro to Business and Economic Statistics ......................................(3)
Engl 101 .........................................................Composition I ..............................................................................(3)
Engl 209 .................................................................Technical and Business Writing ....................................................(3)
Lang 101 .................................................................Foreign Language .................................................................(4)

Humanities Electives (other than language or history) .................................................................................(5)

History Elective (see available courses, page 35) .................................................................................(3)

I T 300 .................................................................Technology, Society and the Individual ...........................................(2)
Math 103 .................................................................College Algebra .........................................................................(3)
Metr 150 .................................................................Meteorology ........................................................................(4)

Mgmt 300 .................................................................Principles of Management .........................................................(3)
Mgmt 302 .................................................................Human Resource Management .................................................(3)
Phys 101 .................................................................Introduction College Physics ......................................................(4)
Phys 102 .................................................................Introductory College Physics ....................................................(4)
PSci 101 .................................................................American Government I ..............................................................(3)
PSci 339 .................................................................Survey of Public Administration ....................................................(3)

AIRWAY SCIENCE MANAGEMENT REQUIREMENTS

Acct 295 .................................................................Survey of Accounting Principles .......................................................(3)
Avit 302 .................................................................Air Transportation ....................................................................(3)
Avit 402 .................................................................Airport Planning and Administration ....................................................(3)
Avit 405 .................................................................Airline Operations and Management ....................................................(3)

OR
Avit 407 .................................................................General Aviation Operations and Management .........................(3)
B.S. IN AIRWAY SCIENCE: AIRWAY COMPUTER SCIENCE

Required: 125 hours, including:
1. General Graduation Requirements, see pages 32-40.
2. U. Center for Aerospace Sciences Requirements. see page 74.
3. The following curriculum:

**AIRWAY SCIENCE CORE**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comm 100</td>
<td>Intro to Communication</td>
<td>(2)</td>
</tr>
<tr>
<td>Comm 361</td>
<td>Persuasion</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 210</td>
<td>Interpersonal Communication</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 301</td>
<td>Psychology of Communication</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 104</td>
<td>Finite Mathematics</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 204</td>
<td>Survey of Calculus</td>
<td></td>
</tr>
<tr>
<td>Mgmt 309</td>
<td>Quantitative Approach to Management Decision Making</td>
<td>(3)</td>
</tr>
<tr>
<td>Pscci 437</td>
<td>Administrative Processes</td>
<td>(3)</td>
</tr>
<tr>
<td>Psy 360</td>
<td>Introduction to Personality</td>
<td>(3)</td>
</tr>
<tr>
<td>Soc 101</td>
<td>Introduction to Sociology</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Approved Aviation Electives (300 or 400 level), see note above, require advisor approval.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avit 102</td>
<td>Introduction to Aviation</td>
<td>(5)</td>
</tr>
<tr>
<td>Avit 303</td>
<td>Introduction to Air Traffic Control</td>
<td>(4)</td>
</tr>
<tr>
<td>Avit 308</td>
<td>Aviation Safety</td>
<td>(3)</td>
</tr>
<tr>
<td>Avit 403</td>
<td>Aerospace Law</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
<td>(3)</td>
</tr>
<tr>
<td>CSci 160</td>
<td>Computer Programming I</td>
<td>(4)</td>
</tr>
<tr>
<td>CSci Electives</td>
<td>approved by advisor—see note above</td>
<td></td>
</tr>
<tr>
<td>Econ 201</td>
<td>Principles of Microeconomics</td>
<td>(3)</td>
</tr>
<tr>
<td>Econ 210</td>
<td>Intro to Business and Economic Statistics</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 101</td>
<td>Composition I</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 209</td>
<td>Technical and Business Writing</td>
<td>(3)</td>
</tr>
<tr>
<td>Lang 101</td>
<td>Foreign Language</td>
<td>(4)</td>
</tr>
<tr>
<td>History Elective</td>
<td>(see available courses, page 35)</td>
<td></td>
</tr>
<tr>
<td>Humanities Electives</td>
<td>(other than language or history)</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 300</td>
<td>Technology, Society and the Individual</td>
<td>(2)</td>
</tr>
<tr>
<td>Math 103</td>
<td>College Algebra</td>
<td>(3)</td>
</tr>
<tr>
<td>Metr 150</td>
<td>Meteorology</td>
<td>(4)</td>
</tr>
<tr>
<td>Mgmt 300</td>
<td>Principles of Management</td>
<td>(3)</td>
</tr>
<tr>
<td>Mgmt 302</td>
<td>Human Resource Management</td>
<td>(3)</td>
</tr>
<tr>
<td>Phys 101</td>
<td>Introductory College Physics</td>
<td>(4)</td>
</tr>
<tr>
<td>Phys 102</td>
<td>Introductory College Physics</td>
<td>(4)</td>
</tr>
<tr>
<td>PSci 101</td>
<td>American Government I</td>
<td>(3)</td>
</tr>
<tr>
<td>PSci 339</td>
<td>Survey of Public Administration</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**AIRWAY COMPUTER SCIENCE REQUIREMENTS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSci 260</td>
<td>Programming Languages</td>
<td>(3)</td>
</tr>
<tr>
<td>CSci 223</td>
<td>Computer Organization and Programming</td>
<td>(4)</td>
</tr>
<tr>
<td>CSci 242</td>
<td>Data Structures</td>
<td>(3)</td>
</tr>
<tr>
<td>CSci 351</td>
<td>Introduction to File Processing</td>
<td>(3)</td>
</tr>
<tr>
<td>CSci 365</td>
<td>Organization of Programming Languages</td>
<td>(3)</td>
</tr>
<tr>
<td>CSci 411</td>
<td>Information Systems</td>
<td>(3)</td>
</tr>
<tr>
<td>CSci 445</td>
<td>Math Modeling and Simulation</td>
<td>(3)</td>
</tr>
<tr>
<td>CSci 451</td>
<td>Operating Systems I</td>
<td>(3)</td>
</tr>
<tr>
<td>EE 351</td>
<td>Computer Hardware Logic</td>
<td>(3)</td>
</tr>
</tbody>
</table>

OR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSci 322</td>
<td>Computer Architecture</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 105</td>
<td>Trigonometry</td>
<td>(2)</td>
</tr>
<tr>
<td>Math 208</td>
<td>Discrete Mathematics</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 211</td>
<td>Calculus</td>
<td>(4)</td>
</tr>
<tr>
<td>Math 212</td>
<td>Calculus II</td>
<td>(4)</td>
</tr>
</tbody>
</table>

Approved CSci Elective
B.S. IN AIRWAY SCIENCE: AIRCRAFT SYSTEMS MANAGEMENT

Required: 128 hours, including:


II. Center for Aerospace Sciences Requirements, page 74.

111. The following curriculum:

AIRWAY SCIENCE CORE

Avit 102 ........................................Introduction to Aviation .........................................................(5)
Avit 303 ........................................Introduction to Air Traffic Control ........................................(4)
Avit 308 ........................................Aviation Safety .................................................................(3)
Avit 403 ........................................Aerospace Law ...............................................................(3)
CSci Electives (approved by advisor, but must include CSci 110 or 160), ..............................................(9)
Econ 201 ........................................Principles of Microeconomics ........................................(3)
Econ 210 ........................................Intro to Business and Economic Statistics ....................(3)
Engl 101 ........................................Composition I .................................................................(3)
Engl 209 ........................................Technical and Business Writing .....................................(3)
Lang 101 ........................................Foreign Language ............................................................(4)
History Elective (see available courses, page 35) ................................................................................(3)
Humanities Electives (other than language or history).........................................................................(5)
IT 300 ........................................Technology, Society and the Individual ....................................(2)
Math 103 ........................................College Algebra .................................................................(3)
Mgmt 300 ........................................Principles of Management ...............................................(3)
Mgmt 302 ........................................Human Resources Management .....................................(3)
Phys 101 ........................................Introductory College Physics .............................................(4)
Phys 102 ........................................Introductory College Physics .............................................(4)
PSci 101 ...........................................American Government I .................................................(3)
PSci 339 ...........................................Survey of Public Administration .....................................(3)

AIRCRAFT SYSTEMS MANAGEMENT REQUIREMENTS

Avit 251 ........................................Aircraft Systems and Instruments ...........................................(2)
Avit 252 ........................................Basic Attitude Instrument Flying .........................................(2)
Avit 353 ........................................Air Transportation ...............................................................(3)
Avit 354 ........................................IFR Regulations and Procedures .........................................(2)
Avit 355 ........................................Multi-engine Systems and Procedures ...............................(2)
Avit 405 ........................................Airline Operations and Management ..................................(3)
Avit 407 ........................................General Aviation Operations and Management .................(3)
Avit 408 ........................................Flight Engineer Certification ..............................................(3)
Avit 409 ........................................Advanced Aircraft Operations .............................................(3)
Avit 411 ........................................International Long-Range Navigation ...............................(3)
Avit 414 ........................................Certified Flight Instructor ...............................................(5)
Avit 415 ........................................Instrument Flight Instructor ..............................................(4)
Avit 416 ........................................Multi-Engine Flight Instructor ...........................................(2)
Math 104 ........................................Finite Mathematics ............................................................(3)
Math 204 ........................................Survey of Calculus ..........................................................(3)
Metr 231 ........................................Aviation Meteorology .....................................................(3)

B.S. IN AIRWAY SCIENCE: AIR TRAFFIC CONTROL OPERATIONS

Students interested in pursuing this degree must make formal application to the Director of Air Traffic Control Operations. Pre-requisites to this program are Avit 102, Introduction to Aviation, and Avit 303, Introduction to Air Traffic Control, or their equivalents.

Required: 125 hours, including:


II. Center for Aerospace Sciences Requirements, page 74.

III. The following curriculum:

AIRWAY SCIENCE CORE

Avit 102 ........................................Introduction to Aviation .........................................................(5)
Avit 303 ........................................Introduction to Air Traffic Control ........................................(4)
Avit 308 ........................................Aviation Safety .................................................................(3)
AIR TRAFFIC CONTROL OPERATIONS REQUIREMENTS

Avit 250 ............................................Human Factors .................................................(2)
Avit 306 ............................................ATC Radar Operations I .................................................(4)
Avit 310 ............................................ATC Tower Operations .................................................(2)
Avit 401 ............................................Advanced ATC Radar Operations II .........................(4)
Avit 402 ............................................Airport Planning and Administration .........................(3)
Avit 404 ............................................Advanced ATC Nonradar I .........................................(4)
Avit 406 ............................................Advanced ATC Nonradar 11 ...........................................(4)
Avit 412 ............................................Advanced ATC Radar/Nonradar 111 ..............................(4)
Comm 210 ........................................Intro to Business and Economic Statistics .........................(3)
Math 104 ............................................Finite Mathematics .........................................................(3)
Math 204 ............................................Survey of Calculus .........................................................(3)
Mgmt 310 ........................................Organizational Behavior ......................................................(3)
Pty 360 ............................................Introduction to Personality ......................................................(3)
PSci 437 ............................................Administrative Processes ......................................................(3)

B.S. IN AIRWAY SCIENCE: ELECTRONIC SYSTEMS

Required: 126 hours, including:

**P** General Graduation Requirements, pages 32-40.
II, Center for Aerospace Sciences Requirements, page 74.
111. The following curriculum:

AIRWAY SCIENCE CORE

Avit 102 ............................................Introduction to Aviation ......................................................(5)
Avit 303 ............................................Introduction to Air Traffic Control .................................(4)
Avit 308 ............................................Aviation Safety ..............................................................(3)
Avit 403 ............................................Aerospace Law .............................................................(3)
Comm 161 ........................................Fundamentals of Public Speaking .................................(3)
CSci Electives (approved by advisor, but must include CSci 110 or 115) .................................(9)
Econ 201 ............................................Principles of Microeconomics ........................................(3)
Econ 210 ............................................Intro to Business and Economic Statistics .........................(3)
Engl 101 ............................................Composition I ...............................................................(3)
Engl 209 ............................................Technical and Business Writing ........................................(3)
Lang 101 ............................................Foreign Language .............................................................(4)
History Elective (see available courses, page 35) .................................................................(3)
Humanities Electives (other than language or history) .........................................................(5)
IT 300 ............................................Technology, Society and the Individual .................................(2)
Math 103 ............................................College Algebra ..............................................................(3)
Met 150 ............................................Meteorology .................................................................(3)
Mgmt 300 ........................................Principles of Management ..................................................(3)
Mgmt 302 ........................................Human Resources Management ........................................(3)
Phys 101 ............................................Introductory College Physics ...........................................(4)
Phys 102 ............................................Introductory College Physics ...........................................(4)
PSci 101 ............................................American Government I .................................................(3)
PSci 339 ............................................Survey of Public Administration .........................................(3)
### B.S. IN AIRWAY SCIENCE: ELECTRONIC SYSTEMS (transfer program)

**Required:** 132 hours, including:

I. Graduation from an electronics, avionics or related program at an institution with which the University of North Dakota, Center for Aerospace Sciences, and Department of Aviation has an Articulation Agreement, AND

II. Completion of the following coursework at UND, or an accredited comprehensive four-year college, or community college, or as part of an associates degree:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101</td>
<td>Composition I</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 209</td>
<td>Technical and Business Writing</td>
<td>(3)</td>
</tr>
<tr>
<td>Econ 201</td>
<td>Principles of Macroeconomics</td>
<td>(3)</td>
</tr>
<tr>
<td>CSci 322</td>
<td>Computer Architecture</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 201</td>
<td>Intro to Business and Economic Statistics</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 103</td>
<td>College Algebra</td>
<td>(3)</td>
</tr>
<tr>
<td>Math Elective</td>
<td>Fundamentals of Public Speaking</td>
<td>(3)</td>
</tr>
<tr>
<td>History Elective (U.S. History)</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>PSci 101</td>
<td>American Government I</td>
<td>(3)</td>
</tr>
<tr>
<td>PSci 339</td>
<td>Survey of Public Administration</td>
<td>(3)</td>
</tr>
<tr>
<td>Avit 301</td>
<td>Avionics for Aviators*</td>
<td>(3)</td>
</tr>
<tr>
<td>Avit 302</td>
<td>Air Traffic Control</td>
<td>(3)</td>
</tr>
<tr>
<td>Avit 303</td>
<td>Introduction to Air Traffic Control</td>
<td>(4)</td>
</tr>
<tr>
<td>Avit 308</td>
<td>Aviation Safety</td>
<td>(3)</td>
</tr>
<tr>
<td>Avit 403</td>
<td>Aerospace Law</td>
<td>(3)</td>
</tr>
<tr>
<td>CSci Electives (approved by advisor, but must include CSci 160 or 110)</td>
<td>(9)</td>
<td></td>
</tr>
<tr>
<td>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
<td>(3)</td>
</tr>
<tr>
<td>Metr 150</td>
<td>Meteorology</td>
<td>(4)</td>
</tr>
<tr>
<td>IT 300</td>
<td>Technology, Society and the Individual</td>
<td>(2)</td>
</tr>
<tr>
<td>Mgmt 300</td>
<td>Principles of Management</td>
<td>(3)</td>
</tr>
<tr>
<td>Mgmt 302</td>
<td>Human Resource Management</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 104</td>
<td>Finite Mathematics</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 294</td>
<td>Survey of Calculus</td>
<td>(3)</td>
</tr>
<tr>
<td>Phys 101</td>
<td>Introductory College Physics</td>
<td>(4)</td>
</tr>
<tr>
<td>Phys 102</td>
<td>Introductory College Physics</td>
<td>(4)</td>
</tr>
<tr>
<td>PSci 339</td>
<td>Survey of Public Administration</td>
<td>(3)</td>
</tr>
<tr>
<td>Arts and Humanities (300 or 400 level)</td>
<td></td>
<td>(9)</td>
</tr>
</tbody>
</table>

Graduates of an Avionics program should substitute Avit 411 in place of Avit 301.

**Transfer credit will also be granted for completion of any of the requirements of II above.**

**111.** Plus the following coursework (required of all students):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avit 102</td>
<td>Introduction to Aviation</td>
<td>(5)</td>
</tr>
<tr>
<td>Avit 301</td>
<td>Avionics for Aviators</td>
<td>(3)</td>
</tr>
<tr>
<td>Avit 302</td>
<td>Air Traffic Control</td>
<td>(3)</td>
</tr>
<tr>
<td>Avit 303</td>
<td>Introduction to Air Traffic Control</td>
<td>(4)</td>
</tr>
<tr>
<td>Avit 308</td>
<td>Aviation Safety</td>
<td>(3)</td>
</tr>
<tr>
<td>Avit 403</td>
<td>Aerospace Law</td>
<td>(3)</td>
</tr>
<tr>
<td>CSci Electives (approved by advisor, but must include CSci 160 or 110)</td>
<td>(9)</td>
<td></td>
</tr>
<tr>
<td>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
<td>(3)</td>
</tr>
<tr>
<td>Meteorology</td>
<td></td>
<td>(4)</td>
</tr>
<tr>
<td>Technology</td>
<td>Society and the Individual</td>
<td>(2)</td>
</tr>
<tr>
<td>Principles</td>
<td>of Management</td>
<td>(3)</td>
</tr>
<tr>
<td>Human Resource Management</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Finite Mathematics</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Survey of Calculus</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Introductory College Physics</td>
<td></td>
<td>(4)</td>
</tr>
<tr>
<td>Introductory College Physics</td>
<td></td>
<td>(4)</td>
</tr>
<tr>
<td>Survey of Public Administration</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Arts and Humanities (300 or 400 level)</td>
<td></td>
<td>(9)</td>
</tr>
</tbody>
</table>

*Must be in the English Department and at least one other department other than History. If only 2 credits of History are transferred under II above, ten credits of Arts and Humanities are required.
B.S. IN AIRWAY SCIENCE: AVIATION MAINTENANCE MANAGEMENT

(transfer program)

Required: 132 hours, including:

1. Graduation from an Aviation Maintenance Technology or related program at an institution with which the University of North Dakota, Center for Aerospace Sciences, and Department of Aviation has an Articulation Agreement, AND

2. Completion of the following coursework at UND or an accredited comprehensive four-year college, community college, or as part of an associates degree:

   Engl 101 ........................................ Composition I .................................................................(3)
   Engl 209 .......................................... Technical and Business Writing ..................................(3)
   Econ 201 ......................................... Principles of Macroeconomics ...................................... (3)
   Econ 210 ......................................... Intro to Business and Economic Statistics ....................... (3)
   Math 103 ........................................ College Algebra ............................................................... (3)
   PSci 101 ......................................... American Government I .................................................... (3)
   History Elective (U.S. History) ..........................................................(3)

Upon the student’s acceptance into the program by the Aviation Department 40 semester credits will be applied toward the completion of this degree at UND. These 40 credits can only be applied to this degree program at UND. If the student changes majors or leaves UND without completing this degree, the registrar will delete these 40 credits from the student’s transcript.

Transfer credits will also be granted for completion of any of the requirements of 11 above.

111. Plus the following coursework (required of all students):

   Avit 102 ........................................ Introduction to Aviation ......................................................... (5)
   Avit 301 ........................................... Avionics for Aviators ......................................................... (3)
   Avit 302 ........................................... Air Transportation ......................................................... (3)
   Avit 303 ........................................... Introduction to Air Traffic Control ................................. (4)
   Avit 308 ........................................... Aviation Safety ............................................................... (3)
   Avit 403 ........................................... Aerospace Law ........................................................... (3)
   CSci Electives (approved by advisor, but must include CSci 160 or 110).................................(9)
   Comm 161 ....................................... Fundamentals of Public Speaking ............................... (3)
   IT 300 ............................................ Technology, Society and the Individual ..................... (2)
   Mgmt 300 ....................................... Principles of Management ............................................. (3)
   Mgmt 302 ....................................... Human Resource Management ................................. (3)
   Math 104 ....................................... Finite Mathematics ......................................................... (3)
   Math 204 ....................................... Survey of Calculus ............................................................ (3)
   Metr 150 ........................................... Meteorology ............................................................... (4)
   "Phys 102 ....................................... Introductory College Physics ........................................ (4)
   PSci 339 ....................................... Survey of Public Administration .................................. (3)
   Arts and Humanities (300 or 400 level)* ..................................................................................(9)

   *Arts and Humanities must be in English and at least one other department other than History. If only 2 hours of History are transferred under H above, ten hours of Arts and Humanities are required.

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: 24 hours, including:

Avit 102 ........................................... Introduction to Aviation ......................................................... (5)
Avit 251 ........................................... Aircraft Systems and Instruments ................................. (2)
Avit 252 ........................................... Basic Attitude Instrument Flying ................................. (2)
Avit 308 ........................................... Aviation Safety ............................................................... (3)
Avit 353 ........................................... Aerodynamics, Airplanes ........................................... (2)
Avit 354 ........................................... IFR Regulations and Procedures ................................ (2)
Avit 355 ........................................... Multi-Engine Systems and Procedures ........................... (2)
Metr 150 ........................................... Meteorology ............................................................... (4)
Metr 231 ........................................... Aviation Meteorology .................................................... (3)
MINOR IN AVIATION ADMINISTRATION

Required: 27 hours, including:

Avit 102  Introduction to Aviation  (5)
Avit 104  Aviation History  (3)
Avit 302  Air Transportation  (3)
Avit 308  Aviation Safety  (3)
Avit 402  Airport Planning and Administration  (3)
Avit 403  Aerospace Law  (3)
Avit 405  Airline operations and Management  (3)

OR

Avit 407  General Aviation Operations and Management  (3)
Metr 150  Meteorology  (3)

COURSES

All Avit 300 level courses are restricted to sophomore status. All 400 level courses are restricted to junior status.

100. Aviation Orientation. 1 credit. This course is suggested for all aviation majors. Its purpose is to prepare new students for their university career by discussing students’ responsibilities and options, common pitfalls, study procedures, time management, and other tools used by the professional student. Academic and airport requirements and procedures will be covered. F

101. Elements of Aerospace. 3 credits. An introductory course specifically designed for non-aviation majors who wish to obtain a broad understanding of the aerospace world including aviation and space exploration. Includes a study of aerospace history, aerospace environment, principles of aircraft, flight and navigation, the science of rocketry, and space flight, and the social, economic and political impact of aerospace on modern civilization. F, S

102. Introduction to Aviation. 5 credits Co-requisite: Meteorology 150. The course serves as a preparation for the FAA Private Pilot written examination which will be taken upon successful completion of Ore semester. Course content includes instructing in FAA regulations, weather, air and radio navigation, flight safety, and emergency procedures. The student must complete the appropriate flight lessons or the private pilot test course to satisfactorily complete the course. F, S, SS

104. Aviation History. 3 credits. Topics covered include history of the beginning of manned flight, history of military and civil aviation, watercraft, helicopters and commercial flight. This course will utilize expertise from many of the CAS faculty and sources. F, S

142. Introduction to Aviation-Helicopter. 5 credits. Co-requisite: Meteorology 150. The course serves as a preparation for the FAA Private Pilot Helicopter written examination which will be taken upon successful completion of the semester. Course content includes instruction in FAA regulations, weather, air and radio navigation, flight safety, helicopter aerodynamics, and emergency procedures. The student must complete the appropriate flight lessons in the Private Pilot Helicopter course to satisfactorily complete the course F, SS

193. Glider Certification. 1 credit. Prerequisite: Avit 102.

221. Aerodynamics. 3 credits. Prerequisites: Avit 102, Math 103 equivalency or consent of the instructor. This course will provide a study of the physical laws and their applications in aerodynamics, performance, loads, stability and control. A foundation will be laid for further study of advanced aerodynamics. The student must complete all associated flight lessons to satisfactorily complete this course. Air Transport Emphasis students only. F, S, SS

222. Aircraft Systems. 3 credits. Corequisite: Avit 221 or consent of the instructor. This course provides a study of the physical laws and their applications in aircraft systems. The course will study aircraft structures, flight controls, reciprocating engines, propellers, fuel and oil systems, electrical, hydraulic, pressurization and turbocharging systems. A foundation will be laid for further study of advanced aircraft systems. Air Transport Emphasis students only. F, S, SS

241. Aerodynamics and Performance-Helicopter. 2 credits. prerequisite: Avit 142. This course will provide study of helicopter aerodynamics, performance, stability, control, weight and balance and special flight conditions. The student must complete Ore appropriate flight lessons in the Commercial Pilot Helicopter Course to satisfactorily complete the course. S

242. Aircraft Systems-Helicopter. 2 credits. Pre- or corequisite: Avit 241. Provides a study of turbine powered helicopters. Theory and application of turbine engines. 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 F, S

250. Human Factors. 2 credits. This course introduces the student to the relationship between person and machine and develops an understanding of the need to optimize design to allow for better person-machine interaction in aviation. It also introduces the student to the psychological and physiological limitations of humans in complex operating environments. Air Transport Emphasis students only. F, S, SS
251. Aircraft Systems and Instruments. 2 credits. Prerequisite: Avit 102; corequisites: Metr 231 and Avit 252. This course provides an in-depth study of flight instruments. Reciprocating engine, propeller, electrical, environmental, hydraulic, pneumatic, fuel, ignition, lubrication, and pressurization systems will be studied as well. The student must complete the appropriate flight lessons to satisfactorily complete the course. F, S, SS

252. Basic Attitude Instrument Flying. 2 credits. Prerequisite: Avit 102; corequisites: Metr 231 and Avit 251. This course will include an in-depth study of basic attitude instrument flying. In addition, the operation, interpretation and practical use of VOR, ADF, DME, RNAV, RM1, HSI, and Flight Director systems will be studied. Finally the course will include the different types of instrument charts required for IFR flight. The student must complete the appropriate flight lessons to satisfactorily complete the course. F, S, SS

301. Avionics for Aviators. 3 credits. Prerequisite: Avit 102. Theory of operation of various common types of avionics equipment. The course starts with a review of basic electricity, then applies this basic theory to aircraft electrical systems. The course includes basic radio wave propagation, antenna/theory, transmitter/receiver theory, and theory and limitations of the basic navigation and air traffic control systems. A term paper is required. Students are encouraged to learn Morse Code for extra credit. S/2

302. Air Transportation. 3 credits. Prerequisite: Avit 102 or consent of the instructor. Provides a broad understanding of all aspects of the air transportation industry. The scope of course material includes knowledge of state and federal regulations and the basis for their establishment. Requirements of the past, present and future with respect to aircraft and engine design, airports and supporting facilities are reviewed and evaluated. Students are introduced to the practical economics of airline operations and maintenance and the factors which affect a profit or loss situation. F, S

303. Introduction to Air Traffic Control. 4 credits. Prerequisites: Avit 102 or consent of the instructor. This course provides a general orientation to the air traffic control system and career field to both Airway Science and all other aviation degree students. Major elements include the history and development of ATC personnel and technology, the physiological and psychological requirements of an ATC career, the components and functions of the National Airspace System, the structure and functions of both Terminal and En Route ATC facilities and the impact of major technological changes anticipated in the future. F, S, SS

306. Air Traffic Control - Radar Operations I. 4 credits. Prerequisite: Avit 303. Corequisite: Avit 310. Provides students an orientation to fundamental ATC radar operations and procedures. Students learn basic radar concepts, theories, airspace orientation, flight progress strip marking, phraseology, communications and Terminal ATC radar separation standards and procedures. Student evaluations are based on demonstrated application of acquired controller skills utilizing ATC simulation. Exercises progress in difficulty. To complete this class, students must successfully complete a Terminal Approach Control radar exercise without assistance. F, S

308. Aviation Safety. 3 credits. Prerequisite: Avit 102. This course provides the student with a detailed introduction to aspects of aviation safety and the associated components of pilot psychology, human factors, and aircraft technology, weather related accidents and accident investigation. F, S

309. Flight Physiology. 3 credits. This course will provide an in-depth study of aeromedical factors for pilots. The causes, symptoms, prevention, and treatment of flight environment disorders, altitude effects, spatial disorientation, visual illusions, body heat imbalance, and psychological factors are included as they relate to pilot performance and survival. F, S, SS

310. Air Traffic Control - Tower Operations. 2 credits. Prerequisite: Avit 303. Corequisite: Avit 306. Provides students with Control Tower operations procedural knowledge. This course covers basic and advanced Tower operations and structure. Students learn about control positions, standard and enhanced equipment located in a Tower and basic separation requirements. Tower interaction with other ATC and non-ATC agencies is also part of this course. Visits to local FAA and US military Control Tower facilities provides first-hand experience. To complete this course, students must demonstrate their basic knowledge of Control Tower operations through written examinations. F, S

322. Rotorcraft Turbine Transition. 2 credits. Prerequisite: Avit 383. This course treats the subjects of turbo-shaft engine principles and theory, power, thrust, operational procedures, and engine-related systems, and provides the student with an in-depth look at all systems common to the light turbine helicopter. F

324. Instrument Procedures I. 3 credits. Prerequisite: Avit 222 or consent of the instructor. This course will provide an in-depth study of the operation, interpretation and use of the flight instruments for instrument flight. In addition, the study of basic radio principles, the operation interpretation and use of VOR, ADF, ILS, MLS, RADAR, HSI, RM1, and Integrated Flight Systems will be included. The student must complete all associated flight lessons to satisfactorily complete the course. Air Transport Emphasis students only. F, S

325. Instrument Procedures II. 3 credits. Prerequisite: Avit 324 or consent of the instructor. This course will provide the student with a detailed study of the regulations, ATC procedures, charts, publications, and procedures of the IFR environment. In addition, the student will develop the knowledge and skills required to plan and fly safe and efficient operations in the departure, enroute and terminal phases of instrument flight with an emphasis on crew coordination. The student must complete all associated flight lessons to satisfactorily complete the course. Air Transport Emphasis students only. F, S, SS
327. Gas Turbine Engines. 4 credits. Prerequisite: Avit 324. Co-requisite: Avit 325, or consent of the instructor. 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. Air Transport Emphasis students only. F, S, SS

329. Multi-engine Orientation. 2 credits. Prerequisite: Avit 327 or consent of the instructor. This course will provide the knowledge and skill needed to safely and efficiently pilot multi-engine aircraft. This will include the regulations and terminology pertinent to multi-engine aircraft, multi-engine aircraft systems, multi-engine aerodynamics, weight and balance, multi-engine performance, normal operating procedures and multi-engine emergencies, including single engine operations. The student must complete all associated flight lessons to satisfactorily complete the course. Air Transport Emphasis students only. F, S, SS

335. Air Transport Regulations. 2 credits. Prerequisite: Avit 325. Co-requisite Avit 329 or consent of the instructor. This course provides an in-depth study of the regulations governing scheduled air carriers. The study of Federal Aviation regulations part 135 and part 121 will be included, as well as the international regulations as established by the International Civil Aviation Organization. Air Transport Emphasis students only.

336. Global Navigation. 2 credits. Prerequisite: Avit 324 or consent of the instructor. Co-requisite: Avit 327 or consent of the instructor. This course provides the student with a systematic analysis of the operation and limitations of advanced long range electronic navigational aids. The student will be exposed to VLF/Omega, INS Global Positioning and Flight Management Systems. Long range course flight planning techniques will be included. Air Transport Emphasis students only. F, S, SS

337. Cooperative Education. 1-8 credits. May be repeated to a maximum of 24 credits. Co-op credits may not be substituted for any other required courses in curriculum. Pre-requisite: acceptance into a co-op position with cooperating industry and approval by Aviation Department. S-U grading only.

344. Basic Attitude Instruments and Navigation-Helicopter, 2 credits. Pre- or co-requisite: Avit 381. This course will include an in-depth study of flight instruments for instrument flight in helicopters. In addition, the operation, interpretation and practical use of VOR, ADF, DME, RNAV, and RMI will be studied. The student must complete the appropriate flight lessons in the Instrument Helicopter course to satisfactorily complete the course F

345. Instrument Flight Procedures-Helicopter, 2 credits. Pre- or co-requisite: Avit 344. This course will provide the student with a detailed study of ATC procedures, ATC system charts, publication and rules of the IFR environment as they relate to helicopter operations. The student must complete the appropriate flight lessons to satisfactorily complete the course. F

353. Aerodynamics-Airplanes 2 credits. Prerequisite: Avit 251, 252 and Math 103 or equivalent. Corequisite: Avit 354. This course will provide a study of aerodynamics, performance, stability, control, weight and balance, and special flight conditions as appropriate for commercial pilots. A discussion of commercial maneuvers and flight computers is included. The student must complete the appropriate flight lessons to satisfactorily complete the course. F, S, SS

354. IFR Regulations and Procedures. 2 credits. Prerequisite: Avit 251 and 252. Corequisite: Avit 353. This course will provide the student with a detailed study of the regulations, procedures, and publications necessary for 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. F, S, SS

355. Multi-Engine Systems and Procedures. 2 credits. Prerequisites: Avit 353 and 354. This course covers the operations necessary to operate light twin-engine aircraft. Normal and abnormal procedures are included along with a discussion of the systems and aerodynamics normally associated with these aircraft. Regulations for commercial pilots are included. A student must complete the appropriate flight lessons to satisfactorily complete the course. F, S, SS

370. Special Aerospace Topics. 1-4 credits. prerequisite: instructor’s consent. Topics for this course will be selected on the basis of currency and relevancy to student needs and interests. F, S

380. Aviation Internship. 2-4 credits. Prerequisites: will vary depending on the area of the internship. Aviation internships 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. F, S, SS

381. Professional Pilot Lab-Helicopter. 1 credit. Pre- or corequisite: Avit 242. This course will be taken to complete the Commercial Pilot Helicopter Rating. The student must complete the appropriate flight lessons to satisfactorily complete the course. S-U grading only. F, S, SS

383. Rotorcraft Certificating, 3 credits. Prerequisite: Avit 202. Provides the necessary dual and solo flight instruction leading to a Rotorcraft Helicopter Rating. The course includes ground instruction in helicopter aerodynamics, flight attitudes, control systems, auto rotations, vertical flight and off-airport operations. F, S, SS

385. Seaplane Certification. 1 credit. Prerequisite: Avit 281, 354 or consent of instructor. The seaplane certification course includes all the necessary flight instruction for the student to acquire the skill,
knowledge, and experience for obtaining a seaplane rating on his/her commercial pilot’s certificate. The course will include, but not be limited to, full flap and no flap wing takeoffs, porpoising and skipping, water emergency takeoffs and landings, taxing, sailing and docking, glassy water operations, cross-wind and downwind takeoffs and Bandings, and the general care and operation of a seaplane. S-U grading only. F, S, SS

396. Conventional Aircraft Operations. 1 credit Prerequisite: Avit 102. Provides the necessary ground school and dual flight instruction for endorsement for operation of tailwheel-type airplanes. Allows the student to acquire the knowledge and skills necessary for operation of the tailwheel aircraft on the ground and in flight. S-U grading only. F, S, SS

399. Introduction to Acrobatic Flight. 1 credit. Prerequisite: Avit 102. To introduce, analyze and fly some of the more advanced flight maneuvers defined as acrobatics. Twelve basic aerobatic maneuvers will be flown during the course including rolls, spins, inverted flight and variations/combinations. S-U grading only. F, S, SS

401. Advanced Air Traffic Control - Radar Operations II. 4 credits. Prerequisite: Avit 306. This course provides students with advanced radar training, separation requirements, procedures and knowledge of both Terminal and En Route radar operations. Student evaluations are based on demonstrated application of acquired controller skills utilizing ATC simulation. Exercises progress in difficulty. To complete this course, students must successfully complete an advanced radar simulation exercise without assistance. F, S

402. Airport Planning and Administration. 3 credits. This is the first of a two comice curriculum in airport administration. This initial course provides an introduction to the complex elements of airport planning and its importance to 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

403. Aerospace Law. 3 credits prerequisite: Avit 302. Designed to cover the scope of all regulations concerning aviation (traffic rules, agencies, operation, aircraft and people) in accordance with federal, state and local agencies. F, S

404. Advanced Air Traffic Control Technique - Nonradar I. 4 credits. Prerequisite: Avit 401. This course is designed to provide aviation students with fundamental nonradar air traffic control procedures inherent in Federal Aviation Administration terminal and en route facilities. This course will place the student in a “demand-response” simulated air traffic control environment to learn the procedures and then be evaluated. Emphasis will be placed on completing a series of exercise scenarios which require application of newly acquired knowledge. The class will prepare students for the highly competitive career of controlling air traffic. F, S

405. Airline Operations and Management. 3 credits. Prerequisite: Avit 302. Designed to cover in the complex area of operational techniques and problems confronting the airlines today. Officials from airlines will conduct discussions on the real and immediate problems in an airlines operation. Market research and passenger trends, feasibility route studies, criteria for transport aircraft. VTOL, SST impacts and air cargo operational programs will be stressed. F, S

406. Advanced Air Traffic Control - Nonradar Operation II. 4 credits. Prerequisite: Avit 404. This course is an advanced nonradar procedures course and is a follow-on to Avit 404. Advanced nonradar procedures, airspace and separation techniques are provided for students to incorporate into nonradar ATC simulation exercises. Emphasis is applied in developing spatial relationship skills -- crucial requirement for the ATC career. Students complete nonradar exercises which progress significantly in difficulty. To complete this course, students must successfully perform an advanced nonradar simulation exercise without assistance. F, S

407. General Aviation Operations and Management. 3 credits. Prerequisite: Avit 302. Aspects of the operation and management of corporate flight departments, fixed-base operations and air cargo operations will be discussed. Pertinent regulations including FAR parts 91, 135 and regulations pertaining to transport of hazardous materials are studied. Aircraft and equipment evaluation will be studied. F, S

408. Flight Engineer Certification. 3 credits. Prerequisite: Avit 391 or 354. Provides the classroom course of study utilizing the professional course material to prepare the student for the written examination of an unrestricted Flight Engineer Certificate. Course content includes an in-depth knowledge of all aircraft systems as experiences on a large jet transport. S

409. Advanced Aircraft Operations. 3 credits. Prerequisites: Avit 391.393, or 355. Topics of study include high speed and high altitude aerodynamics, meteorology, physiological aspects of high altitude flight, hazards associated with operations near high speed buffet boundaries, effects of turbulence on high speed aircraft, the effects of maneuvering load factors, along with the general study of the typical business jet systems management. F, S

410. Airline Transport Pilot Certification. 3 credits. Prerequisites: Avit 308, 393, or 355. Co-requisite: Avit 491. Provides a detailed and comprehensive background of aeronautical subjects needed to meet the knowledge requirements of the FAA airline transport pilot written examinations. The course includes advanced computer problems, transport-type airplane weight and balance computation, meteorology with emphasis on upper level phenomena, deceptions and interpretation, regulations applicable to airline operations and performance computations. F, S, SS

411. International and Long Range Navigation. 3 credits. Prerequisites: Avit 305 or 354, and Math 103 or 104. This course provides and understanding of global chatting systems, great circle route and waypoint
plotting. Problems and methods of international flight and modem systems of long range navigation are studied as well as methods and systems of computing, communicating and displaying navigation information. S

412. Advanced Air Traffic Control - Radar/Nonradar Operations HI. 4 credits. Prerequisite: Avit 406. This course is a very advanced radar and nonradar procedures course and is a follow-on to Avit 406. Comprehensive knowledge of all ATC procedures, airspace utility and separation standards is stressed with a focus on the En Route ATC environment. Students complete a series of increasingly difficult ATC simulation exercises. Advanced subject material includes: Flow Control concepts, advanced En Route separation techniques and unusual situations. Emphasis is applied towards developing advanced spatial relationship skills. To complete this course, students must successfully perform an advanced radar/nonradar simulation exercise without assistance. F, S

414. CFI Certification. 5 credits. Prerequisite: Avit 391 or 429. 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: fundamentals 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 CFI Certificate to satisfactorily complete the course. F, S

415. Instrument Flight Instructor. 4 credits. Prerequisite: Avit 414. Provides the student with an in-depth study of the responsibilities and techniques to be used as an Instrument Flight Instructor. Additional study of instrument flight, ATC system, charts, publications and rules of the IFR environment as they pertain to ICAO will be covered. The course will provide practical teaching experience. The student must complete their Instrument Rating for a Flight Instructor Certificate to satisfactorily complete the course. F, S, SS

416. Multi-engine Flight Instructor. 2 credits. Prerequisite: Avit 414 and 393, or 355. 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 cooperations and procedures, flight instructor responsibilities, flight safety concerns and instrument flight maneuvers in multi-engine airplanes. The student must obtain a Multi-engine Airplane Rating for the CFI Certification in order to satisfactorily complete the course. F, S, SS

421. Advanced Aerodynamics. 3 credits. Prerequisite: Avit 329 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. The student must complete all associated flight lessons to satisfactorily complete the course. Air Transport Emphasis students only. F, S, SS

428. Transport Category Aircraft Systems. 4 credits. Prerequisite: Avit 329 or consent of the instructor. Co-requisite: Avit 421 or consent of the instructor. This course will provide a study of the complex systems of today's air transport jet aircraft. It provides an initial orientation to heavy aircraft APV, tire, pneumatic, environmental, pressurization, fuel and electrical systems. Both normal and abnormal system operations will be studied. Air Transport Emphasis students only. F, S, SS

429. Turboprop Operations. 4 credits. Prerequisite: Avit 421 or consent of the instructor. This course will provide an introduction to the study of turboprop-aircraft systems. The specific application of turboprop engines previously covered in Avit 327, Gas Turbine Engines, will be made. The type of aircraft studied may vary from semester to semester. The student must complete all associated flight lessons to satisfactorily complete the course. Air Transport Emphasis students only. F, S, SS

430. Cockpit Resource Management. 2 credits. Prerequisite: Avit 329. Co-requisite: Avit 428 or consent of the instructor. This course will provide an in-depth study of Cockpit Resource Management which involves having a complete understanding of the flight deck environment and the proper utilization of all resources available to an aviator. This course gives the student a thorough indoctrination to CRM, including areas of leadership communications and management as they apply to the modem air transport pilot. Air Transport Emphasis students only. 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. F, S

444. CFI Certification - Helicopter. 5 credits. Pre- or co-requisite: Avit 345. Provides the student with a detailed study of the responsibilities and teaching concerns of a helicopter flight instructor. The course is divided into two major sections: fundamentals 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 flight maneuvers involved with helicopter Private and Commercial Ratings. The course will also provide practical teaching experiences. The student must complete the appropriate flight lessons in the CFI Flight Course to satisfactorily complete the course. F

445. Instrument Flight Instructor - Helicopter. 4 credits. Pre- or co-requisite: Avit 444. Provides the student with an in-depth study of the responsibilities and techniques to be used by a helicopter instrument flight instructor. Additional study of instrument flight operations, ATC system, chart, publications and rules of the IFR
environment as they pertain to helicopter operations will be covered. The course will provide practical teaching experience. The student must complete the appropriate flight lessons in the Instrument Flight instructor-Helicopter Course to satisfactorily complete the course. S

450. Flight Instructor Seminar. 1 credit. Corequisite: the student must be currently active as a flight instructor. This course provides the student with the opportunity to explore ideas and discuss techniques and concepts involved in teaching as a flight instructor. The student will also have the opportunity to identify, clarify and resolve personal and professional problems encountered during their teaching experiences. S-U grading only. F, S, SS

483. Rotorcraft Instrument Certification. 1 credit. Prerequisite: Avit 383. At the completion of this course, helicopter students will have completed all FAA requirements for a Rotorcraft Commercial Pilot’s Certificate with an instrument rating. S-U grading only. S

491. Airline Transport Pilot Certification Lab. 2 credits. Prerequisites: Avit 308 and 393, or 355. Corequisite: Avit 410. 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-Airliner Rating. Flight instruction in the course includes basic instrument flying, concentrated practice on instrument approach procedures, emergency procedures, and cross-country flying. F, S, SS

497. Readings in Aviation. 1-3 credits. Repeatable to 8 credits. The course is designed for seminar and project assignments. Both the seminar and project assignments are to be concerned with in-depth studies of aviation related to subjects including airport traffic count, student flight activities, airport management problems, and statistical reports. F, S, SS

Biochemistry and Molecular Biology
(BiCh)

R. Nordlie (Chair), Detke, Knull, Lambeth, Milavetz, Nielsen, Norris, Ray, Shabb and Sukalski

Courses

301. Biochemistry Lecture. 3 credits. Three lectures per week. Prerequisite: Organic Chemistry (Chemistry 212, or Chemistry 305, or Chemistry 351, or equivalent). Topics include enzymology: bioenergetics; metabolism and its regulation; nutrition: cell structure and function; synthesis, structure and function of macromolecules: gene expression.

303. Biochemistry Laboratory. 3 credits. Prerequisites: Quantitative Analysis (Chemistry 209) and Organic Chemistry (Chemistry 212, or Chemistry 305, or Chemistry 351, or equivalent). The laboratory (associated with Biochemist 301) consists primarily of chemical analysis of biological materials. Fundamental clinical laboratory procedures employing modern instrumentation are carried out.

Biological and Physical Sciences

Perry Cook, Adviser

Center for Teaching and Learning

B.S.E.D. WITH A MAJOR IN BIOLOGICAL AND PHYSICAL SCIENCES
(Combined major and minor)

Required 125 hours including:

I. General Graduation Requirements, see pages 32-40.
II. The Center for Teaching and Learning program in Secondary Education. See page 179.

III. The Following Curriculum:

65 major hours, including:

- Biol 101, 102 Introduction to Biology .........................................................(6)
- Biol 101L, 102L Introduction to Biology Labs ..............................................(2)

34 hours from:

- Biol 341 Cell Biology ........................................................................(3)
- Biol 343 Plant Physiology ........................................................................(4)
- Biol 42L Physiology of Organs and Systems ..............................................(4)
- Biol 357 Genetics ....................................................................................(3)

3-4 hours from:

- Biol 336 Systematic Botany .....................................................................(4)
- Biol 375 Vertebrate Natural History ..........................................................(3)
- Biol 377 Invertebrate Zoology .................................................................(4)
- Chem 105, 106 General Chemistry I and II and Qualitative Analysis ...........(8)
- Chem 208 Quantitative Analysis ..............................................................(4)
- Chem 212 Organic Chemistry ..................................................................(5)
- Phys 205, 206, 208 General Physics ............................................................(12)
- Phys 317 Mechanics ................................................................................(3)
- Phys 428 Modern Physics Laboratory .......................................................(2)
- Phys 490 Special Problems .......................................................................(2)

8 hours from:

- Geol 101, 101L Introduction to Geology .....................................................(4)
- Geol 102, 102L The Earth Through Time ....................................................(4)
- Geog 121 Physical Geography ....................................................................(4)
- Geog 134 Weather & Climate ....................................................................(4)
- Geog 423 Astronomy ................................................................................(3)

Required in other departments:

- CSci 101 Introduction to Computers ............................................................(2)
- CSci 111L Introduction to Computers Lab ....................................................(1)
- Math 211, 212 Calculus I and II .................................................................(8)
- Math 213 Calculus III ..............................................................................(4)

Biology
(Biol)

A. Fivizzani (Chair), Auerbach, Crawford, Denome, Galewsky, Gretz, Holloway, Hughes, Kelsch, LaDuke, Lang, Larson, D. Lieberman, M. Lieberman, Schlosser, Seabloom, Sheridan, Wrenn, and Zicus.

The Department of Biology offers concentrated study in Biology and in Fisheries and Wildlife Biology. The objective of these majors is to provide students with a broad knowledge of modern biology through training in each of the major areas of biological science: ecologic, genetic, molecular, morphologic and systematic biology. Specific department requirements for majors and minors are listed below.

FACILITIES

The Department of Biology is housed in Starcher Hall, completed in 1981. In addition to classrooms and specialized teaching laboratories, the building houses an herbarium, three greenhouses, environmental chambers, animal rooms for terrestrial and aquatic organisms, observation rooms, vertebrate and invertebrate museums, a darkroom, and isotope and tissue culture facilities. The Department also maintains two natural areas (virgin prairie and wooded stream valley) 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 assistantships financed by 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 hours including:

I. General Graduation Requirements, see pages 32-40.

II. One of the following four options:

Option A. General Emphasis

This program is a broad one providing a comprehensive background in biology. It is designed for those students who are undecided on a career specialization and want to be prepared for several possible specific areas.

40 major hours including:


Cell and Metabolic Biology (Minimum of 9 hour) .........................................................(9).

6-7 hours from:
Biol 341 .................Cell Biology .................................................................(3).
Biol 341L .................Cell Biology Lab. .........................................................(1).
Biol 347 .................Genetics .................................................................(3).

3-4 hours from:
Biol 343 ..................Plant Physiology ..............................................................(3).
Biol 343L ..................Plant Physiology Lab. .................................................(1).
Biol 367 ..................Cytology ...............................................................(3).
Biol 378 ..................Developmental Biology ..................................................(3).
Biol 441 ..................Physiology of Organs and Systems ................................(4).

Morphologic and Systematic Biology (Minimum of 8 hours) .......................................(8).

4 hours from:
Biol 361 ..................Plant Morphology .............................................................(4).

4-5 hours from:
Biol 375 ..................Invertebrate Zoology ...........................................................(4).
Biol 370 ..................Vertebrate Zoology .............................................................(3).
Biol 371 ..................Anatomy and Adaptation Lab. ..............................................(2).

Environmental and Population Biology (Minimum of 7 hours) ...................................(7).

4 hours from:
Biol 332 ..................Ecology .................................................................(3).
Biol 332L ..................Ecology Lab .................................................................(1).

3-4 hours from:
Biol 333 ..................Population Biology ..........................................................(3).
Biol 338L ..................Animal Behavior Lab ...................................................(2).
Biol 433 ..................Aquatic Ecology ..............................................................(3).
Biol 433L ..................Aquatic Ecology Lab. ...................................................(1).

Biology electives ...................................................(5).

Any 200, 300, or 400 level biology course not listed above or any of the above courses not used to meet area requirement may be taken as an elective. No more than one 200 level course maybe used toward the 40 hour major.
Option B. Pre-Health Sciences Emphasis

Students interested in medicine or in allied medical fields such as dentistry, veterinary medicine, medical laboratory research, etc., will find this emphasis appropriate.

**40** major hours, including:

- Biol 101, 102 Introduction to Biology ................................................................. (6)
- Biol 10 IL, 102L Introduction to Biology Lab ......................................................... (2)
- Biol 332 Ecology ................................................................................................... (3)
- Biol 357 Genetics .................................................................................................. (3)

3–4 hours from:

- Biol 341 Cell Biology ............................................................................................. (3)
- Biol 341L Cell Biology Lab ................................................................................... (1)
- Biol 378 Developmental Biology ........................................................................... (3)
- Biol 4L Physiology of Organs and Systems ......................................................... (4)

9–10 hours from:

- **Human Environment** ......................................................................................... (2)

Students interested in medicine or in allied medical fields such as dentistry, veterinary medicine, medical laboratory research, etc., will find this emphasis appropriate.

Any 200, 300, or 400 level biology course not listed above or any of the above courses not used to meet area requirement may be taken as an elective. No more than one 200 level course may be used toward the 40 hour major.

At least 4 upper division courses must be taken with laboratories.

Students in pre-professional health sciences curricula (e.g. medicine, dentistry, optometry) should also consult the specific requirements outlined elsewhere in this catalog.

Option C. Plant Science Emphasis

Students primarily interested in the study of plants should elect this emphasis. It provides the basic training leading to academic teaching and research and for non-academic positions in industry, agriculture, and government.

**40** major hours including:

- Biol 101, 102 Introduction to Biology ................................................................. (6)
- Biol 10 IL, 102L Introduction to Biology Lab ......................................................... (2)
- Biol 332 Ecology ................................................................................................... (3)
- Biol 333L Systematic Botany ................................................................................ (4)
- Biol 341 Cell Biology ............................................................................................. (3)
- Biol 341L Cell Biology Lab ................................................................................... (1)
- Biol 343 Plant Physiology ..................................................................................... (3)
- Biol 343L Plant Physiology Lab ............................................................................ (1)
- Biol 357 Genetics .................................................................................................. (3)

Minimum of 7 hours from:

- Biol 333 Population Biology ............................................................................... (3)
- Biol 360 Freshwater Algae .................................................................................. (4)
- Biol 361 Plant Morphology .................................................................................. (4)
- Biol 378 Developmental Biology ........................................................................... (3)
- Biol 4L Biometry ................................................................................................. (3)
Minimum of 1 hour of:
Directed Studies or Seminar in area of advanced Plant Sciences ...................................................... (1)
Biology electives ........................................................................................................................................ (5)

Any 200, 300, or 400 level biology course not listed above or any of the above courses not used to meet area
requirement may be taken as an elective. No more than one 200 level course may be used toward the 40 hour
major.

Option D. Zoology Emphasis

*Fire zoology emphasis* is designed for students preparing for work with animals in zoos and museums
and in industrial and agricultural laboratories, as well as for graduate studies leading to college teaching and
research in zoology.

40 major hours including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 101, 102</td>
<td>Introduction to Biology</td>
<td>6</td>
</tr>
<tr>
<td>Biol 10 IL, 102L</td>
<td>Introduction to Biology Lab</td>
<td>2</td>
</tr>
<tr>
<td>Biol 332</td>
<td>Ecology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 332L</td>
<td>Ecology Lab</td>
<td>1</td>
</tr>
<tr>
<td>Biol 338</td>
<td>Animal Behavior</td>
<td>2</td>
</tr>
<tr>
<td>Biol 338L</td>
<td>Animal Behavior Lab</td>
<td>2</td>
</tr>
<tr>
<td>Biol 341</td>
<td>Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 341L</td>
<td>Cell Biology Lab</td>
<td>1</td>
</tr>
<tr>
<td>Biol 357</td>
<td>Genetics</td>
<td>3</td>
</tr>
</tbody>
</table>

4-5 hours from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 370</td>
<td>Vertebrate Zoology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 371</td>
<td>Anatomy and Adaptations Lab</td>
<td>2</td>
</tr>
<tr>
<td>Biol 375</td>
<td>Invertebrate Zoology</td>
<td>4</td>
</tr>
</tbody>
</table>

6-7 hours from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 333</td>
<td>Population Biology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 378</td>
<td>Developmental Biology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 442</td>
<td>Physiology of Organs and Systems</td>
<td>4</td>
</tr>
<tr>
<td>Biol 470</td>
<td>Biometry</td>
<td>3</td>
</tr>
</tbody>
</table>

Biology electives ....................................................................................................................................... (5-7)

Any 200, 300, or 400 level biology course not listed above or any of the above courses not used to meet area
requirements may be taken as an elective. No more than one 200 level course can be used toward the 40 hour
major.

11. Required in other departments (for all options):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phys 203, 204</td>
<td>General Physics</td>
<td>8</td>
</tr>
<tr>
<td>Level II proficiency in a foreign language.</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>Chem 105</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>Chem 106</td>
<td>General Chemistry I and Qualitative Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>

8-10 hours from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 212</td>
<td>Organic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>BiCh 301</td>
<td>Biochemistry Literature</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>Chem 305, 306</td>
<td>Organic Chemistry</td>
</tr>
</tbody>
</table>

6-8 hours from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 103 or 104</td>
<td>College Algebra or Finite Math</td>
<td>3</td>
</tr>
<tr>
<td>Math 204</td>
<td>Survey of Calculus</td>
<td>3</td>
</tr>
</tbody>
</table>

M~h211, 212 | Calculus I and II                                                            | (8)   |

B.S.ED. WITH A MAJOR IN BIOLOGY

Required 125 hours including:

1. General Graduation Requirements, see pages 32-40.
2. The Center for Teaching and Learning program in Secondary Education, (see page 177).
3. The following Curriculum:

36 major hours, including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 101, 102</td>
<td>Introduction to Biology</td>
<td>6</td>
</tr>
<tr>
<td>Biol 101L, 102L</td>
<td>Introduction to Biology Lab</td>
<td>2</td>
</tr>
<tr>
<td>Biol 312</td>
<td>Evolution</td>
<td>3</td>
</tr>
<tr>
<td>Biol 332</td>
<td>General</td>
<td>3</td>
</tr>
</tbody>
</table>
### Required 125 hours including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 332L</td>
<td>General Ecology Lab</td>
<td>1</td>
</tr>
<tr>
<td>Biol 336</td>
<td>Systematic Botany</td>
<td>4</td>
</tr>
<tr>
<td>Biol 357</td>
<td>Genetics</td>
<td>3</td>
</tr>
</tbody>
</table>

4 hours from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 341</td>
<td>Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 341L</td>
<td>Cell Biology Lab</td>
<td>1</td>
</tr>
<tr>
<td>Biol 343</td>
<td>Plant Physiology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 343L</td>
<td>Plant Physiology Lab</td>
<td>1</td>
</tr>
<tr>
<td>Biol 442</td>
<td>Physiology of Organs and Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

2-4 hours from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 361</td>
<td>Plant Morphology</td>
<td>4</td>
</tr>
<tr>
<td>Biol 367</td>
<td>cytology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 370</td>
<td>Vertebrate Zoology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 371</td>
<td>Anatomy and Adaptations Lab</td>
<td>2</td>
</tr>
</tbody>
</table>

3-4 hours from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 373</td>
<td>Vertebrate Natural History</td>
<td>3</td>
</tr>
<tr>
<td>Biol 375</td>
<td>Invertebrate Zoology</td>
<td>4</td>
</tr>
</tbody>
</table>

Biology Electives

No more than one UND biological science course from outside the department may be petitioned toward completion of this major. No more than one 200 level course may be used toward the major.

Required in other departments:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBio 302</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>Phys 203, 204</td>
<td>General Physics</td>
<td>8</td>
</tr>
<tr>
<td>Chem 105</td>
<td>General Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>Chem 106</td>
<td>General Chemistry II and Qualitative Analysis</td>
<td></td>
</tr>
</tbody>
</table>

6-10 hours from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 212</td>
<td>Organic Chemistry 1</td>
<td>5</td>
</tr>
<tr>
<td>BiCh 301</td>
<td>Biochemistry Lecture</td>
<td>3</td>
</tr>
<tr>
<td>Chem 305, 306</td>
<td>Organic Chemistry 2</td>
<td>10</td>
</tr>
<tr>
<td>Math 201</td>
<td>Survey of Calculus</td>
<td>3</td>
</tr>
<tr>
<td>Math 202</td>
<td>Calculus I and II</td>
<td>18</td>
</tr>
</tbody>
</table>

### 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 hours including:

I. General Graduation Requirements, see pages 32-40.

II. The Following Curriculum:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 101, 102</td>
<td>Introduction to Biology</td>
<td>6</td>
</tr>
<tr>
<td>Biol 101L, 102L</td>
<td>Introduction to Biology Lab</td>
<td>2</td>
</tr>
<tr>
<td>Biol 332, 332L</td>
<td>General Ecology and Lab</td>
<td>4</td>
</tr>
<tr>
<td>Biol 338</td>
<td>Animal Behavior</td>
<td>2</td>
</tr>
<tr>
<td>Biol 431</td>
<td>Wildlife Management</td>
<td>4</td>
</tr>
<tr>
<td>Biol 438</td>
<td>Fisheries Management</td>
<td>3</td>
</tr>
<tr>
<td>Biol 442</td>
<td>Physiology of Organs and Systems</td>
<td>4</td>
</tr>
<tr>
<td>Biol 470</td>
<td>Ecology</td>
<td>3</td>
</tr>
</tbody>
</table>

20 hours from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 338L</td>
<td>Animal Behavior Lab</td>
<td>2</td>
</tr>
<tr>
<td>Biol 371</td>
<td>Anatomy and Adaptations Lab</td>
<td>2</td>
</tr>
</tbody>
</table>

3-4 hours from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 312</td>
<td>Evolution</td>
<td>3</td>
</tr>
<tr>
<td>Biol 333</td>
<td>Population Biology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 370</td>
<td>Vertebrate Zoology</td>
<td>3</td>
</tr>
</tbody>
</table>
III. Required in other departments:

Chem 105. General Chemistry I ..........................................................(4)
Chem 106. General Chemistry H and Qualitative Analysis ....................(4)
Chem 212. Organic Chemistry .............................................................(5)
Comm 161. Fundamentals of Public Speaking .....................................(3)

4 hours from:

Geol 101. Introduction to Geology .....................................................(4)
Phys 203. General Physics .................................................................(4)

Math 101. College Algebra ...............................................................(3)
OR
Math 104. Finite Mathematics ............................................................(3)
Math 204. Survey of Calculus .............................................................(3)
OR
Math 211, 212. Calculus I and II .......................................................(8)

*One summer of field experience or study at a recognized biological station is required.

MINOR IN BIOLOGY

Required 20 hours, including:

Biol 101, 102. Introduction to Biology ...............................................(6)
Biol 101L, 102L. Introduction to Biology Lab ......................................(2)

12 hours of Advanced Courses with at least one course in each of the three basic areas of Biology (Cellular/Subcellular, Organismal, Population and Community Biology). No more than one UMD biological sciences course from outside the department may be petitioned toward completion of this minor.

Courses


100. Principles 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 101 or any other biology course. Students may not normally receive credit for both 100 and 101-102. F,S

100L. Principles of Biology Laboratory. 1 credit. Prerequisite or co-requisite: Biol 100. A basic biology laboratory to complement Biol 100. F,S

101, 102. Introduction to Biology. 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


200. Topics in Biology. 1-3 credits. Special topics in biology. Primarily intended for non-majors. May be repeated if topic is different. On demand.

230. Natural History of the Northern Plains. 2 credits. This is a general course for non-majors. Topics include the ecological setting of the Northern Plains, ecological principles, regional communities, migration,
winter ecology, courtship and reproduction, regional faunas, practical natural history, and human values in natural history. F/2, S/2

235. Human Environment 2 credits. A study of the effect of human activity upon the environment in which we live. F

240. Wildlife Conservation. 2 credits. Basic principles and philosophies of wildlife conservation in North America. F

250. Human Sexuality. 3 credits. Introduction to the biological basis for human reproduction and human sexual behavior. S

251. Plants and People. 3 credits. Introduction to basic concepts in plant growth and reproduction and their relation to economic, historical and cultural developments. F/2

Advanced Courses

Biology 101, 101L, 102 and 102L or equivalent are prerequisites for all 3013 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

332. General Ecology. 3 credits. Prerequisite: course in systematic desirable. A study of the relationships of organisms to their biotic and abiotic environments. F

332L. General Ecology Laboratory. 1 credit. Prerequisite or co-requisite: Biol 332. Field projects and laboratory exercises to complement Biol 332. F

333. Population Biology. 3 credits. Principles of population genetics, population ecology, and evolution in plants and animals. For S

334. Ecology of Animal Parasites. 3 credits. A study of the population biology of parasites. Host and parasite interactions, and factors that determine size of parasite populations and maintenance and control of host-parasite systems will be analyzed. F

336. Systematic Botany. 4 credits. Structure and classification of vascular plants with emphasis on field studies, F

337. 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,F,S,S

338. Animal Behavior. 2 credits. Studies in animal social behavior. The influences of environmental factors on behavior is emphasized. S

338L. Animal Behavior Laboratory. 2 credits. Prerequisites: Biol 101, 102. Prerequisite or co-requisite: Biol 338. Laboratory studies of animal behavior including a student research project using live animals. S

341. Cell Biology. 3 credits. Prerequisite: Organic Chemistry. Description of processes common to life at the cellular level including: physical, chemical and structural organization, membrane function, nutrition and metabolism, growth, division and genetic regulation of the cell. S

341L. Cell Biology Laboratory. 1 credit. Prerequisite or co-requisite: Biol 341; prerequisite: Organic Chemistry. Laboratory investigation utilizing techniques to study life at the cellular level including chemical composition and characterization, enzyme kinetics, metabolism and membrane transport. S

343. Plant Physiology. 3 credits. Prerequisites: Biol 101, 102. A study of water relations, mineral nutrition, physiological ecology, photosynthesis, hormones, morphogenesis and the physiology of flowering. S

343L. Plant Physiology Laboratory. 1 credit. Prerequisites: Biol 101, 102. Co-requisite: Biol 343. Laboratory exercises to complement Biol 343. S

357. Genetics 3 credits. Prerequisites: Biol 101, 102. An introduction to genetics, with emphasis on classical genetic analysis and the biochemistry of gene transmission, expression and regulation. S

360. Freshwater Algae. 4 credits. A survey of the major groups of freshwater and marine algae with particular emphasis on their morphology, physiology, ecology and systematic. F/2

361. Plant Morphology. 4 credits. A study of the structure, development and life cycles of non-vascular and vascular plants. S

363. Entomology. 4 credits. Structure, functions, life history, classification, habits and distribution of insects. F

364. Parasitology. 2 credits. Classification, structure, functions and life-cycles of parasites having importance to human, wildlife and veterinary health. F

364L. Parasitology Laboratory. 2 credits. Prerequisite or co-requisite: Biol 364. A basic parasitology laboratory to complement Biol 364. F

367. Cytology. 3 credits. A study of the structure and organization of the cell with special emphasis on the behavior and distribution of the chromosomes. S/2

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
370. Vertebrate Zoology. 3 credits. Prerequisites: Biol 101, 101L, 102, 102L. Vertebrate evolution and natural history stressing the relationships of anatomy, ecology, physiology and behavior to one mother. F

371. Anatomy and Adaptations Laboratory. 2 credits. Prerequisite or co-requisite: Biology 370. Dissections of representatives of various vertebrate classes; examination of morphological adaptations. F

372. Natural History of the Tropics. 3 credits. Prerequisite: Consent of the instructor. Interdisciplinary field course emphasizing study of tropical environments, floras and faunas, their natural history & conservation. Lectures at UND followed by fieldwork at terrestrial and marine sites in Costa Rica. Annually or biennially.

373. Vertebrate Natural History. 3 credits. Classification, distribution and habits of venerates. S/2

375. Vertebrate Zoology. 4 credits. Structure, functions, development, classification and habits of the invertebrates (exclusive of protozoans and insects.) S

378. Developmental Biology. 3 credits, A study of the diverse developmental systems of animals, plants and microbial organisms. F/2

403. Seminar, 1 credit. Prerequisite: Major or minor in biology. Discussion of selected topics in advanced biology, a different topic each semester. F.S

425. Ichthyology. 3 credits. Structure and function, anatomy, physiology, behavior, classification, distribution and ecologic aspects of fishes. F

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

431. Wildlife Management. 4 credits. Theory and methods of management of game populations. F

432. Fish and Wildlife Disease. 3 credits. A detailed survey of bacteriologic, viral and mycotic diseases, parasites and pathological conditions found in fish and wildlife species. Material covered will include importance, etiology, diagnosis, symptoms, lesions, pathogenicity, vectors and modes of transmission. F/2

433. Aquatic Ecology. 3 credits. Prerequisites: Biol 101, 102. Analysis of the relationships between organisms and their physical, chemical and biological environments in freshwater ecosystems. F

433L. Aquatic Ecology Laboratory. 1 credit. Prerequisites: Biol 101, 102. Co-requisite: Biol 433. Field and laboratory activities to complement Biology 433. F

435. Fish Ecology. 2 credits. Prerequisite: Biol 332. An ecological analysis of physical, chemical and biological influences on the distribution and abundance of fishes. S/2

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

442. Physiology of Organs and Systems. 4 credits. Study of the physiology of organs and organ systems in the animal kingdom. F

470. Biometry. 3 credits. Analysis and design of experiments with emphasis upon biological models. Includes descriptive and inferential statistics through analysis of variance and introductory problems of bioassay. 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.

491. 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

498. Research. 1 to 4 credits. Open to qualified majors. Prerequisite: Consent of instructor. Research conducted under the supervision of a faculty member. F,S

499. 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

---

Business Administration

(BAdm)

MINOR IN INTERNATIONAL BUSINESS

(For Business Majors Only)

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 total of 26 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 (eight hours).

Required 26 hours, including:

1. Completion of 9 hours from the following:
   - Fin 430 International Financial Management
   - Mgmt 420 Multinational Management
   - Mrkt 325 International Marketing
   - Econ 437* International Economics
   - Econ 438* International Money and Finance
   - Econ 331* Comparative Economic Systems
   *only one of the above economic courses may be used.

2. Completion of 9 hours from the following:
   - Anth 171 Cultural Anthropology
   - Geog 161 World Regional Geography
   - Hist 102 Western Civilization Since 1500
   - PSci 220 International Politics
   - PSci 225 Comparative Politics

3. Completion of Level II Proficiency in a language (8 hours).


Courses

The College of Business and Public Administration offers non-departmental courses under the designation Business and Public Administration 395. 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.

395. Special Topics. 1-3 credits in any one semester; Repeatable to 9 hours. 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 departments involved. F, S

Business and Vocational Education

B V E D

J. Navara (Chair), Bloomquist, Kohns, Langemo, Mohagen, and Prigge

Center for Teaching and Learning

The B. S. Ed. degrees require the completion of the Center for Teaching and Learning Program in Secondary Education. See page 178.

B.S.ED. WITH A MAJOR IN BUSINESS EDUCATION

Required 125 hours, including:

I. General Graduation Requirements, see pages 32-40

II. BVED Core Curriculum, including:
   - Acct 200, 201........................................Elements of Accounting..........................................................(6)
   - Acct 315...............................................Business in the Legal Environment..............................................(3)
   - BVED 102 ...........................................Intermediate Keyboarding.....................................................(2)
   - BVED 103 ...........................................Advanced Keyboarding......................................................(2)
III. One of the Following Concentrations:

CONCENTRATION 1—Vocational BUSINESS AND OFFICE EDUCATION—
for those preparing to teach all business subjects. The following additional courses are required for this concentration:

- BVED 206 .............................................................. Word Processing Applications ........................................ (3)
- BVED 303 .............................................................. Methods of Teaching Business Subjects ......................... (3-5)
- BVED 305 .............................................................. Microcomputer Applications for Business .................. (3)
- BVED 315 .............................................................. Introduction to Records Management ....................... (3)
- BVED 322 .............................................................. Executive Secretarial Procedures ............................. (3)
- BVED 420 .............................................................. Methods of Cooperative Office Education Programs .... (1)
- BVED 421 .............................................................. Coordinating Technique ............................................. (2)
- BVED 431 .............................................................. Career and Voc Ed. of Special Needs Students ............... (3)

**Required for office education coordinators in reimbursable vocational programs.**

CONCENTRATION 2—Accounting AND BUSINESS EDUCATION—for those who wish to teach accounting, business law, data processing, and the basic business subjects. The following additional courses are required for this concentration:

- Acct 301, 302 ............................................................ Intermediate Accounting .............................................. (8)
- Acct 305 .............................................................. Cost Accounting ......................................................... (3)
- BVED 303 .............................................................. Methods of Teaching Business Subjects ................. (3-5)
- BVED 305 .............................................................. Microcomputer Applications for Business ............. (3)
- BVED 315 .............................................................. Introduction to Records Management ................... (3)
- Electives................................................................. Approved by Chairperson ........................................ (6)
- BVED 420 .............................................................. Methods of Cooperative Office Education Programs .... (1)
- BVED 421 .............................................................. Coordinating Techniques ........................................... (2)
- BVED 431 .............................................................. Career and Voc Ed. of Special Needs Students ............... (3)

B.S.ED. WITH A MAJOR IN VOCATIONAL MARKETING EDUCATION

Required 125 hours, including:

1. General Graduation Requirements, see pages 3240.

11. The Following Curriculum:

- Acct 200, 201 ............................................................. Elements of Accounting ............................................. (6)
- Acct 315 .............................................................. Business in the Legal Environment .......................... (3)
- BVED 101 .............................................................. Fundamentals of Management Information Systems .... (4)
- BVED 303 .............................................................. Methods of Teaching Business Education—General Methods ......................................................... (1)
- BVED 303 .............................................................. Methods of Teaching Business Education—Entrepreneurship Methods ......................................................... (1)
- BVED 320 .............................................................. Business Communications ........................................ (3)
- BVED 380 .............................................................. DECA-Student Leadership Practicum .......................... (3)
- BVED 402 .............................................................. Curriculum Development in Vocational Marketing Education ......................................................... (3)
- BVED 403 .............................................................. Principles of Microeconomics ................................... (3)
- BVED 421 .............................................................. Coordinating Techniques ........................................... (2)
- BVED 431 .............................................................. Career and Vocational Ed. of Special Needs Students .... (3)
- BVED 444 .............................................................. Philosophy of Vocational Education ....................... (3)
- BVED 460 .............................................................. Methods of Teaching Vocational Marketing Education .... (2)
- Comm 161 .............................................................. Principles of Microeconomics ................................... (3)
Econ 202 .................................................. Principles of Macroeconomics .........................................................(3)
Mgmt 300 .................................................. Principles of Management .................................................................(3)
Mrkt 301 .................................................. Principles of Marketing .................................................................(3)
Mrkt 311 .................................................. Personal Selling .................................................................(3)
Mrkt 312 .................................................. Advertising .................................................................(3)
Mrkt 315 .................................................. Retail Management .................................................................(3)

Minors

Minor in Vocational Marketing Education

20 semester hours, including:
BVED 205 .................................................. Career Planning-Business and Education ...........................................(2)
BVED 380 .................................................. DECA-Student Leadership Practicum ..............................................(1)
BVED 402 .................................................. Curriculum Development in Vocational Marketing Education .......... (3)
BVED 403 .................................................. Prof Training Techniques in Business and Education .....................(3)
BVED 460 .................................................. Methods of Teaching Vocational Marketing Education .......................(2)
Mrkt 311 .................................................. Personal Selling .................................................................(3)
Mrkt 301 .................................................. Principles of Marketing .................................................................(3)
Electives: Selected courses from Business and Vocational Education and/or from the College of Business and Public Administration.

Minor in Office Administration

23 hours, including:
Mgmt 300 .................................................. Principles of Management .................................................................(3)
BVED 217 .................................................. Fundamentals of Management Information Systems ................. (4)
BVED 308 .................................................. Office Management .................................................................(3)
BVED 315 .................................................. Introduction to Records Management ..............................................(3)
BVED 405 .................................................. Records Management Systems ......................................................(3)
Elect eight hours from courses in BVED and/or from the College of Business and Public Administration.

Minor in Secretarial Administration

23 hours, including:
BVED 102 .................................................. Intermediate Keyboarding .................................................................(2)
BVED 103 .................................................. Advanced Keyboarding .................................................................(2)
BVED 206 .................................................. Word Processing Application .................................................................(3)
BVED 217 .................................................. Fundamentals of Management Information Systems ................. (4)
BVED 305 .................................................. Microcomputer Applications for Business ..............................................(2)
BVED 351 .................................................. Introduction to Records Management ..............................................(3)
BVED 322 .................................................. Executive Secretarial Procedures ......................................................(3)
Elect five hours from courses in BVED

Minor in Business Education Teaching

22 hours, including:
BVED 102 .................................................. Intermediate Keyboarding .................................................................(2)
BVED 103 .................................................. Advanced Keyboarding .................................................................(2)
BVED 206 .................................................. Word Processing Application .................................................................(3)
BVED 217 .................................................. Fundamentals of Management Information Systems ................. (4)
BVED 303 .................................................. Methods of Teaching Business Subjects ..............................................(3.5)
BVED 305 .................................................. Microcomputer Applications for Business ..............................................(3)
BVED 308 .................................................. Office Management .................................................................(3)
Elect 3-4 hours in BVED and/or from the College of Business and Public Administration.

College of Business and Public Administration

B.B.A. WITH A MAJOR IN INFORMATION MANAGEMENT

Required 125 hours, including:
1. General Graduation Requirements, see pages 32-40.
11. College of Business and Public Administration requirements, see page 85 and including:
Acct 200, 201 .................................................. Elements of Accounting .................................................................(6)
Courses

Students who have had prior training in keyboarding and shorthand are eligible for advanced placement. They should consult with a member of the Business and Vocational Education staff to determine appropriate course level.

101. **Keyboarding. 1 credit.** A half-semester course offering basic instruction and practice in learning to use proper fingering for touch operation of the alphanumeric keyboard, developing techniques and manipulative skills for operating the keyboard of data/word processing equipment, microcomputers, or computer terminals. F,S

102. **Intermediate Keyboarding. 2 credits. Development** of speed and accuracy, letter writing, manuscripts, and tabulation techniques. F

103. Advanced **Keyboarding. 2 credits.** Prerequisites: BVED 102 or equivalent. Skill development, rough drafts, statistical keyboarding preparation of manuscripts, reports, legal forms, and display typing. S

105. **Beginning Shorthand. 3 credits.** Mastery of the principles for reading and writing Gregg shorthand, introduction to dictation, and intensive English review. F

201. **Advanced Dictation & Transcription. 3 credits.** Prerequisites: BVED 102 and 105, or equivalent. Principles of Gregg shorthand in intensive review, followed by dictation and transcription. This course may count as Upper Level credit if it is completed in the junior or senior year. S

205. **Career Planning—Business and Education. 2 credits.** An orientation to an explosion of business and marketing education careers. Career interest assessments, business and education career studies, and individual career planning projects are included. F,S

206. **Word Processing Applications. 3 credits.** Prerequisites: BVED 102, 103. Orientation to word processing concepts, hands-on applications, and skill development on dictation/transcription equipment. F

217. **Fundamental of Management Information System.** 4 credits. An introduction to management information systems local area networks, microcomputer applications in business, systems analysis and design, office automation, and telecommunications. F,S,S

303. **Methods of Teaching Business Education.** 1 to 5 credits. Five areas of teaching methods compose the course, (a) general methods, (b) keyboarding methods, (c) local area networking methods, (d) accounting/bookkeeping methods, (e) entrepreneurship methods; each to be taught for an equal number of
weeks and each to be one hour credit. The general methods area and entrepreneurship methods area are required of all business education and vocational marketing education students. Selection of other areas is determined by curricula in which students are enrolled.

305. Microcomputer Applications for Business. 3 credits. Prerequisite: BVED 217. Development of proficiency in the use of microcomputers in business. Emphasis is on operating system use, database software to develop and query business applications, and programming with database software. F,S

308. Office Management. 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,S

309. Information Management Systems. 3 credits. Information management systems concepts for the user and/or designer of information systems, systems analysis, design systems output, inputs, data files, methods and procedures, and system controls. F

315. Introduction to Records Management. 3 credits. An orientation to business records management including systematic control over the creation, distribution, utilization, retention, storage, protection, preservation and final disposition of all types of records within an organization. F,S

320. Business Communications. 3 credits. Composition of business letters and reports with emphasis on clear, concise, effective presentation and logical organization. It includes a brief review of writing mechanics. F,S

322. Executive Secretarial Procedures. 3 credits. Prerequisite: BVED 206. Advanced word processing concepts and applications as well as desktop publishing, computerized shorthand, and other technologies. S

337. Cooperative Education. 1-6 credits, repeatable to 12 credits. Prerequisites: Overall GPA 2.5; approved Of the Director of BVED Cooperative Education. On-the-job compensated work experience in various areas related to Information Management, Marketing Education, and Business Education. S-U grading only. F,S,SS

380. DECA-Student Leadership practicum. 1 credit. Recratable to 3 credits. Planning, organizing, conducting, and advising of the Vocational Marketing Education student organization, DECA, program of work and related leadership activities. Vocational Marketing Education majors must register for 3 credits. F,S

402. Curriculum Development in Vocational Marketing Education. 3 credits. Planning and organizing Vocational Marketing Education curricula (Secondary, Post-Secondary, and Adult Education programs.) Includes competency-based individualized and group instructional activities and resources. F

403. Professional Training Techniques in Business and Education. 3 credits. Designing professional training programs and related projects for Vocational Marketing Education programs. Delivering professional presentations and utilizing appropriate training media, materials, and resources. Career opportunities and requirements in professional training areas are investigated. F,S

405. Records Management Systems. 3 credits. Prerequisite: BVED 315. Application of records management fundamentals to the design and management of records creation, maintenance, and disposal systems for paper, film, and computer records; cost and systems analysis; electronic filing; computer-assisted retrieval; micrographics systems; forms management systems; optical and video systems; emerging concepts. S

409. Data Resource Management. 3 credits. Prerequisite: BVED 309. Stress design and utilization of databases, emphasis on both minicomputer and microcomputer database development environments, integrity and security issues. Project oriented. S

411. Information Management Seminar. 3 credits. Prerequisites: BVED 308, 309, and 315. Seminar and field experience projects involving information management topics; including office management, business records management, word processing, reprographics, office services, business communications, data communication, micrographics, applied office systems analysis, and management information systems for contemporary offices. S

413. Telecommunications. 3 credits. Scope of business telecommunications, principles of design of systems and approach to solving communication problems. Includes: transmission systems, software, hardware and applications. F

414. Office Systems Design. 3 credits. Prerequisites: BVED 308, 309 and 315. Design of new or improved office information processing systems. Heavy emphasis on the development of micro and minicomputer information systems including analysis, design, development, implementation, technical manuals, and training. S

420. Methods of Cooperative Office Education Programs. 1 credit. Co-requisite: BVED 303. Vocational occupational office programs in high school and post-secondary institutions: selecting and setting up office simulation programs; related class content and activities; group and individualized instruction; evaluation and grading; supplementary materials; equipment and facilities; youth clubs; adult programs; college programs; and youth with special needs. S

421. Coordinating Techniques. 2 credits. Guidance, selection, and placing students in training stations; assisting in job adjustments; developing training agreements and training plans; evaluation; follow-up; state reports advisory committees; public relations; labor laws; program justifications: Organization and supervision of cooperative programs. S
431. Career and Vocational Education of Special Needs Students. 3 credits. A study of the characteristics of the handicapped and disadvantaged, their employment opportunities, and career and vocational education to meet their needs. F

444. Philosophy of Vocational Education. 3 credits. Theory and practice of vocational education in secondary and post-secondary schools. Interrelationship of vocational education programs. Funding for vocational education programs. Relationship between general education and vocational education. S

450. Special Topics. 1-3 credits, maximum of 6, varying with choice of topics. Topics will be selected on the basis of currency and relevancy to student needs. On demand.

460. Methods of Teaching Vocational Marketing Education. 2 credits. Prerequisite: BVED 303—General Methods. Focuses upon planning and teaching marketing topics at either the high school or post-secondary ME programs. S

470. Senior Seminar. 2 credits. Prerequisite: To be taken concurrently with or prior to student teaching. A discussion of problems, professional obligations, and careers in teaching business courses, S/U grading. F

481. Internship in Business and Vocational 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,S

Center for Teaching and Learning (CTL)

M. Harris (Dean), Ahler, Backes, Barrentine, Baker/Big Back, Chalmers, Cook, Dahl, Franklin, Fuller, Gershman, Guy, Hanhan, Hill, Hoff, Hoover, Keiley, King, Knowlton, Landry, Laycock, Lemon, Lindquist, McLean, Nelson, Olsen, Olson, Pelton, Piper, Reid, Rice, Strackbain, Strathe, Thomas, Tyree, Uhlenberg, and Williams

B.S. ED. WITH MAJOR IN ELEMENTARY EDUCATION
Elizabeth Franklin, Chair
Required 125 hours, including:

I. University Graduation Requirements, see pages 32-40.

II. General Graduation Requirements.

   English Composition — 6 credits
   (English 101, 102, or r209)

   Social Sciences — 12 credits
   From 3 departments including Psychology 251 or Home Economics 252 (but not both); 9 additional credits of University General Education courses from Anthropology, Economics, Geography, Political Science, Psychology (except 251), Sociology, or Indian Studies.

   Arts and Humanities — 15 credits
   From 3 departments including 9 credits from English, History, or Humanities I and 11, including courses from at least two departments; 3 credits of studio visual arts (VA 100, 120, 130, 151, 173, 260) and/or performance classes from music (Music 105,260,261,262,263,264,265,269), Theater (TA 200,225,227,229), dance (HIPER 101 Jazz or Modern Dance); and 3 credits of electives from University General Education courses on pages 30-39.

   Math, Science, Technology — 12 credits
   Must be taken in at least 2 departments, must include 4 hours of lab science, and must include Mathematics 103, 104, 105 or a course for which one of these is a prerequisite, or a score on the Mathematics Department placement test that qualifies the student to register for Math 211. Students must have coursework in the biological, physical, and earth sciences. This coursework may be selected from the General Education course list or from a combination of such courses and CTL 440 science courses. Note that CTL courses do not apply toward the General Education Requirement. Students must also demonstrate competence in microcomputer operation and word processor use. This can be done by gaining credit in CS 101 or 105, or by demonstrating competence to designated faculty or staff.
11. Area of Concentration:

Each student must have an area of concentration of 15 or more credits in one of the following areas: English, history, fine arts, social science (anthropology, political science, geography—social science, or economics), mathematics, science (non-CTL), a single foreign language, Indian Studies, Women’s Studies, Psychology, Sociology, Special Education, Early Childhood Education, Physical Education, or Library Science, Bilingual Education/SSL or Interdisciplinary Studies.

Except in science, social science, fine arts, or foreign language, 9 of the 15 credits must be above the 100 level. Lists of appropriate courses for this concentration are available through your adviser.

IV. Introductory Courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTL 330</td>
<td>Introduction to Teaching and Learning</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 277</td>
<td>Mathematics for Elementary School Teachers</td>
<td>(3)</td>
</tr>
<tr>
<td>CTL 410</td>
<td>Communication: Children’s or Young Adult Literature</td>
<td>(3)</td>
</tr>
<tr>
<td>CTL 315</td>
<td>Education of Exceptional Student</td>
<td></td>
</tr>
<tr>
<td>CTL 430</td>
<td>Human Relations: Mainstreaming</td>
<td>(3)</td>
</tr>
</tbody>
</table>

TEAM:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTL 410</td>
<td>Communication: Reading/Lang. Arts in the Elem. School</td>
<td>(3)</td>
</tr>
<tr>
<td>CTL 420</td>
<td>Creative Express.: Creat. Writing/Writing in the Content Areas</td>
<td>(2)</td>
</tr>
<tr>
<td>CTL 430</td>
<td>Humm Relations: Social Studies in the Elementary School</td>
<td></td>
</tr>
<tr>
<td>CTL 440</td>
<td>Mathematics and Science: Math in the Elementary School</td>
<td>(2)</td>
</tr>
<tr>
<td>CTL 440</td>
<td>Mathematics and Science: Science in the Elementary School</td>
<td></td>
</tr>
<tr>
<td>CTL 486</td>
<td>Field Experience</td>
<td>(2)</td>
</tr>
</tbody>
</table>

Advanced Courses:

(TEAM is a prerequisite)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTL 410</td>
<td>Communication: Primary, Intermediate, or Corrective Reading</td>
<td>(2.3)</td>
</tr>
<tr>
<td>CTL 430</td>
<td>Human Relations: Classroom Management</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Additional Required Courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTL 301</td>
<td>Sem: Physical Education and Health for the Elementary Classroom</td>
<td>(2)</td>
</tr>
<tr>
<td>CTL 430</td>
<td>Human Relations: Multicultural Education (TEAM prerequisite)</td>
<td>(3)</td>
</tr>
<tr>
<td>CTL 420</td>
<td>Creative Expression: Fine Arts Methods Course</td>
<td>(3)</td>
</tr>
<tr>
<td>CTL 487</td>
<td>Student Teaching</td>
<td>(10-16)</td>
</tr>
</tbody>
</table>

SAMPLE PROGRAM OF STUDY

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101</td>
<td>Composition I</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 102</td>
<td>Composition II</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Technical and Business Writing</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 252</td>
<td>Child Development</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Introduction to Psychology</td>
<td>(3)</td>
</tr>
<tr>
<td>Social Science elective</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>English elective</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>History elective</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Math/science elective</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Fine Arts elective</td>
<td></td>
<td>(2-3)</td>
</tr>
</tbody>
</table>
Sophomore Year

- Social Science elective .................................................. (3)
- Math/Science elective .................................................. (3)
- Concentration courses.................................................. (3)
- Math 277.................................................. Math for Elementary School Teachers. (3)
- HPER 205.................................................. Physical Edu for Elem School Teachers. (3)
- CTL 410.................................................. Communication: Children’s Literature (3)
- CTL 330.................................................. Introduction to Teaching and Learning (3)
- Elective .................................................. (3)

Junior Year

- Junior TEAM.................................................. Elective (14, 2)
- CTL 315.................................................. Education of the Exceptional Student (3)
- or CTL 430.................................................. Human Relations: Mainstreaming (3)
- CTL 430.................................................. Human Relations: Classroom Management. (3)
- Elective .................................................. (6)
- Fine Arts Methods................................................. (3)
- CTL 430.................................................. Human Relations: Multicultural Education. (3)

Senior Year

- CTL 487.................................................. Student Teaching (16)
- Elective .................................................. (12-17)

BILINGUAL EDUCATION/ENGLISH AS A SECOND LANGUAGE ENDORSEMENT

Students who complete the courses listed below will be eligible for endorsement in Bilingual Education/English as a Second Language. Students must be certified to teach in Elementary, Middle Level or Secondary classrooms.

- CTL 313.................................................. Young Children’s Language & Thought (3)
- CTL 410/390.................................................. Reading & Writing Development of Bilingual & Second language learners. (2)
- CTL 480/430.................................................. Multicultural Education. (3)
- IS 121.................................................. Introduction to Indian Studies (3)
- CTL 486A.................................................. Field Experience: Bilingual & ESL (2)
- English 207.................................................. Introduction to Linguistics (2)
- English 370.................................................. Language and Culture (3)
- English 417.................................................. Introduction to TESOL (3)

* Six credit hours in a modern language. (Teachers planning to work with American Indian students should take appropriate American Indian languages.) Three elective credits in English chosen in consultation with advisor.

B.S.ED. WITH COMBINED MAJOR IN ELEMENTARY EDUCATION AND EARLY CHILDHOOD

Glenn Olsen, Chair

Required 125 hours, including:

I. University Graduation Requirements, see pages 3240.
II. CTL General Graduation Requirements, see page 114.
III. Elementary Education Curriculum as listed above.
IV. The following Early Childhood Education Curriculum:

- CTL 310.................................................. Introduction to Early Childhood Education (3)
- CTL 311.................................................. Observation and Description of Young Children (3)
- CTL 313.................................................. Young Children’s Language and Thought (3)
- CTL 314.................................................. Social and Emotional Lives of Young Children (3)
- CTL 450.................................................. Comparative Approaches to the Educ. of Young Children (3)
- CTL 451A.................................................. Methods and Materials: Pre-Kindergarten (3)
- CTL 451B.................................................. M. Kitirgim Seminar (2)
- CTL 452.................................................. Developing Personal Teaching Styles (1)
- CTL 453A.................................................. Methods: Kindergarten (2)
- CTL 486A.................................................. Field Experience in Early Childhood Education (1)
CTL 487A...............................Student Teaching: Kindergarten.....................................................(9)

One elective course which deals with communication with adults, to be selected with adviser approval. Total credits 37-39.

Students who wish a Kindergarten Endorsement but do not wish to complete the combined major in elementary and early childhood education must take the following courses as part of the 17 hours of kindergarten coursework. In addition, they are required to take a minimum of 6 credits of kindergarten student teaching.

CTL 310...............................Introduction to Early Childhood Education........................................(3)
CTL 313...............................Young Children’s Language and Thought...........................................(3)
CTL 314...............................Social and Emotional Lives of Young Children.................................(3)
CTL 453A...............................Methods and Materials: Kindergarten............................................(2)

B.S.ED. WITH COMBINED MAJOR IN ELEMENTARY EDUCATION AND LIBRARY SCIENCE AND AUDIOVISUAL INSTRUCTION

Adviser: Neil Price
Required 125 hours, including:

I. University Graduation Requirements, see pages 32-40.
II. CTL General Graduation Requirements, see page 114.
III. Elementary Education Curriculum as listed above.
IV. The Following Library Science and Audiovisual Instruction Curriculum:

LSAV 305...............................Building Media Collections.................................................................(3)
LSAV 310...............................Introduction to Children’s Literature.............................................(3)
LSAV 365...............................Basic Audiovisual Equipment.........................................................(3)
LSAV 375...............................Reference Sources and Services.....................................................(4)
LSAV 425...............................Classification and Cataloging for Media Collections.................(4)
LSAV 430...............................Organization and Management of the School Media Center.........(3)
LSAV 435...............................Developing Media Center Programs.............................................(3)
LSAV 460...............................Technological Applications in Libraries...........................................(2)
LSAV 465...............................Design and Production of Software in Media......................................(3)

B.S. ED. WITH COMBINED MAJOR IN ELEMENTARY EDUCATION AND MATHEMATICS

Adviser: Mavis Kelley
Required 125 hours, including:

I. University Graduation Requirements, see pages 32-40.
II. CTL General Graduation Requirements, see page 114.
III. Elementary Education Curriculum as listed above.

IV. The Following Mathematics Curriculum:

Math 103...............................College Algebra or equivalent.........................................................(3)
Math 377...............................Geometry for Elementary Teacher...............................................(2)
CTL 440...............................Math/Science Cluster: Math Electives..............................................(6)
CTL 495...............................Special Projects: Math Practicum......................................................(3)
BASIC Computer Programming.................................................................(2)
Math Electives (CTL 440 or Math Dept.).........................................................(10)

B.S.ED WITH COMBINED MAJOR IN ELEMENTARY EDUCATION AND MUSIC

Adviser: Barbara Lewis
Required 125 hours, including:

I. University Graduation Requirements, see pages 32-40.
II. CTL General Graduation Requirements, see page 114.
III. Elementary Education Curriculum as listed above.
### PHYSICAL EDUCATION

B.S.ED. WITH COMBINED MAJOR IN ELEMENTARY EDUCATION AND PHYSICAL EDUCATION

**Advisor:** William Bolonchuk

Required 125 hours, including:

1. University Graduation Requirements, see pages 32-40.
2. CTL General Graduation Requirements, see page 114.
3. Elementary Education Curriculum as listed above.

**IV. The Following Physical Education Curriculum:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPER 107</td>
<td>Introduction to Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>HPER 205</td>
<td>Physical Education for the Elementary Grades</td>
<td>3</td>
</tr>
<tr>
<td>HPER 223</td>
<td>Movement Performance Analysis Labs.</td>
<td>6</td>
</tr>
<tr>
<td>HPER 310</td>
<td>First Aid and CPR</td>
<td>2</td>
</tr>
<tr>
<td>HPER 323/323L</td>
<td>Introduction to Teaching in Physical Education and Sport and Sport Settings/Lab</td>
<td>4</td>
</tr>
<tr>
<td>HPER 355</td>
<td>Applied Motor Development</td>
<td>3</td>
</tr>
<tr>
<td>HPER 403</td>
<td>School Health Education</td>
<td>2</td>
</tr>
<tr>
<td>HPER 404</td>
<td>Adapted Activities Program</td>
<td>2</td>
</tr>
<tr>
<td>HPER 406/406L</td>
<td>Strategies for Teaching Physical Education in the Elementary School</td>
<td>2</td>
</tr>
<tr>
<td>HPER 487</td>
<td>Senior Teaching Seminar</td>
<td>2</td>
</tr>
</tbody>
</table>

Total: 31 credit hours

### B.S.ED. WITH COMBINED MAJOR IN ELEMENTARY EDUCATION AND VISUAL ARTS

**Adviser:** Ellen Auyong

Required 125 hours, including:

1. University Graduation Requirements, see pages 32-40.
2. CTL General Graduation Requirements, see page 114.
3. Elementary Education Curriculum as listed above.

**IV. The Following Visual Arts Curriculum:**

Minimum requirement of 12 credits of VA History including VA 210 and 211.

Minimum requirement of 36 credits of VA practicum (studio) courses.

**Core Requirements:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA 108</td>
<td>Hand and Power Tool Safety</td>
<td>1</td>
</tr>
<tr>
<td>VA 130, 131</td>
<td>Drawing I, 11</td>
<td>6</td>
</tr>
<tr>
<td>VA 173.174</td>
<td>Design I: Two-Dimensional: Design II: Three-Dimensional</td>
<td>6</td>
</tr>
<tr>
<td>VA 210</td>
<td>Art History Survey: Paleolithic to Renaissance</td>
<td>3</td>
</tr>
<tr>
<td>VA 211</td>
<td>Art History Survey: Renaissance to Present</td>
<td>3</td>
</tr>
</tbody>
</table>

Plus at least 9 credits in the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA 200,201</td>
<td>Sculpture I, II</td>
<td>3, 3</td>
</tr>
<tr>
<td>VA 204,205</td>
<td>Jewelrymaking I, II</td>
<td>3, 3</td>
</tr>
</tbody>
</table>
I. Required 125 hours, including:
   Advisor: Milton Hoff

   B.S. ED. WITH MAJOR IN MIDDLE/JUNIOR HIGH SCHOOL EDUCATION

   **Middle/Junior High School Education**

   **Advisor:** Milton Hoff

   **Required 125 hours, including:**

   I. University Graduation Requirements, see pages 32-40.
   II. CTL General Graduation Requirement, see page 114.

   **111. The Following Middle/Junior High School Education (Grades 5-9) Curriculum (45 credits):**

   **CTL 350**.................................Development and Education of Adolescents..........................(3)
   **CTL 341**.................................Curriculum Development and Instruction.............................(3)
   **CTL 400**.................................Methods and Materials.......................................................(3)
   **CTL 410**.................................Communication: Reading in the Content Areas....................(2)
   **CTL 420**.................................Creative Expressing: Creative Arts (TEAM)..........................(4)
   **CTL 430**.................................Human Relations: Social Studies (TEAM)...........................(3)
   **CTL 440**.................................Math & Science: Math in the Elementary School (TEAM)........(2)
   **CTL 440**.................................Math & Science: Science in the Elementary School (TEAM)....(2)
   **CTL 430**.................................Multicultural Education....................................................(2)
   **CTL 486**.................................Field Experience: Pm-Student Teaching...............................(2)
   **CTL 487**.................................Student Teaching in Middle/Junior High School....................(16)

   IV. Subject Matter Courses (45 credit minimum)

   Students must select a minimum of 45 credits of work in two subject areas that are normally included in the Middle/Junior High School Curriculum (i.e. science, mathematics, physical education, etc.). The 45 credits may be divided more or less evenly between the two areas (i.e. 23 credits in English and 22 credits in history) or they may be focused more heavily in one area (27 credits in English and 18 in history) but must include at least 18 credits in each area in order to meet certification requirements. One-half of the credits in each area must have a catalog identification number of 200 or above (an exception may be granted to students pursuing a very broad preparation in science).
Center for Teaching and Learning

Secondary Education

Kathleen Gershman, Chair

Secondary Education Certification Preparation Sequence

Course Sequence (29 credits minimum):

Admission to the Center for Teaching and Learning is required for enrollment in all of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTL 215</td>
<td>Exploring Teaching</td>
</tr>
<tr>
<td>CTL 286</td>
<td>Field Experience</td>
</tr>
<tr>
<td>CTL 341</td>
<td>Curriculum Development and Instruction</td>
</tr>
<tr>
<td>CTL 350</td>
<td>Development and Education of the Adolescent</td>
</tr>
<tr>
<td>CTL 386</td>
<td>Field Experience, elective</td>
</tr>
<tr>
<td>CTL 389</td>
<td>Microteaching</td>
</tr>
<tr>
<td>CTL 480</td>
<td>Multicultural Education</td>
</tr>
<tr>
<td>CTL 400</td>
<td>Multicultural Education</td>
</tr>
<tr>
<td>CTL 487</td>
<td>Student Teaching</td>
</tr>
</tbody>
</table>

*To be accepted for student teaching, applicants must have a 2.75 GPA in their major and a 2.5 CPA overall in all course work completed up to the time of application.

Special Education

MINOR IN SPECIAL EDUCATION

The minor in Special Education addresses the characteristics and assessment of exceptional learners with particular emphasis on the mentally handicapped. Students can obtain important coursework and sequence information in the Special Education office, Room 305 of the Education Building.

Course Sequence (22 credits)

Admission to the Center for Teaching and Learning is required for enrollment in all of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTL 315</td>
<td>Education of the Exceptional Student</td>
</tr>
<tr>
<td>CTL 407</td>
<td>Education of the Mentally Handicapped</td>
</tr>
<tr>
<td>CTL 318</td>
<td>Assessment and Program Planning/Access for Handicapped Individuals</td>
</tr>
<tr>
<td>CTL 416</td>
<td>Functional Curriculum for Students with Moderate Mental Handicaps</td>
</tr>
<tr>
<td>CTL 419</td>
<td>Curriculum and Materials in Special Education</td>
</tr>
<tr>
<td>CTL 421</td>
<td>Transition to Adult Life</td>
</tr>
<tr>
<td>CTL 316</td>
<td>Emotionally Disturbed Child</td>
</tr>
</tbody>
</table>

One of the following courses must be taken:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTL 418</td>
<td>Microcomputers Technology and Adaptive Access for Handicapped Individuals</td>
</tr>
<tr>
<td>CTL 422</td>
<td>Education of the Gifted/Talented</td>
</tr>
<tr>
<td>CTL 576E</td>
<td>Collaborative Relationships</td>
</tr>
</tbody>
</table>

*Additional courses may be eligible for inclusion in the Minor, pending approval of the Special Education faculty.

Note: A North Dakota and/or Minnesota teaching credential in the area of educable mentally handicapped (EMH) and/or trainable mentally handicapped (TMH) can be obtained by completing the minor, as well as student teaching or an internship in EMH, TMH or both.
Courses

Elementary Education.

301. Center seminar. 1-3 credits each semester. Required S-U grading. Small group seminars under the leadership of an instructor or team of instructors who serve as advisers for seminar students. Students have the opportunity to discuss, experiment, explore ideas, techniques, and concepts related to teacher preparation, identify and clarify personal and professional needs, and to integrate their learning experiences.

330. Introduction to Teaching and Learning. 3 credits. An introduction to the study of education. The course explores how children differ, how society and schools respond to children’s differences, and how the social and political contexts of schooling affect children’s education. Students have the opportunity to visit schools, view films and videos related to education, to explore children’s literature, and to participate in role-playing, simulations, and peer teaching. F,S

410. Communication. 1-16 credits. (May be repeated.) A broad examination of the objectives and materials of communication with special emphasis upon those approaches involved in effectively developing knowledge and skills of reading, writing, speaking and listening. Special emphasis given to oral and written language development. Typical offerings include: Reading-Language Arts in the Elementary School, Reading and Writing Development of Bilingual and Second Language Children, Children’s Literature, Young Adult Literature, Corrective Reading, Reading in the Content Areas, Methods and Materials in Elementary School Music, Fundamentals of Photography, Industrial Arts in the Elementary School Curriculum, and Methods and Materials in Elementary School Art.

420. Creative Expression. 1-16 credits. (May be repeated.) A broad examination of the objectives, methods and materials of the creative arts with special focus upon those strategies for effectively developing skills of creative expression. Major consideration is given to creative expression in literature, art, drama, and music. Students will actively participate in the arts as well as develop a repertoire of teaching skills in the rota. Typical offerings include: Creative Writing/Writing in the Content Areas, Methods and Materials in Elementary School Music, Fundamentals of Photography, Industrial Arts in the Elementary School Curriculum, and Methods and Materials in Elementary School Art.

430. Human Relations. 1-16 credits. (May be repeated.) A broad examination of human responses to the environment, relationships among people, socio-cultural factors in human development, one’s relationships to others and one’s understanding of oneself. Typical offerings include: Social Studies in the Elementary School, Classroom Management, Multicultural Education, How Children Learn, Authentic Crafts to Enrich Social Studies, and Home School Relations. All TEAM courses are prerequisite to Multicultural Education and Classroom Management.


486. Field Experience. 1-4 credits. (Repeatable to 16). Prerequisite: Permission of program chair. Supervised tutorial of apprentice teaching experience in an early childhood. K-12 classroom, university, or community setting approved by Ore program area. S/U grading. F,S

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. F,S

Early Childhood Education.

CTL 310. Introduction to Early Childhood Education. 3 credits. Corequisite: CTL 486. 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. F,S

CTL 311. Observation and Description of Young Children. 3 credits. This course acquaints the student with a variety of ways of observing, recording, and analyzing the behavior and development of young children. The course will focus on such things as naturalistic observations, what can be learned from the language of children and what can be learned from art of young children. F,S

CTL 313. Young Children’s Language and Thought. 3 credits. Prerequisite: Elementary or Early Childhood major. This course examines both typical and atypical development of language and thought in children O-8, as a basis for understanding and working with young children in educational settings. F

CTL 314. Social and Emotional Lives of Young Children. 3 credits. Prerequisite: Elementary or Early Childhood major. This course examines both typical and atypical social and emotional development in children ages O-8 as a basis for understanding and working with young children in educational settings. S
CTL 450. Comparative Approaches to the Education of Young Children. 3 credits. prerequisite CTL 310. A review and comparison of various approaches to the education of young children. Early childhood models reviewed include: traditional nursery school, Headstart, open education, Montessori, Piagetian approaches, behavioral analysis and Distar. S

CTL 451A. Methods and Materials: Pre-Kindergarten. 3 credits. Prerequisite: CTL 310, 313, 314. Exploration of curriculum, methods and materials for use in pre-kindergarten educational settings. Includes selection of curriculum, methods, and materials issues as they are presented in the particulars of the student teaching experience. F,S

CTL 451B. Pre-Kindergarten Seminar. 2 credits Prerequisite: CTL 451A, departmental permission. Corequisite: CTL 487,452. 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. F,S

CTL 452. Developing Personal Teaching Styles. 1 credit. Prerequisite: Departmental permission. Corequisite: CTL 487, 451B. A tutorial, taken in conjunction with prekindergarten student teaching, in which personal styles of teaching are identified and developed in a manner conducive to exemplary practice in early childhood educational settings. S-U grading only. F,S

CTL 453A. Methods and Materials: Kindergarten. 2 credits. prerequisite: CTL 310, 312, 313, 314. Exploration of curriculum, methods, and materials for use in kindergarten settings. S

486. Field Experience. 1-4 credits. (Repeatable to 16). Prerequisite: Permission of program chair. 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; F,S

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. F,S

491. Senior Project in Early Childhood Education. 2-4 credits. During the last year of study, each Early Childhood major completes a self-initiated project independent study. The focus of the project may be an in-depth study of material previously studied in beginning exploration of a new idea. Students enrolled in this course meet with faculty to discuss the process of exploration and to share discoveries. F,S

495. Independent Study in Early Childhood Education. 1-4 credits. This course is designed for the interested student’s pursuit of an area of study not offered through regular course.. In addition, students can continue to pursue subject matter covered in courses in greater depth. F

CTL 498. Special Projects. 1-8 credits. Course number reserved for committee approved proposals, independent study, special colloquia, or experimental courses.

Middle/Junior High School Education

350. Development and Education of Adolescents 3 credits. A comprehensive examination of the characteristics and behavior of the early adolescent student with implications for curriculum and instruction in middle/junior high schools. Transition from childhood to adolescence, including cognitive development, self-concept, physiological 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. A practicum will be required as part of this course.

486. Field Experience. 1-4 credits. (Repeatable to 16). Prerequisite: Permission of program chair. 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; F,S

487. Student Teaching. 4-6 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. F,S

Special Education-Minor

315. Education of Exceptional Students. 3 credits. An orientation course, especially for classroom teachers, stressing the identification, characteristics and educational problems of exceptional children. A field exercise is part of this course. F,S

316. Introduction to the Emotionally Disturbed Child. 2 credits. A survey of prevalent classroom behaviors which might indicate emotional disturbance. Current classroom approaches to the needs of the disturbed child will be explored. F,S

318. Assessment Program Planning/Special Needs Students. 4 credits. 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. S

CTL 416. Functional Curriculum for Students with Moderate Mental Handicaps. 2 credits. A comprehensive training in nonaversive behavior-change procedures for use in schools. In addition, ecological curriculum development and teaching methods for use in natural environments are offered. Curriculum
development and methods in the areas of domestic living, self-care, social skills, sexuality and leisure are stressed. F

417. Education of Mentally Handicapped Students. 3 credits. Methods and programs for students who are mentally handicapped in any manner are explored. F,S

CTL 418. Microcomputers, Technology and Adaptive Access for Handicapped Individuals. 2 credits Participation in this course presupposes basic computer literacy, basic professional knowledge and skills in special education and had-on experiences with handicapped individuals. Therefore, the course should be taken immediately prior to student teaching. The concept and practice of adaptive access will be developed through exploration of: applications of technology with handicapped individuals; augmentative communication; microcomputer access and applications; adaptations of commercially produced software; peripherals and single-switch mechanisms; adaptive equipment; positioning and handling; assessment of individual access needs; and parent involvement in adaptive access. S

419. Curricula and Materials in Special Education. 3 credits. May be taken concurrently with CTL 417 and 487. A laboratory course for the development of curricula and materials to meet the needs of special pupils. F

CTL 421. Transition to Adult Life. 3 credits. Systematic methods and curriculum which encourage successful adult life in persons with disabilities. Subject matter includes interagency cooperation transition program development, career awareness, career development, and the operation of cooperating agencies and programs. Special assessment and teaching methods from the vocational domain are covered. S

422. Education of the Gifted/Talented. 2 credits Methods and programs for encouraging and helping the more able student get the most from their school experiences. S

486. Field Experience. 1-4 credits. (Repeatable to 16). Prerequisite: Permission of program chair. 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. F,S

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. F,S

493. Problems in Special Education. 2 to 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. F,S

Secondary Education

R-c-admission to the Center for Teaching and Learning

215. Exploring Teaching. 2 credits. Corequisite: CTL 286. An opportunity for the introductory level student to reflect on the foundations of education while examining his or her assumptions about teaching and schooling. This course is organized around three questions: What does it mean to teach? What do teachers need to know? and, What do students learn in school? In order to clarify and test the seriousness of a commitment to prepare for teaching, enrollment in a one credit field experience is required. F,S

286. Field Experience. 1 credit. Co-requisite: CTL 215. 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. F,S

Admission to the Center for Teaching and Learning is required for enrollment in the courses listed below:

341. Curriculum Development and Instruction. 3 credits. Prerequisites CTL 215, 286. A general curriculum development and instruction course designed for the undergraduate pre-service teacher. It will focus on acquainting the undergraduate with (1) an operating philosophy and its effects on teaching, (2) curriculum, (3) curriculum development, (4) instruction, and (5) instructional planning. The functions of thoughtful planning and evaluation in effective teaching will be emphasized. F,S

350. Development and Education of the Adolescent. 3 credits. Prerequisites CTL 215, 286. A comprehensive examination of the characteristics and behavior of the early adolescent student with implications for curriculum and instruction in the junior high and high schools. Topics covered will be transition from childhood to adolescence, including cognitive development, self-concept, physiological 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

386. Field Experience. 1 credit. Prerequisites CTL 215, 286. 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

389. Microteaching. 2 credits. Prerequisites: CTL 215,286, 341. The focus of this course is to apply the education; theories learned in the foundational courses to pedagogy through peer teaching, group interaction, video-taped presentation, portfolio evaluations and other activities. Students should take this course the semester before student teaching. F,S

390. Special Topics. 2 credits. Prerequisites CTL 215, 186. (May be repeated.)
400. Methods and Materials. 3 credits Corequisite CTL 486. Various teaching methods and strategies and the materials used in teaching in a subject area. Some offered F only; some F,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 advisor.)

480. Multicultural Education: A Native American Perspective. 3 credits. Prerequisites: CTI 215, 286. An introduction and review of the conceptual, historical and theoretical aspects of multicultural education. Students will be provided with processes for incorporating multicultural education into their own future classrooms to meet the needs of culturally different students and to increase the cultural awareness and sensitivity of all students. Native Americans of North Dakota will be emphasized throughout the course. F,S

486. Field Experience. 1 credit. Prerequisite: CTL 400. 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. F,S

487. Student Teaching. 10-16 credits prerequisite: all courses listed above and permission of the advisor. If repeated, Student Teaching would be taken in a different program area. 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. F,S

495. Independent Study/Secondary Education. 1-2 credits. Optional. F,S

---

**Chemical Engineering (ChE)**

**T. Owens (Chair), Erjavec, Haesn, Ludlow, and Schulz**

Graduates from this program are well qualified to practice the profession of chemical engineering in a broad spectrum of industries including energy, chemicals, petroleum, plastics, synthetic fibers, and food. They may be engaged in research, teaching, development, production, sales, or project engineering, and frequently enter engineering management later in their careers. They also are well qualified to seek additional professional or graduate education.

---

**School of Engineering and Mines**

**B.S. IN CHEMICAL ENGINEERING**

Required 136 hours, including:

I. General Graduation Requirements, see pages 32-40 and page 90.

II. The Following Curriculum:

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChE 102</td>
<td>Introduction to Chemical Engineering</td>
<td>(2)</td>
</tr>
<tr>
<td>Chem 151</td>
<td>Fundamental Concepts of Chemistry</td>
<td></td>
</tr>
<tr>
<td>Chem 152</td>
<td>Inorganic Chemistry</td>
<td>(3)</td>
</tr>
<tr>
<td>Chem 161</td>
<td>Quantitative Analysis Laboratory</td>
<td>(1)</td>
</tr>
<tr>
<td>Chem 162</td>
<td>Qualitative Analysis Laboratory</td>
<td></td>
</tr>
<tr>
<td>Engl 101</td>
<td>Composition I</td>
<td>(3)</td>
</tr>
<tr>
<td>Engr 101</td>
<td>Engineering Graphics</td>
<td>(2)</td>
</tr>
<tr>
<td>Engr 201</td>
<td>Fundamentals of Computer Programming</td>
<td>(2)</td>
</tr>
<tr>
<td>Marb 211, 212</td>
<td>Calculus I, II</td>
<td>(4)</td>
</tr>
<tr>
<td>Phys 205</td>
<td>General Physics I</td>
<td>(4)</td>
</tr>
<tr>
<td>Social Science (See page 94)</td>
<td>(3)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChE 201</td>
<td>Stoichiometry</td>
<td>(3)</td>
</tr>
<tr>
<td>ChE 232</td>
<td>ChE Laboratory I</td>
<td></td>
</tr>
<tr>
<td>Chem 351</td>
<td>Organic Chemistry</td>
<td>(5)</td>
</tr>
<tr>
<td>Chem 352</td>
<td>Organic Chemistry II</td>
<td>(3)</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>ChE 301</td>
<td>Transport Phenomena</td>
<td>4</td>
</tr>
<tr>
<td>ChE 306</td>
<td>Unit Operations in Chemical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ChE 331, 332</td>
<td>ChE Laboratory II, 111</td>
<td>2</td>
</tr>
<tr>
<td>ChE 333</td>
<td>Basic Experimental Strategies</td>
<td>1</td>
</tr>
<tr>
<td>ChE 405</td>
<td>Mass Transfer Operations</td>
<td>3</td>
</tr>
<tr>
<td>Chem 450</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>Chem 451</td>
<td>Physical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CE 301</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>Econ 201</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>EE 206</td>
<td>EE Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>Phil 320</td>
<td>M &amp; P: Ethics in Engineering</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Technical Elective</td>
<td></td>
</tr>
</tbody>
</table>

**Junior Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChE 403</td>
<td>Clinical Engineering Thermodynamics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ChE 408</td>
<td>Chemical Process Dynamics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ChE 412</td>
<td>ChE Plant Design</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ChE 421</td>
<td>ChE Reactor Design</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ChE 431</td>
<td>ChE Laboratory IV</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EM 460</td>
<td>Engineering Economy</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts and Humanities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Technical Elective</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Senior Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChE 201</td>
<td>Introduction to Chemical Engineering</td>
<td>2</td>
<td>Chem 106* or 152*</td>
</tr>
<tr>
<td>ChE 201*</td>
<td>Introduction to Chemical Engineering</td>
<td>3</td>
<td>ChE 332</td>
</tr>
<tr>
<td>ChE 301</td>
<td>Introduction to Transport Phenomena</td>
<td>4</td>
<td>Chem 451 or</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Physics 206*</td>
</tr>
</tbody>
</table>

**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. **Stoichiometry,** 3 credits. Prerequisite Chem 106* or 152*. Introductory principles of stoichiometry with emphasis directed to material and energy balances involved in chemical processes. F

232. **Chemical Engineering Laboratory I,** 2 credits. Prerequisite: ChE 201 or concurrent enrollment. 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 351 (or concurrent enrollment) and Physics 206*. An analytical study of the transport of momentum, energy and mass; derivation and utilization of the differential equations of change. F

306. **Unit Operations in Chemical Engineering,** 3 credits. Prerequisites: ChE 201* and ChE 301. Application of the principles of momentum and heat transfer. S

331. **Chemical Engineering Laboratory II,** 2 credits. Prerequisites: ChE 301 and Chem 450 or concurrent enrollment. Experiments illustrating physico-chemical principles and transport phenomena. F

332. **Chemical Engineering Laboratory III,** 2 credits. Prerequisites: ChE 331 and Chem 451 or concurrent enrollment. Experiments illustrating physico-chemical principles and transport phenomena. S

333. **Basic Experimental Strategies,** 1 credit. Corequisite: ChE 332. Basic experimental strategies for the empirical study of relationships between variables. Analysis of resulting data to find significance of effects. S

337. **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,S,SS

403. **Chemical Engineering Thermodynamics,** 3 credits. Prerequisites: ChE 201* and Chem 450 and 45 1 or concurrent enrollment. Thermodynamics applied to chemical engineering with emphasis on computational work, including thermodynamic laws, chemical equilibria and pressure-volume-temperature relationships. F
405. Mass Transfer Operations. 3 credits. Prerequisite: ChE 201* and prerequisite or corequisite ChE 306. Applications of principles of mass transfer. Theory and application of staged operations. S

408. Chemical Process Dynamics. 3 credits. prerequisite: Math 351. Dynamics and control of chemical processes and of systems. F

412. Chemical Engineering Plant Design. 6 credits. Prerequisites: ChE 306,403, 405 and completed or concurrent enrollment in 421 and EM 460. Preliminary plant design for a chemical process, including market survey, site selection, process selection, material and energy balance, equipment design, plant layout, instrumentation and economic feasibility. S

421. Chemical Engineering Reactor Design. 3 credits. Prerequisites: Chem 451 and Math 351. Theory of chemical reaction rates. Design of batch, tubular, CSTR and catalytic chemical reactors. F

431. Chemical Engineering Laboratory IV. 3 credits. Prerequisites: ChE 306 and 405 or concurrent enrollment in 405. Laboratory study of the unit operations of Chemical Engineering.

491. Chemical Engineering Thesis. 2 credits. Choice of projects relating to unit operations or utilization of natural resources of North Dakota, each student being required to select a project for study and at the completion of the work to present a satisfactory thesis. On demand.

492. Chemical Engineering Thesis. 2 or 3 credits. prerequisite: ChE 491. On demand.

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 students by contacting members of the faculty. On demand.

*Completed with a C or better.

Chemistry

R. Baltisberger (Chair), Abrahamson, Avery, Ballantine, Hoffmann, Jasperse, Jensen, Pierce, Stahl, Thomasson, Tilotta, and Woolsey

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. Those students who wish to prepare themselves for teaching in High School may pursue the program leading to the B.S. degree with a teaching major in chemistry in either the Center for Teaching and Learning or the College of Arts and Sciences. 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. 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. For more detailed information, see the Graduate School Bulletin.
# B.S. IN CHEMISTRY

Required 125 hours, including:

I. General Graduation Requirements, see pages 32-40.

II. The Following Curriculum:

Major Requirements—43 hours including:

### FRESHMAN YEAR

<table>
<thead>
<tr>
<th>Fall</th>
<th>spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 151</td>
<td>Fundamental Concepts of Chemistry</td>
</tr>
<tr>
<td>Chem 152</td>
<td>Inorganic Chemistry 1</td>
</tr>
<tr>
<td>Chem 161</td>
<td>Quantitative Analysis Laboratory</td>
</tr>
<tr>
<td>Chem 162</td>
<td>Qualitative Analysis Laboratory</td>
</tr>
<tr>
<td>Engl 101</td>
<td>Composition</td>
</tr>
<tr>
<td>Engl 209</td>
<td>Technical and Business Writing</td>
</tr>
<tr>
<td>Math 211</td>
<td>Calculus I</td>
</tr>
<tr>
<td>Math 212</td>
<td>Calculus II</td>
</tr>
</tbody>
</table>

| Humanities or Social Science Elective | (5) | (5) |

Total Hours: 16 15

### SOPHOMORE YEAR

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105</td>
<td>General Chemistry</td>
<td>(4)</td>
</tr>
<tr>
<td>Chem 106</td>
<td>General Chemistry 11 and Quantitative Analysis</td>
<td>(4)</td>
</tr>
<tr>
<td>Engl 101</td>
<td>Composition 101</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 209</td>
<td>Technical and Business Writing</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 211</td>
<td>Calculus I</td>
<td>(4)</td>
</tr>
<tr>
<td>Math 212</td>
<td>Calculus II</td>
<td>(4)</td>
</tr>
</tbody>
</table>

| Humanities or Social Science Elective | (5) | (5) |

Total Hours: 16 15

### JUNIOR YEAR

**Chem 388** | Introduction to Research | (1) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 405, 451</td>
<td>Physical Chemistry 1, 11</td>
<td>(3)</td>
</tr>
<tr>
<td>Chem 461</td>
<td>Instrumental Analysis</td>
<td>(5)</td>
</tr>
<tr>
<td>Chem 462</td>
<td>Physical Chemistry Laboratory</td>
<td>(2)</td>
</tr>
<tr>
<td>Level II Language (German, French, or Russian)</td>
<td>(4)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

| Humanities or Social Science Elective | (3) | (2) |

Total Hours: 16 15

### SENIOR YEAR

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 454</td>
<td>Inorganic Chemistry</td>
<td>(3)</td>
</tr>
<tr>
<td>Minimum of 6 credits of advanced chemistry electives which must include at least 3 credits of course work Chem 455, any 500 Chem course or Biochem 301 and at least one laboratory course of 2 credits or more Chem 463, Chem 463</td>
<td>(3)</td>
<td></td>
</tr>
</tbody>
</table>

| Credits or more Chem 463, Chem 463 | (3) | (3) |
| Credits | (10) | (12) |

Total Hours: 16 15

*With permission of the advisor, a student may substitute English 102 if English 209 is not available.*
If a student is not ready for Math 211, the math sequence may be moved back one semester and Math 105 (also Math 103, if needed) should be taken in the first semester.

To fulfill the University Graduation Requirements, a minimum of 6 credit hours in Arts and Humanities (in addition to languages) and 9 credit hours in Social Sciences must be taken (see pp. 30-39 of the Undergraduate Catalog).

Suggested electives are courses in Physics, Mathematics, Biochemistry, Biology, Languages, Computer Science, Chemical Engineering, Business Management, and Speech.

If Chem 162 was completed then Chem 353 should be taken. If Chem 162 was not completed then Chem 209 should be taken.

Graduate level courses in Chemistry may be taken as electives.

**B.S. WITH MAJOR IN CHEMISTRY**

Required 125 hours, including:

1. General Graduation Requirements, see pages 3240.
2. The Following Curriculum:

   **Major Requirements — 33 hours including:**
   
   **FRESHMAN YEAR**
   
<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 161</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Chem 212</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Chem 162</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Engl 101</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Engl 209</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Math 211</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Math 212</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Total Hours</td>
<td>16</td>
<td>15</td>
</tr>
</tbody>
</table>

   **OR**
   
<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Chem 106</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Engl 101</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Engl 209</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Math 211</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Math 212</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Total Hours</td>
<td>16</td>
<td>15</td>
</tr>
</tbody>
</table>

   **SOPHOMORE YEAR**
   
<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 351</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Chem 352</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Chem 362</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Math 213</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Phys 205</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Phys 206</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Total Hours</td>
<td>16</td>
<td>15</td>
</tr>
</tbody>
</table>

   **OR**
   
<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 305</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Math 213</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Phys 205</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total Hours</td>
<td>16</td>
<td>15</td>
</tr>
</tbody>
</table>

   **JUNIOR YEAR**
   
<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 353</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Level II Language (German, French, or Russian)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total Hours</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

   **OR**
   
<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 209</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Level II Language (German, French, or Russian)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total Hours</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>
## SENIOR YEAR

Chem 450, 451 ............................................... Physical Chemistry I, II ................................................. (3) (3)
Chem 461 ....................................................... Instrumental Analysis .................................................... (5)
Chem 462 ....................................................... Physical Chemistry Laboratory ........................................ (2)

*Elective ................................................................. (8) (10)

Total Ho ................................................................. 16 15

*With permission of the advisor, a student may substitute English 102 if English 209 is not available.
*If a student is not ready for Math 211, the math sequence may be moved back one semester and Math 105 (also Math 103, if needed) should be taken in the first semester.
*To fulfill the University Graduation Requirements, a minimum of 6 credit hours in Arts and Humanities (in addition to languages) and 9 credit hours in Social Sciences must be taken (see pp. 32-39 of the Undergraduate Catalog).
*Suggested electives are courses in Physics, Mathematics, Biochemistry. Biology, Languages, Computer Science, Chemical Engineering, Business Management, and Speech.

If Chem 162 was completed then Chem 353 should be taken. If Chem 162 was not completed then Chem 209 should be taken.

Graduate level courses in Chemistry may be taken as electives.

## MINOR IN CHEMISTRY

Required: A minimum of 20 semester hours and shall include one year of general chemistry with laboratory, a semester of analytical chemistry with laboratory and one year of organic chemistry with laboratory. (Chem 212 and Biochemistry 301 can be substituted for one year of organic chemistry)

### Center for Teaching and Learning

### B.S. ED. WITH MAJOR IN CHEMISTRY

Required 125 hours, including:

I. General Graduation Requirements, see pages 32-40

H. The Center for Teaching and learning program in Secondary Education. See page 177.

111. The Following Curriculum:

   Major Requirements —33 hours including:

   Chem 151 ............................................... Fundamental Concepts of Chemistry ................................. (3)

   or

   Chem 105 ............................................... General Chemistry I ....................................................... (4)

   Chem 152 ............................................... Inorganic Chemistry ..................................................... (3)

   Chem 161 ............................................... Quantitative Analysis Laboratory ........................................ (1)

   Chem 162 ............................................... Qualitative Analysis ..................................................... (1)

   or

   Chem 106 ............................................... General Chemistry II and Qualitative Analysis ....................... (4)

   Chem 351, 352 ........................................ Organic Chemistry I, II ................................................. (8)

   or

   Chem 305, 306 ........................................ Organic Chemistry ......................................................... (10)

   Chem 362 ........................................ Organic Chemistry Laboratory II ............................................. (2)

   Chem 353 ........................................ Analytical Chemistry .......................................................... (10)

   or

   Chem 209 ............................................... Quantitative Analysis ..................................................... (4)

   Chem 450, 451 .......................................... Physical Chemistry I, II .............................................. (6)

   Chem 461 ............................................... Instrumental Analysis .................................................... (5)

   Chem 462 ............................................... Physical Chemistry Laboratory ........................................ (2)

   Required in other departments:

   Biol 101, 102 ........................................ Introduction to Biology ..................................................... (8)

   Math 211, 212, 213 ........................................ Calculus I, II, 111 ................................................. (12)

   Physics 205, 206, 208 ................................. General Physics ......................................................... (12)

### Courses

101. Fundamentals of Our Chemical World. 4 credits. Prerequisites: none. A course designed specifically for non-science majors who wish to obtain a basic understanding of chemistry as applied in the world today. Does not serve as a prerequisite for any other chemistry course. Includes laboratory. Students receiving credit in Chem 101 may not take Chem 104, 105, or 151 for credit. P.S.
104. Introductory Chemistry. 4 credits. Prerequisite: none. Introduction to inorganic chemistry. Includes laboratory. Students receiving credit in Chem 104 may not take Chem 105 or 151 for credit. F

105. General Chemistry L 4 credits. Prerequisite: one year of high school algebra. Open to all students; no high school credit in chemistry required. Elementary principles and theories of chemistry; chemical elements and their compounds. Includes one three hour laboratory per week. Students receiving credit in Chem 105 may not take Chem 151 for credit. F.S, SS

106. General Chemistry II and Qualitative Analysis. 4 credits. Prerequisite: Chem 105. Satisfies all requirements of Qualitative Analysis. Elementary principles and theories of chemistry; chemical elements and their compounds. Includes one three hour laboratory per week. Students receiving credit in Chem 106 may not take Chem 152 for credit. F.S, SS

107. Introduction to Organic and Biochemistry. 4 credits. Prerequisite: Chem 104 or 105. An alternate to Chem 106. May not take both. Does not satisfy the prerequisite for any advanced chemistry course. A second semester of General Chemistry with the emphasis on organic and biochemistry. Includes laboratory. Especially for students who wish to include organic and biochemistry in the first year. F.S, SS

151. Fundamental Concepts of Chemistry. 3 credits. Prerequisites: one year high school chemistry and one year high school algebra. Recommended for chemistry majors and chemical engineers. Atomic and molecular structure, periodicity, stoichiometry, states of matter, solutions, reactions in solutions and equilibria. F

152. Inorganic Chemistry I. 3 credits. Prerequisite: Chem 151. Recommended for chemistry majors and chemical engineers. Chemistry of the elements with emphasis on occurrence, preparation, physical and chemical properties, uses, nomenclature, structure and periodic behavior. S

161. Quantitative Analysis Laboratory. 1 credit. Prerequisites: One year high school chemistry and one year high school algebra. Required for chemistry majors and recommended for chemical engineers. The techniques of gravimetric and volumetric analysis. F

162. Qualitative Analysis Laboratory. 1 credit. Prerequisite: Chem 161. Required for chemistry majors and recommended for chemical engineers. Qualitative analysis in the chemical laboratory. S

209. Quantitative Analysis. 4 credits. Prerequisite: Chem 106. For medical technicians and pre-medical students. Principles and applications of gravimetric, volumetric, and absorptiometric analysis. Includes laboratory, F

212. Organic Chemistry. 5 credits. Prerequisite: Chem 106. Intended to meet the minimum requirements for students preparing for medical technology and for natural science majors. Includes laboratory. Students receiving credit in Chem 212 may not take Chem 305 for credit. S

305, 306. Organic Chemistry. 10 credits. Prerequisite: Chem 106. Designed for preprofessional preparation of students other than chemistry majors. Organic chemistry is discussed in terms of modern theory. Includes laboratory. 305F, 306S

351. Organic Chemistry I. 5 credits. Prerequisites: Chem 152 & 162. Recommended for chemistry majors. Descriptive and mechanistic chemistry of carbon containing compounds; their occurrence, properties, nomenclature, stereochemistry, structure, synthesis and reactions. Includes laboratory. F

352. Organic Chemistry II. 5 credits. Prerequisites: Chem 351. Recommended for chemistry majors. Descriptive and mechanistic chemistry of functionalized derivatives of carbon containing compounds including biologically significant compounds. S

353. Analytical Chemistry. 2 credits. Prerequisite: Chem 152 and 162. Required for chemistry majors. Principles and applications of chemical stoichiometry, equilibria, and spectroscopy to modern chemical analysis. F

362 Organic Chemistry Laboratory II. 2 credits. Prerequisite: Chem 351. Recommended for chemistry majors. The synthesis of organic compounds including the qualitative and instrumental characterization of selected compounds. S

388. Introduction to Research. 1 credit. Prerequisites: Chem 353 and 362; or Chem 209 and 306. Introduction to the chemical literature, to computer searching of the literature and to prudent laboratory practices, including safety and waste disposal. S

390. 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. F.S

427. Glass Working. 1 credit. May be repeated for a maximum of 2 credits. Techniques of repair and construction of glass apparatus useful in research. SS

431. Selected Topics in Chemistry. 1-3 credits, repeatable with different topics. On demand.

450. Physical Chemistry I. 3 credits. Prerequisites: Chem 353, 306 or 352, Math 212 & Physics 206. Required for chemistry majors. The use of energy concepts in studying and understanding the nature of matter, equilibria, volatility, reactivity, criteria for reactions. F

451. Physical Chemistry II. 3 credits. Prerequisite: Chem 450. Theory and nature of bonding and structure, chemical kinetics, and theory of reactions as applied to both inorganic and organic systems. S

454 Inorganic Chemistry II. 3 credits. Prerequisite: Chem 451. Chemistry of inorganic compounds in terms of modern theories and concepts. F

455. Spectroscopy and Structure. 3 credits. Prerequisite: Chem 451. Applications of spectroscopic techniques to the determination of molecular structure. F
461. Instrumental Analysis. 5 credits. Prerequisite: Chem 353 or 209. Required for chemistry majors. Applications of physiochemical principles via instrumental techniques to problems of quantitative and qualitative analysis. Includes laboratory. F

462. Physical Chemistry Laboratory. 2 credits. Prerequisites: Chem 461 and 450. Corequisite: Chem 451. Required for chemistry majors. The solution of chemical problems in the laboratory using modern physical and analytical methods. S

463. Advanced Synthesis Laboratory. 3 credits. Prerequisites: Chem 462 and 455. Advanced synthetic, separator and characterization methods currently used in modern laboratory practice will be emphasized. S

490 Senior Research. 2-6 credits. Prerequisites: Chem 451 and 462. May be repeated up to 6 credits. Total credits not to exceed 6. F, S, SS

Civil Engineering

C E

R. Apanian (Chair), Gullicks, Jerath, Mason, Moratti, and Phillips

The Civil Engineering curriculum includes a core of chemistry, physics, mathematics, and engineering science, followed by intensive design-oriented courses in environmental and water resources engineering, soils and structural engineering, and transportation engineering. This curriculum has the goal of developing the student as a professional engineer capable of systematically solving complex problems of society within the engineering field, while also preparing graduates for continuing professional or graduate education.

School of Engineering and Mines

B.S. IN CIVIL ENGINEERING

Required 140 hours, including:

I. General Graduation Requirements, see pages 32-40 and page 90.

11. The Following Curriculum:

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105. General Chemistry</td>
<td>(4)</td>
<td>(4)</td>
</tr>
<tr>
<td>Chem 106. General Chemistry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engr 101. Composition I</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Engr 102. Engineering Graphics</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>Math 211, 212. Calculus 1 &amp; H</td>
<td>(4)</td>
<td>(4)</td>
</tr>
<tr>
<td>Phys 205. General Physics 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts and Humanities (See page 94)</td>
<td>(3)</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Sophomore Year

| CE 300. Analytical Mechanics (Statics) | (2) | |
| CE 301. Mechanics of Materials I | | |
| CE 313. General Surveying | (4) | |
| CE 314. Route Surveying | (2) | |
| Econ 201. Principles of Microeconomics | (3) | |
| Engl 209. Technical & Business Writing | (3) | |
| GeoE 203. Geology for Engineers. | (3) | |
| Math 233. Calculus 111 | (4) | |
| Math 351. Applied Mathematics | | |
| Phys 206. General Physics 11 | (4) | |

(3)
Junior Year

CE 305. Analytical Mechanics (Dynamics). (3)
CE 351. Structural Mechanics I. (3)
CE 303. Civil Engineering Lab. (3)
CE 352. Structural Mechanics II. (4)
CE 412. Soil Mechanics. (3)
CE 431. Environmental Engineering I. (3)
CE 423. Hydraulic Engineering. (3)
CE or ME 306. Fluid Mechanics. (3)
Math 352. Applied Mathematics. (3)

Arts and Humanities (See page 94) (3)
Social Science (See page 94). (3)

Senior Year

CE 413. Soil Mechanics Lab I. (2)
CE 416. Transportation Engineering. (3)
CE 432. Environmental Engineering II. (3)
CE 451. Structural Design I. (3)
CE 453. Reinforced Concrete. (4)
CE Elective. (3)
CE Elective. (3)
CE Elective. (3)
EM 460. Engineering Economy. (3)
Phil 370. M Q & P: Ethics in Engineering. (3)
ME 341. Thermodynamics. (3)

Arts and Humanities (See page 94) (3)
Social Sciences (See page 94). (3)

Courses


301. Mechanics of Materials I. 3 credits. Prerequisites: CE 300. Simple stress and strain, torsion, shear and bending moment, flexural and shearing stresses in beams, combined stresses, deflection of beams, statically indeterminate members and columns. F.S

303. Civil Engineering Laboratory. 3 credits. Prerequisite: CE 301. Testing of asphalt and portland cement concretes, ceramic products, metals, woods, and other materials; electrical strain measurement. F

306. Fluid Mechanics. 3 credits. Prerequisite: Physics 205, Math 212. 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. 4 credits. Prerequisite: Math 211. Measurements of distance and angles; instrument adjustment; stadia and plane table mapping; triangulation; differential leveling; azimuth by solar observation; horizontal and vertical curves; traverse surveys: calculations; state plane coordinate systems; U.S. public land surveys; earthwork. F

314. Route Surveying. 2 credits. Prerequisite: CE 313. Route location; horizontal curves simple, compound, and reverse; vertical curves; spiral curves; earthwork; principles of construction layout and route location design; aerial photography in route surveying. S

337. Cooperative Education. 1-8 credits repeatable to 24. Prerequisite: Admission to the civil 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.SS

351. Structural Mechanics I. 3 credits. Prerequisite: CE 301. Reactions, shear and bending moment, trusses, graphic statics, influence lines, bridge and roof trusses, long-span structures, three dimensional framework, cables and approximate analysis. F

352. Structural Mechanics II. 4 credits. Prerequisite: CE 351. Moment areas, elastic-loads, virtual work, Castigiano’s law, super-position equations, slope-deflection method and moment distribution. S

412. Soil Mechanics. 3 credits. Prerequisites: GeoE 203 and CE 301. Soil characteristics, steady-state and transient water flow in soil, soil deformation, conditions at failure in cohesionless and cohesive soils and plastic-equilibrium states in soil. S

413. Soil Mechanics Laboratory. 2 credits. Prerequisite: CE 412. Visual identification and classification, index properties, moisture density relations, consolidation, permeability, shear strength, and soil stabilization. F
188

University of North Dakota

414. Foundation Engineering. 3 credits. Prerequisite: CE 412. Lateral earth pressure, retaining structures, soil exploration and sampling, bearing capacity, spread footings, combined footings, mat foundations, settlement analysis, drilled shaft and pile foundations, stability of slopes. Once a year.

416. Transportation Engineering. 3 credits. Prerequisite: CE 314 and CE 412. Transportation systems; urban transportation planning; design of land, air and water transportation facilities; and future development in transportation. S

421. Hydrology I. 3 credits. Measurement, interpretation, analysis and application of hydrologic data; precipitating, evaporation and transpiration; runoff hydrographs; routing methods; groundwater; snow hydrology. On demand.

422. Hydrology II. 3 credits. Frequency and duration studies; regional analysis; time series; hydrologic simulation. On demand.

423. Hydraulic Engineering. 3 credits. Prerequisite: CE 306. Fluid statics and dynamics; open channel flow; transitions and controls; hydraulic structures; hydraulic power conversion. Laboratory: Laboratory techniques and model studies; calibration principles and fluid measurements; open channel, pipeline and hydraulic machinery experiments. F

431. Environmental Engineering I. 3 credits. Prerequisite: ME 306. Environmental quality, water quality modeling, water & wastewater treatment systems, sludge processing, solid wastes, hazardous wastes, environmental law. S

432. Environmental Engineering II. 3 credits. Prerequisite: ME 306. Water distribution networks, mass curve analysis, wastewater collection systems, pumping systems for water and wastewater, system design project, computer-assisted design. F

434. Environmental Engineering Laboratory. 3 credits. Physical, chemical and biological methods used in environmental engineering, water chemistry, instrumental methods, lab tours. On demand.

442. Municipal Engineering. 3 credits. Prerequisite: Consent of instructor. City planning and city problems, including government organization, financing methods, budgets, subdivisions, utilities, building cedes, zoning, fire protection and traffic. On demand.

444. Contracts and Specification. 3 credits. Prerequisite: Consent of instructor. Engineering contracts, specification essentials, approved methods of handling construction projects, trade practices, worker’s compensation acts, power and duties of engineering executive. F/S

451. Structural Design I. 3 credits. Prerequisite: CE 352. Selection of sections, riveted and welded connections, plate girders, trusses, bearings, lightgage structural members, fatigue of structural members and introduction to plastic design. F

452. Timber Engineering. 3 credits. Prerequisite: CE 351. Design of mechanical fastenings, beams, columns, trusses, bridge decks, glued laminated lumber and plywood On demand.

453. Reinforced Concrete. 4 credits. Prerequisite: CE 352. Materials and specifications, axially and eccentrically loaded columns, strength beam theory, shear stresses, retaining walls, one-way slabs, flat slabs and footings. S


456. Structural Dynamics. 3 credits. Prerequisite: CE 451 or ME 422. The analysis and design of structures to resist wind gust and earthquake loadings.

490. Special Topics. 1 to 3 credits. Prerequisite: Departmental approval. Investigation of special topics dictated by student and faculty interests. F/S

School of Communication

Comm

Davis, Fischer, Ganje, Hallahan, Holden, Hooper, McCutchan, O'Keefe, Rendahl, and Smith

The School of Communication offers a liberal arts curriculum that focuses on the processes and effects of communication and prepares students for careers in advertising, broadcasting, journalism, public relations, education, and related fields.

Five majors are offered leading to the Bachelor of Arts degree, as well as a major in Communication Studies leading to the Bachelor of Education degree for students planning to teach at the middle and secondary levels. 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. National accreditation rules for programs offering professional training in journalism and mass communication require students to earn a minimum of 90 semester credits outside the School. At least 65 of these credits must be in courses approved for the university’s general education requirements (see pages 32-40) or offered by the traditional liberal arts departments.

Facilities and Special Programs. The School has computerized writing and graphics laboratories, as well as its own reading room that houses a wide selection of daily and weekly newspapers and professional journals. The facilities of the KFJM-AM and FM radio stations and the university’s Television Production Center are available for student training.

The School’s Communication Research Center conducts research on a variety of communication issues and problems.

The Native Media Center’s mission is to promote 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 publications and materials written by, about, and for Native peoples.

Student Opportunities. Students are encouraged to supplement classroom instruction through work on campus publications, the university’s radio stations, national-award-winning television program, and supervised professional internships. Students interested in debate, oratory, and public speaking are invited to participate in the intercollegiate debate program.

Student organizations sponsored by the School include chapters of the American Advertising Federation, the Public Relations Student Society of America, and the Society of Professional Journalists. Other programs sponsored by the School include the Northern Interscholastic Press Association, which serves high school journalism programs in North Dakota and northern Minnesota, and the UND Sioux High School Invitational Speech Tournament.

Admission Requirements. Students planning to pursue a major or minor through the School must formally apply for admission to major status. This is usually done during the sophomore year. To be admitted, students must:

- Complete Comm 100 and Engl 101 with grades of C or better.
- Pass an English Proficiency Test administered by the School.
- Have a 2.5 overall grade point average.
- Have earned at least 24 university credits.
- Apply for major status in the School.

Students are classified as Pre-Communication majors until they have completed these requirements. Additional information about the application process is available from the School.

Students cannot earn two majors or a major and a minor from the School of Communication or a second communication-related major from another department without completing more than the 125 hours needed for graduation.

Note: Students must earn a grade of C or better in all courses taken to fulfill requirements toward the major and minor, and they must maintain an overall grade point average of 2.5.
GENERAL REQUIREMENTS FOR ALL MAJORS

Required 125 hours, including:

I. General Graduation Requirements, see pages 3240 (Note: Students within the School cannot count Communication courses toward these requirements.)

II. Liberal Arts Courses

Students must complete 90 hours of courses outside of the School, 65 of which must be in the following liberal arts areas: Anatomy, Anthropology, Art, Biology, Chemistry, English, Fine Arts, Geography, Geology, History, Humanities, Honors, Indian Studies, languages, Mathematics, Music, Peace Studies, Philosophy, Political Science, Physics, Psychology, Religion, Sociology, Theatre Arts, and Women Studies.

The following courses offered by other departments as Communication courses may not be counted as part of these 90 credits: IT 102, 212, 302, 322; LSAV 365, 470, 471; Mrkt 312, 412; VA 260, 310.

III. One of the following options is also required:

A. Level IV proficiency in a second language (which requires completion of the course numbered 202 in the student’s chosen language); OR

B. 20 additional credits (beyond the General Graduation Requirements) from two of the following areas Arts and Humanities; Social Sciences; Mathematics; Science and Technology (12 of these credits must be in upper division courses.)

IV. Common Core Curriculum

All students within the School complete a Common Core (14 credits) of courses designed to provide a broad overview of communication processes and effects.

V. Specializations

Depending on their interests, students will take a series of courses to meet the requirements of their major or minor.

B.A. WITH MAJOR IN ADVERTISING

Intended for students interested in pursuing careers involving the creation of advertising for clients or the management of advertising for media organizations.

Common Core (14 credits):

Comm 100, Introduction to Communication. ................................................................. (2)
Comm 161, Fundamentals of Public Speaking ......................................................... (3)
Comm 200, Writing for the Media............................................................................ (3)
Comm 201, Visual Communication...................................................................... (3)

Choose one 3 credit course from:

Comm 300, Communication and Society ............................................................. (3)
Comm 310, Women, Minorities, and Media ...................................................... (3)
Comm 402, Intercultural/International Communication .................................... (3)
Comm 412, Communication Law ........................................................................ (3)
Comm 428, U.S. Media History ........................................................................... (3)
Comm 461, Political Communication ................................................................ (3)

Note: If a course listed in the core option area is a requirement in the major, choose a different option.

Other Requirements (26 credits):

*Mrkt 301, Principles of Marketing ................................................................. (3)
*Mrkt 310, Buyer Behavior ............................................................................... (3)
**Mrkt 312, Advertising ................................................................................. (3)
Comm 324, Introduction to Graphic Communication ..................................... (3)
Comm 341, Advertising Creative Strategy and Execution 1 ............................ (3)
Comm 440, Advertising Research .................................................................... (2)
Comm 441, Advertising Media Planning ......................................................... (2)
Comm 443, Advertising Campaigns .................................................................. (3)
Comm 444, Advertising Creative Strategy and Execution 11 ......................... (3)

Electives: 1-4 credits of additional coursework work from the School.

* Does not count as a Communication course, even though it is required.
** Counts as a communication course
B.A. WITH MAJOR IN BROADCASTING

Intended for students wanting to pursue careers in broadcast journalism.

Common Core (14 credits):

Comm 100 ......................... Introduction to Communication .................................................................(2)
Comm 161 ......................... Fundamentals of Public Speaking .........................................................(3)
Comm 200 .......................... Writing or the Media .................................................................(3)
Comm 201 ......................... Visual Communication .................................................................(3)

Choose one 3-credit course from:

Comm 300 .......................... Communication and Society ..........................................................(3)
Comm 310 .......................... Women, Minorities and Media .....................................................(3)
Comm 402 .......................... Intercultural/International Communication .................................(3)
Comm 412 .......................... Communication Law .................................................................(3)
Comm 428 .......................... U.S. Media History .................................................................(3)
Comm 461 .......................... Political Communication ...............................................................(3)

Note: If a course listed in the core option area is a requirement in the major, choose a different option.

Other Requirements (24 credits):

Comm 221 .......................... Reporting .........................................................................................(3)
Comm 332 .......................... Fundamentals of TV Production .........................................................(3)
Comm 340 .......................... Radio Writing, Reporting, and Production .................................(3)
Comm 345 .......................... Television Writing, Reporting, and Production ........................................(3)
Comm 412 .......................... Communication Law .................................................................(3)

Choose one 3-credit course from:

Comm 331 .......................... Survey of Broadcasting .................................................................(3)
Comm 335 .......................... Electronic Media Programming ......................................................(3)

Complete 3 credits from:

Comm 337 .......................... Cooperative Education .............................................................(1-3)
Comm 381 .......................... Radio Practicum .................................................................(1-4)
Comm 382 .......................... Television Practicum .................................................................(1-4)
Comm 391 .......................... Individual Projects and Readings ...................................................(1-3)
Comm 485 .......................... Internship .......................................................................................(1-3)

Choose one 3-credit course from:

Comm 420 .......................... Advanced Broadcast Reporting ......................................................(3)
Comm 432 .......................... Television Theory and Production .....................................................(3)

B.A. WITH MAJOR IN COMMUNICATION STUDIES
(Incorporates Speech)

Intended for students interested in communication studies as the foundation for a liberal arts education, as well as students interested in traditional speech. In cooperation with an advisor, students can tailor a curriculum in specializations such as political or persuasive communication, communication theory and research, interpersonal or organizational communication, or media criticism/studies.

Common Core (14 credits):

Comm 100 .......................... Introduction to Communication .................................................................(2)
Comm 161 .......................... Fundamentals of Public Speaking .........................................................(3)
Comm 200 .......................... Writing or the Media .................................................................(3)
Comm 201 .......................... Visual Communication .................................................................(3)

Choose one 3-credit course from:

Comm 300 .......................... Communication and Society ..........................................................(3)
Comm 310 .......................... Women, Minorities, and Media .....................................................(3)
Comm 402 .......................... Intercultural/International Communication .................................(3)
Comm 412 .......................... Communication Law .................................................................(3)
Comm 428 .......................... U.S. Media History .................................................................(3)
Comm 461 .......................... Political Communication ...............................................................(3)

Note: If a course listed in the core option area is a requirement in the major, choose a different option.

Other Requirements (21 credits-choose at least 7 courses):

Comm 210 .......................... Interpersonal Communication .........................................................(3)
Comm 300 .......................... Communication and Society .............................................................(3)
Comm 301 .......................... Psychology of Communication .........................................................(3)
Comm 310 .......................... Women, Minorities, and Media .....................................................(3)
Comm 361 .......................... Persuasion .......................................................................................(3)
Intended for prospective writers and editors for weekly or daily newspaper, and trade, business and consumer magazines. Also for those considering careers in free-lance writing.

Common Core (14 credits):
- Comm 100: Introduction to Communication. (2)
- Comm 161: Fundamentals of Public Speaking. (3)
- Comm 200: Writing for the Media. (3)
- Comm 201: Visual Communication. (3)

Choose one 3-credit course from:
- Comm 300: Communication and Society. (3)
- Comm 310: Women, Minorities, and Media. (3)
- Comm 402: Intercultural/International Communication. (3)
- Comm 412: Communication Law. (3)
- Comm 428: U.S. Media History. (3)
- Comm 461: Political Communication. (3)

Note: If a course listed in the core option area is a requirement in the major, choose a different option.

Other Requirements (19-21 credits):
- Comm 221: Reporting. (3)
- Comm 321: Advanced Reporting. (3)
- Comm 322: Editing. (3)
- Comm 324: Introduction to Graphic Communication. (3)
- Comm 412: Communication Law. (3)
- Comm 428: U.S. Media History. (3)
- Comm 485: Internship. (1-3)

Electives: 1-5 credits of additional courses from the School.

B.A. WITH MAJOR IN PUBLIC RELATIONS

Intended to train students for careers as public relations managers who are responsible for communications directed to customers, employees, investors, donors, government officials, or the community at large. Students become familiar with publicity in the mass media and a wide range of other communication techniques.

Common Core (14 credits):
- Comm 100: Introduction to Communication. (2)
- Comm 161: Fundamentals of Public Speaking. (3)
- Comm 200: Writing for the Media. (3)
- Comm 201: Visual Communication. (3)

Choose one 3-credit course from:
- Comm 300: Communication and Society. (3)
- Comm 310: Women, Minorities, and Media. (3)
- Comm 402: Intercultural/Intercultural Communication. (3)
- Comm 412: Communication Law. (3)
- Comm 428: U.S. Media History. (3)
- Comm 461: Political Communication. (3)

Note: If a course listed in the core option area is a requirement in the major, choose a different option.

Other Requirements (21 credits):
- Comm 221: Reporting. (3)
- Comm 250: Introduction to Public Relations. (3)
- Comm 324: Introduction to Graphic Communication*. (3)
MINOR IN COMMUNICATION STUDIES

Choose one 3-credit course from:

Comm 301 ..................................Psychology of Communication .............................................................(3)
Comm 361 ..................................Persuasion .....................................................................................(3)
Comm 401 ..................................Organizational Communication ....................................................(3)
Comm 410 ..................................Research Methods in Communication ..........................................(3)
Comm 461 ..................................Political Communication .................................................................(3)

Elective: Additional 3-credit elective from any upper division course in the School, including Comm 337 (Cooperative Education) or Comm 485 (Internship).

* IT 212, Principles of Graphic Design and production, may be substituted with advisor’s consent.

MINOR IN COMMUNICATION STUDIES

B.S.ED. WITH A MAJOR IN COMMUNICATION STUDIES
(Incorporate Speech)

Required 125 hours, including:

I. General Graduation Requirements, see pages 32-40. (Note: Students cannot count Communication courses toward these requirements)

II. Completion of the Center for Teaching and Learning program in Secondary Education, see page 178.

111. One of the following options:

A. Level IV proficiency in a second language (which requires completion of the course numbered 202 in the student’s chosen language), OR

B. 20 additional credits (beyond the General Education Requirements) from two of the following three areas: Arts and Humanities, Social Sciences, Mathematics, Science and Technology (12 of these credits must be in upper-division courses)

IV. Requirements (36 credits):

Core (8 credits):

Comm 100 ..........................Introduction to Communication .............................................................(2)
Comm 161 ..........................Fundamentals of Public Speaking .......................................................(3)
Comm 200 ................................Writing for the Media .................................................................(3)
Comm 201 ..........................Visual Communication .................................................................(3)
Comm 300 ..........................Communication and Society .............................................................(3)

Electives in Communication: In consultation with a School of Communication advisor, students will choose electives to bring their total minor credits to 23, with the following stipulations:

a. Six of the 9 credits must be upper division.
b. Internship credit will not apply.
c. Only 2 credits of practicum or projects will be allowed.

Students will fulfill the admission requirements of the School of Communication. They must also earn a grade of C or better in all courses taken in the School of Communication and must maintain an overall GPA of 2.5

Center for Teaching and Learning
MINOR IN SPEECH

Required 23 credits, including:

Core (8 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comm 100</td>
<td>Introduction to Communication</td>
<td>(2)</td>
</tr>
<tr>
<td>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 200</td>
<td>Writing for the Media</td>
<td></td>
</tr>
</tbody>
</table>

Choose one 3-credit course from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comm 300</td>
<td>Communication and Society</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 310</td>
<td>Women, Minorities, and Media</td>
<td></td>
</tr>
<tr>
<td>Comm 402</td>
<td>Intercultural/International Communication</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 412</td>
<td>Communication Law</td>
<td></td>
</tr>
<tr>
<td>Comm 428</td>
<td>U.S. Media History</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 461</td>
<td>Political Communication</td>
<td></td>
</tr>
</tbody>
</table>

Other Requirements (12 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comm 210</td>
<td>Introduction to Interpersonal Communication</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 361</td>
<td>Persuasion</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 365</td>
<td>Small Group Discussion</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 402</td>
<td>Intercultural/International Communication</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Note: If a course listed in the core option area is a requirement in the major, choose a different option.

Courses

100. Introduction to Communication. 2 credits. An examination of the basic elements of communication and the interaction, process and effects of interpersonal and mass communicating. Survey of the mass media and career opportunities in communication-related fields. F,S

161. Fundamentals of Public Speaking. 3 credits. Basic principles of speech from the viewpoint of composition and delivery. Emphasis on student performance stressing original thinking, effective organization and direct communication of ideas. F,S

200. Writing for the Media. 3 credits. Prerequisites: Comm 100, Engl 101 and English proficiency Test. Keyboarding skills required. Introduction to writing in the various styles and forms required in journalism, advertising, broadcasting, public relations and speech communication. F,S

201. Visual Communication. 3 credits. Prerequisite: Comm 100. An examination of the history and development of design in visual communication with emphasis on the visual components of communication, particularly the graphics of news and advertising, photography and television. F,S
210. Introduction to Interpersonal Communication. 3 credits. To acquaint the student with fundamental concepts relative to communication between individuals. To give insights into the dynamics of interpersonal communication. To aid in the understanding how people present themselves to other people, and how others perceive them in return. F,S

221. Reporting. 3 credits. Prerequisite: Comm 200. Introduction to news gathering, judgment and writing. F,S

226. Photocommunication I. 3 credits. Prerequisite: Comm 201. Introduction to the practice of photography. Film developing, print making, photographic composition. Emphasis on the purposes of photography. F,S

250. Introduction to Public Relations. 3 credits. Prerequisite: Comm 100. A comprehensive overview of the field. Examines skills and management functions required of the profession, the range of applications, and impact on organizations and society. F,S

262. Argumentation. 2 credits. Introduction to the philosophical development of argument, basic components of argumentation, kinds of argument structures and practical application of argumentation. S

280. Intercollegiate Debate. 1 credit. Repeatable to 8 credits, Active participation in intercollegiate debate and/or speech activities. Participation should be for a complete season. F,S

300. Communication and Society. 3 credits. Prerequisites: Comm 100, junior standing. Explores the interrelationships of society and forms of communication. Objectives include developing knowledge of the media, an ability to discuss in an informed manner the issues of communication in a democratic society and to develop an awareness of intelligent use of the media. F,S

301. Psychology of Communication. 3 credits. Prerequisite: Comm 300. Analysis of the nature and function of communication in interpersonal relationships, special consideration of recurring patterns of communication behavior and the relations among personal characteristics and communications. F,S

310. Women, Minorities, and Media. 3 credits. Prerequisites: Comm 100, junior standing. Study of minority status within mass media organizations and in media content from historical, contemporary and speculative points of view. S

320. Promotional Methods. 3 credits. Introduction to promotional methods for the non-communication major. Developing mediated and direct communication, including advertising and publicity: working with the media; organizing and executing promotional campaigns. F,S

321. Advanced Reporting. 3 credits. Prerequisite: Comm 221. News coverage and writing techniques involving public and private sectors of contemporary society. F,S

322. Editing. 3 credits. Prerequisite: Comm 221. Editing and headline writing, copy preparation and layout applicable to newspapers and other print media. F,S

323. Writing for Special Markets. 3 credits. Prerequisite: Comm 221 or Engl 209. Researching and writing or scripting feature articles or presentations for focused markets. On demand

324. Introduction to Graphic Communication. 3 credits. Prerequisites: Comm 200 and Comm 201. Fundamental theories and practices of graphic arts as applied in journalism, advertising, public relations and other mass media. Emphasis on historical development of printing, design styles, and basic design principles and their application today. Lab exercises include preparation of advertising and page layouts, camera-ready copy, and operation of electric phototypesetting equipment including video display terminals. F,S

325. Community Journalism. 2 credits. Prerequisite: Comm 221. Problems of news gathering, writing and editing peculiar to community, suburban and small city weekly and daily newspaper. S/I

326. Photocommunication II. 3 credits. Prerequisite Comm 226 or equivalent. Emphasis on the social impacts of photography and communication through photography. Class and individual projects. F

327. Editorial Photography. 3 credits. Prerequisites: Comm 226 or Comm 326. Classroom discussion of philosophical, moral and ethical issues involved in photography plus production of an extended photographic editorial. S

331. Survey of Broadcasting. 3 credits. Prerequisite: Comm 100. Examination of broadcasting with emphasis on basic technology, structure, and organization. Study will include the basic legal, social and artistic aspects of broadcasting as well as techniques and utilization of audience research. S

332. Fundamentals of Television Production. 3 credits. Prerequisite: Comm 200. Introduction to basic production. Emphasis on the function and operation of TV equipment, lighting, producing and directing, including crew management, program conception, writing, planning and evaluation. F

335. Electric Media Programming. 3 credits. Prerequisites: Junior standing, admitted major. This course will help students understand basic programming strategies used in the electronic media. Topics include audience research, application of ratings to programming, making and buying programs, creating viewer habits, and regulatory and ethical standards of broadcasting. F

337. Cooperative Education. 1-3 credits, repeatable to a total of 3 credits in Cooperative Education. Internship, or a combination of both. A practical work experience with an employer closely associated with the
strident’s academic area. Arranged by mutual agreement among student, department, and employer. S/U grading only. F,S,SS

340. Radio Writing, Reporting, and Production. 3 credits. Prerequisite: Comm 221. This course will use radio to introduce students to broadcast writing, reporting, and production. The subject matter will include basic information-gathering techniques, critical thinking, and audio production skills needed to edit, produce, and deliver radio scripts. Ethical, cultural, legal, and regulatory considerations in constructing radio messages will be discussed, as will the importance of audience analysis. F

341. Advertising Creative Strategy and Execution I. 3 credits. Prerequisites: Comm 200 and 324. Introduces students to ideas and their translation into words and images that inform and persuade. Emphasis is on strategic approaches to creative decision-making across all media. Topics include the setting of objectives, selection of copy structure, demands of different media, design principles, layout and story boards, and regulations affecting messages. F,S

345. Television Writing, Reporting, and Production. 3 credits. Prerequisite: Comm 340. Introduces students to basic television writing, reporting, and production techniques. Topics include techniques and theories in information gathering, critical thinking, and the audio and visual production skills needed to edit, produce, and deliver broadcast television scripts. Theories and practices of television news will be introduced. Ethical, cultural, and legal topics will be discussed, as will audience analysis. F, S

352. Writing for Public Relations. 3 credits. Prerequisites: Comm 221 and 250. Corequisites: Comm 353, may be taken concurrently. 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

353. Public Relations Theory and Research. 3 credits. Prerequisite: Comm 221 and 250. An intermediate course that examines public relations theories and formulative and evaluative research techniques in the major practice areas of public relations: marketing, investor, donor, employee, community, and governmental relations. F,S

361. Persuasion. 3 credits. Prerequisite: Comm 161. Principle and practices of persuasion and influence will be examined across communication contexts such as interpersonal, group, and mass communication. Emphasis will be placed on ethical standards and implications of persuasion and influence. F

362. Debate. 3 credits. Theory and practice in forms of debate, use of evidence, organization and evaluation of evidence, research, process of refutation, judging philosophies and evaluation criteria for debate formats. F

365. Small Group Discussion and Conference. 3 credits. Prerequisite: Comm 161. 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. F

366. Business and Professional Speaking. 3 credits. Prerequisite: Comm 161. 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,S

367. Classical and Modern Criticism. 3 credits. A study of the ancient to contemporary development of rhetorical critical standards and practices in public speaking and communication. F

381. Radio practicum. 1 credit (May be repeated up to 4 credits). Supervised and graded experiences at KFJM radio, including announcing, news reporting, learning recording technician duties. F,S

382. Television Practicum. 1-2 credits (may be repeated up to 4 credits). Supervised and graded experiences at the Television Production Center. Experiences may include, but are not limited to, work on “Studio One,” a live morning show cablecast on Grand Forks Channel 3. Students may work as members of the following “Studio One” divisions: Programming, Advertising/Public Relations, Production, Meteorology and Graphics. F,S

391. Individual Projects and Readings. 1-3 credits (Maybe repeated up to 6 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

401. Organizational Communication. 3 credits. Prerequisite: Comm 300. Analysis of communication behavior in formally structured relationships as it relates to the organization and to individuals. Special attention given to organizational style, status, trust and conflict-management. Informal communication networks and rumor are studied. On demand

402. Intermediom/intercultural Communication. 3 credits. Prerequisite: Junior standing. This course will provide an overview 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 that affect communication patterns and outcomes. F

410. Research Methods in Communication. 3 credits. Prerequisite: Junior standing. Introduction to methodologies of historical, descriptive, and experimental research with attention to interpreting research results, selecting research designs and conducting communication research projects. On demand

412. Communication Law. 3 credits. Prerequisite: Comm 300. 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 advertising and broadcast regulation. S
420. Advanced Broadcast Reporting. 3 credits. Prerequisite: Comm 345. Students will enhance their abilities in writing, reporting, and production of television news stories through weekly assignments and the production of an in-depth news program. Topics covered include communication law, journalism ethics, photojournalism, television technology, and diversity issues. F

424. Advanced Graphics. 3 credits. Prerequisite: Comm 324. Advanced study and application of graphic design techniques, styles and processes as used in the mass media. Emphasis on development of individual projects and applications. S

428. U.S. Media History. 3 credits. Prerequisite: Comm 300. 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. F

432. Televising Theory and Production. 3 credits. Prerequisite: Comm 332. Advanced analysis of problems unique to TV production. Emphasis on lighting, software design, camera electronics and monitoring instruments. New and emerging technologies discussed and advanced directional skills demonstrated. S

440. Advertising Research. 2 credits. Prerequisite: Comm 341. Introduces students to applied research as a decision-making tool. Students will be taught basic skills in identifying information needs, stating research objectives, selecting appropriate research techniques, selecting samples, designing and distributing questionnaires, interpreting data, and writing presentations. Discussions will prepare students to buy and interpret syndicated research and to conduct and evaluate primary research. F

441. Advertising Media Planning. 3 credits. Prerequisite: Comm 200. This course discusses strategies and tactics connected with the appropriation of advertising budgets, time and space buying, and general statements of advertising objectives. It will examine qualitative and quantitative aspects of the mass media. Lab and lecture format. F,S


444. Advertising Creative Strategy and Execution II. 3 credits. Prerequisite: Comm 341. Advanced study and practice in meeting strategic goals by executing creative messages. Choice of media and appropriate message structure will be explored, as will source credibility, selective exposure and perception, and learning theory. Presentation skills will be emphasized. Portfolio preparation and assessment. F,S

451. Advanced Public Relations 3 credits. Prerequisite: Comm 324 or IT 212, Comm 250,352 and 353. Case studies and practice in planning, executing and evaluating public relations projects and campaigns. Examination of trends and issues. F,S

461. Political Communication. 3 credits. Prerequisite: Junior standing. Analysis of political campaigns: a study of leading speakers, their speeches and the impact they have on our political, social, legal, and religious life. The rhetoric of mass movements and power, protest, and conciliation are analyzed.

485. Internship. 1-3 credits, repeatable to a total of 3 credits in Internship, Cooperative Education, or a combination of both. 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. Formal application in advance of internship needs department approval. S-U grading only/F, S

Communication Disorders (CDis)

W. Swisher (Chair), Biberdorf, Fire, Glick, Groth, Hess, Madden, and Schill

It is the general mission of the Department of Communication Disorders (CDIS) 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 through its governance. This mission is directed at meeting the interests and needs of the University of North Dakota constituency.
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. The clinical practicum/research 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 Disorders is accredited by the Educational Standards Board of the American Speech-Language-Hearing Association.

Services provided include evaluation and remedial treatment of all types of speech handicaps, language disabilities, and hearing problems (including hearing aid evaluation). Referrals to the Clinic may be made by anyone, and treatment is provided for individuals of all ages.

Majors

The undergraduate major in Communication Disorders is a pre-professional degree. Graduates of this pre-professional program are qualified for employment in this field only after additional study on the graduate level. Academic and practicum requirements for certification by the American Speech-Language-Hearing Association are completed during graduate study.

To enroll in courses other than CDis 231, 232, and 235, students majoring in Communication Disorders must have achieved a 2.5 GPA overall and a C or better in their major courses after having completed at least 60 credit hours.

Limitations of staff, client population, facilities and practice teaching sites may make it necessary to limit the number of students accepted for clinical training. Undergraduate students will apply for admission to their first registration for clinical practice, which will typically begin the first semester of their junior year. Students should apply before the end of the preceding semester. If there are more applicants than available positions, the faculty will admit students selectively based on the information furnished in the application, including grade point average and grades in Communication Disorders courses taken to that date. Students who are not admitted may enter the competition for vacancies at the next registration.

College of Arts and Sciences

B.A. WITH MAJOR IN COMMUNICATION DISORDERS

Required 125 hours, including:

I. General Graduation Requirements (see pages 32-40)
   (Laboratory science requirement to be met by 4 credits of anatomy, biology or physics)

II. The Following Curriculum

A. Major Course Requirements

   CDis 231. .........................Anatomy & Physiology of Speech and Hearing Mechanism. .... (4)
   CDis 235. .........................Speech and Hearing Science.......................................................(3)
   CDis 323 ................................Phonetics.................................................................(2)*
   CDis 333. ................................Articulation & Phonological Development& Disorders........(4)*
   CDis 343. .........................Language Development....................................................(3.4) *
   CDis 353. .........Language Disorders .................................................................(3)*
   CDis 365. ..............Aging & Communication Disorders ..............................................(3)**
   CDis 381. .........................Introduction to Practicum I. ..............................................(2)"
   CDis 382. .........................Introduction to Practicum II...............................................(2)*
   CDis 383. .................Clinical Tests & Measures..................................................(3)*
   CDis 431. .........................Introduction to Audiology ...............................................(3)*
   CDis 434. .........................Aural Rehabilitation ...........................................................(3)"
   CDis 437. .........................Cleft Palate & Other Orofacial Anomalies. .......................(2)"

   * Minimum 3.0 GPA required
   ** Minimum 2.5 GPA required
B. Major courses not required for B. A., but recommended:

CDis 232.................................Survey of Communicating Disorders. .................................(3)
CDis 430.................................Sign Language .................................................................(2)*
CDis 484.................................Clinical Practicum I: Speech-Language Pathology ..........(1-4)*
CDis 485.................................Clinical Practicum II: Speech-Language Pathology .......(1-4)*
CDis 486.................................Clinical Practicum 111: Audiology. ...............................(1-4)*
CDis 497.................................Special problems in Communication Disorders............(1-3)*

C. Courses required in other departments:

Psy 25I.................................Developmental Psychology ...................................................(4)
Psy 370.................................Abnormal Psychology .........................................................(3)
Comm 301.................................Psychology of Communication ....................................(3)
Engl 207.................................Introduction to Linguistics ...............................................(3)
Math 103.................................College Algebra ............................................................(3)

Basic Course in Computer Science, Course in Multicultural Education, such as Anth 171, 375 and 379 or 1 S 121,330 and 345, or Psy 421, or CTL 430C

*Admission to this course will require an overall CPA of at least 2.50, a grade of C or better in any CDis course and junior status.

**A course in gerontology will be required of all undergraduate majors in CDis. The students may opt to take CDis 365 to satisfy this requirement or some other gerontology course offered through another department.

D. Teacher Certification

Psy 213.................................Educational Psychology .....................................................(3)
CDis 484.................................Clinical Practicum (part of major requirement) ...................(6)
CTL 410.................................Communication Cluster .................................................(4)

Four hours are required in this area. This requirement may also be filled by electing from the following courses:

CTL 310.................................Intro to Early Childhood Education ...............................(3)
CTL 313.................................Young Children Language and Thought ......................(3)
CTL 315.................................Education of the Exceptional Student .........................(3)
CTL 318.................................Prescriptive Teaching ......................................................(3)

The Professional Education sequence for future speech clinicians also includes:

CTL 400.................................Methods & Materials: Communications Disorders. ..........(3)
CDis 585.................................Practicum in the School Setting (graduate students only) .......(9)

CTL 400 must be completed before taking CDis 585.

Courses

231. Anatomy and Physiology of the Speech and Hearing Mechanism. 4 credits. Structure and function of the mechanisms involved in breathing, phonation, resonance, 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. 3 credits. 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.

233. Phonetics. 2 credits. This course presents an introduction to the International Phonetic Alphabet. Further, supervised practice transcribing the speech of normal and handicapped individuals is provided. F


343. Language Development 3 credits. 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

353. Language Disorders. 3 credits. Prerequisite: CDis 343. The identification, causes, and remediation of disorders of linguistic content, form, and use are studied relative to cognitive, social and physical development and functioning and relative to cultural diversity. S

365. Aging and Communication Processes. 3 credits. An intensive study of the sociological, psychological, medical and educational aspects of adult development and aging as they relate to communication processes and communication disorders. S

381. Introduction to Practicum I. 2 credits. Orientation to the Speech, language and Hearing Clinic and an introduction to clinical case management. Includes supervised observation of clinical intervention. F
382. Introduction to practicum II. 2 credits. Prerequisite: CDis 381. Continuation of content introduced in CDis 381, with increased emphasis on practice of clinical skills. Includes supervised observation of clinical intervention. S
383. Clinical Teats and Measures. 3 credits. Prerequisites: CDis 343 and 381 or consent of instructor. Corequisite: CDis 333. This course provides a consideration of general principles of diagnostic test construction and validation of speech-language pathology. Further, it includes review, evaluation and administration of major tests and measures designed to diagnose speech and language pathologies. S
380. Sign Language. 2 credits. Introduction to manual communication. F, S, SS
381. Introduction to Audiology. 3 credits. Prerequisites: 231 and 235. Elementary structure and function of the hearing mechanism; basic psychophysical dimensions of the auditory mechanism; types of deficient hearing; pure tone threshold and screening audiometry. Students are required to do hearing testing to qualify for certification in speech and hearing. F
340. Aural Rehabilitation. 3 credits. Prerequisites: Communication Disorders 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
347. Cleft Palate and Other Orofacial Anomalies. 2 credits. Prerequisites: 231, 232, 333. Communication disorders related to cleft palate and other defects of the speech mechanism. A consideration of etiology, incidence, and clinical management of resulting communication and related problems. S
484. Clinical Practicum I: Speech-Language Pathology. 1-4 credits. Prerequisites: 381, 382. The first practicum in the direct provision of clinical services to children and adults with speech-language pathologies. S,F,SS
485. Clinical Practicum II. 1-4 credits. Prerequisites: 381.382, 484. An advanced undergraduate practicum in the direct provision of clinical services to children and adults with speech-language pathologies. S,F,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

M. Ali (Chair), Dai, Flannery, O’Neil, Ram, White, Wiggen, and Winrich

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. A number of computing environments, encompassing personal, mid-range, and mainframe machines, are available to students. 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 with a Major in Computer Science 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 Computer Science Accreditation Commission (CSAC) of the Computing Sciences Accreditation Board (CSAB), a specialized accrediting body recognized by the Council on Post Secondary Accreditation (COPA) and the U.S. Department of Education.

The B.A. program has 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 seeking a broader-based liberal arts education.

A minor in computer sciences is available to students who choose to concentrate their studies in an affiliated area. In addition, several courses are offered to provide the necessary
basic knowledge of computer technology and computer programming for those students wishing to use the computer as a tool for study and research in other disciplines.

**College of Arts and Sciences**

**B.S. WITH MAJOR IN COMPUTER SCIENCE**

Required 125 hours, including:


II. College of Arts and Sciences Requirements. See page 79.

III. Courses from computer science as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSci 160</td>
<td>Computer Science I</td>
<td>4</td>
</tr>
<tr>
<td>CSci 161</td>
<td>Computer Science II</td>
<td>4</td>
</tr>
<tr>
<td>CSci 223</td>
<td>Computer Organization and Programming</td>
<td>4</td>
</tr>
<tr>
<td>CSci 242</td>
<td>Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CSci 289</td>
<td>Social Implications of Computer Technology</td>
<td>2</td>
</tr>
<tr>
<td>CSci 322</td>
<td>Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>CSci 351</td>
<td>Introduction to File Processing</td>
<td>3</td>
</tr>
<tr>
<td>CSci 365</td>
<td>Organization of Programming Languages</td>
<td>3</td>
</tr>
<tr>
<td>CSci 435</td>
<td>Formal Languages and Automata</td>
<td>3</td>
</tr>
<tr>
<td>CSci 451</td>
<td>Operating Systems I</td>
<td>3</td>
</tr>
<tr>
<td>CSci Elective*</td>
<td>Operating Systems I</td>
<td></td>
</tr>
</tbody>
</table>

*All Computer Science electives must be at or above the 200 level. A maximum of 3 hours of CSci 260 and CSci 337 may be applied toward this major in Computer Science. A maximum of 3 hours of CSci 300, CSci 472 and CSci 491 may be applied toward this major in Computer Science.

IV. Courses from other departments as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 201</td>
<td>Introduction to Digital Electronics</td>
<td>1</td>
</tr>
<tr>
<td>EE 202</td>
<td>Laboratory for EE 201</td>
<td>1</td>
</tr>
<tr>
<td>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>Math 208</td>
<td>Discrete Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Math 211</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>Math 212</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>Approved math elective*</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Approved probability/statistics elective*</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Approved 2-semester laboratory science sequence</td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

V. 2 approved courses in science or quantitative methods. 6-8

**B.A. WITH MAJOR IN COMPUTER SCIENCE**

Required 125 hours, including:


II. College of Arts and Sciences Requirements. See page 79.

III. Courses from computer science as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSci 160</td>
<td>Computer Science I</td>
<td>4</td>
</tr>
<tr>
<td>CSci 161</td>
<td>Computer Science II</td>
<td>4</td>
</tr>
<tr>
<td>CSci 223</td>
<td>Computer Organization and Programming</td>
<td>4</td>
</tr>
<tr>
<td>CSci 242</td>
<td>Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CSci 322</td>
<td>Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>CSci 435</td>
<td>Formal Languages and Automata</td>
<td>3</td>
</tr>
<tr>
<td>CSci 465</td>
<td>Principles of Translation</td>
<td>3</td>
</tr>
<tr>
<td>CSci 451</td>
<td>Operating Systems I</td>
<td>3</td>
</tr>
<tr>
<td>CSci Elective*</td>
<td>Operating Systems I</td>
<td></td>
</tr>
</tbody>
</table>

*Electives may be selected from CSci 260 (at most 3 hours), CSci 289, CSci 337 (at most 3 hours) and any other Computer Science courses numbered 300 or above.

IV. Courses from other departments as follows:

Level IV proficiency in a language other than English

A minor or a second major

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 208</td>
<td>Discrete Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Math 211/212</td>
<td>Calculus 1 &amp; Calculus 11</td>
<td>3</td>
</tr>
<tr>
<td>Math 204</td>
<td>Survey of Calculus</td>
<td>3.8</td>
</tr>
<tr>
<td>Approved probability/statistics elective*</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>
MINOR IN COMPUTER SCIENCE
Courses from Computer Science as follows:

CSci 160 .............................. Computer Science I ................................................. (4)
CSci 161 .............................. Computer Science I ................................................. (4)
CSci 223 .............................. Computer Organization and Programming ............ (4)

*All 9 credits hours of Computer Science electives must be 200 level or above, and at least 3 credit hours must be 300 level or above.

Courses

101. Introduction to Computers. 2 credits. Recommended corequisite: CSci 101L. An overview of the fundamental concepts and applications of computer science. Topics include data storage, hardware, operating systems, and programming principles. F,S

101L. Introduction to Computers Laboratory. 1 credit. Recommended corequisite: CSci 101. An introductory laboratory course to complement CSci 101. Activities will include hands-on experience with operating systems and application software (including word processors, spreadsheets, and databases). S/U grading only. F,S

110. Computer Programming I. 3 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. A student may not receive credit for both CSci 110 and CSci 160. F,S

111. Computer Programming II. 3 credits. Prerequisite: CSci 110. 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-scale programs. A student may not receive credit for both CSci 111 and CSci 161. Once a year.

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. A student may not receive credit for both CSci 160 and CSci 110. F,S

161. Computer Science II. 4 credits. Prerequisites: CSci 160 and Math 103. 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. A student may not receive credit for both CSci 161 and CSci 111. F,S

223. Computer Organization and Programming. 4 credits. Prerequisite: CSci 160 or knowledge of one high level language. Computer structure, machine representation of numbers and characters, instruction codes and assembly systems. Includes laboratory. F,S


260. Programming Languages. I-3 credits. Prerequisite: CSci 111 or 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 maximum of 3 credits may apply to a Computer Science major. A student may not receive credit for both CSci 260 and a 100-level programming course in the same language. On demand.

289. Social Implications of Computer Technology. 2 credits. Prerequisite: any college-level programming course. An introduction to the effects of computer technology on society and individuals and to ethical problems faced by computer professionals. Topics covered include privacy, the nature of work, centralization versus decentralization and the need for human factors analysis in the development of a new computer system. S

300. Topics in Computer Science. I-3 credits. Prerequisite: Consent of instructor. Selected topics in Computer Science which allow the students to study specialized subjects. 3 credits may apply to the Computer Science major and 12 credits to degree requirements. F,S

322. Computer Architecture. 3 credits. Prerequisite: CSci 223. Introduction to hardware methodologies and software extensions to hardware in computers. Some topics on hardware and software selection will be discussed. S

327. Data Communications. 3 credits. Prerequisites: CSci 223 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

337. Cooperative Education. I-8 credits repeatable to 18. Prerequisite: 15 completed credits in CSci including CSci 242, in addition to standard co-op requirements. A maximum of 3 cooperative education credits may be applied against requirements for a CSci major. 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
Counseling

(Coun)

C. Barke (Chair), Henly, and Twohey

The Department of Counseling offers graduate programs leading to the degrees of Master of Arts in Counseling and the Doctor of Philosophy in Counseling Psychology. The M.A. is accredited by the National Council for the Accreditation of Teacher Education (NCATE). The Ph.D. in Counseling Psychology has been provisionally accredited by the American Psychological Association and prepares graduates for Psychologist licensure in North Dakota. Course work for the M.A. degree satisfies eligibility requirements for the North Dakota Board of Counselor Examiners for certification as a Counselor, for the North Dakota Division of Alcoholism and Drug Abuse for Addiction Counselor licensure. The Department is committed to diversity with a particular emphasis on providing graduate training for Native Americans interested in mental health careers.

The masters program provides preparation for counseling practice in community service agencies, universities and colleges, addiction treatment agencies, or schools, depending upon the emphasis of the student. Admission is based on achievement in undergraduate work, particularly during the junior and senior years, scores on the Millers
Analyses Test, recommendation letters, and relevant experience. Prospective students must have completed at least twenty semester credits of undergraduate coursework in the behavioral sciences (e.g., psychology, sociology) including abnormal psychology, developmental psychology, and statistics. Students are admitted once a year, with completed applications required by February 1 for admission for the following year.

Typically, 20 students are admitted each year from a pool of 50 or more. The masters program requires completion of 48 semester credits, generally requires two years of full-time study, and includes a two semester half-time supervised internship at an external agency.

The doctoral degree program, Counseling Psychology, provides advanced preparation in counseling theory, practice, and research. It requires completion of a masters degree prior to admission, which is based upon achievement in undergraduate and graduate work, scores on the Graduate Record Examinations, recommendations, and relevant experience. The program requires three years of full-time study, 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. Four to six students are admitted each year.

Details of the masters and doctoral degree programs in the Department of Counseling may be found in the UND Graduate Bulletin. For more information, contact the Chairperson, Department of Counseling (701-777-2729).

Criminal Justice Studies
(CJS)

M. Meyer (Director)

This program is a cooperative venture which pools the resources of the Departments of Political Science, Psychology, Social Work and Sociology with the Criminal Justice Studies Program. 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. The student may choose to concentrate his/her studies in either law enforcement or criminology.

College of Arts and Sciences

B.S. IN CRIMINAL JUSTICE STUDIES

Required 125 hours, including:

I. General Graduation Requirements, see pages 32-40.

II. College of Arts and Sciences Requirements, see page 79.

II. The Following Curriculum:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJS 251</td>
<td>Introduction to Criminal Justice</td>
<td>(3)</td>
</tr>
<tr>
<td>CJS 252</td>
<td>Introduction to Law Enforcement</td>
<td>(3)</td>
</tr>
<tr>
<td>CJS 253</td>
<td>Law for Criminal Justice System</td>
<td>(3)</td>
</tr>
</tbody>
</table>
Criminal Justice Studies

Courses

251. 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

252. Introduction to Law Enforcement. 3 credits. Prerequisite: CJS 251. Introduces the student to the specific field of law enforcement, provides an overview of federal, state, and local law enforcement agencies. Reviews the coordination requirements of the system. S

253. Law for Criminal Justice System. 3 credits. An examination of the criminal law and the legal system as pertains to police and the criminal justice system. S

301. Criminological Theory. 3 credits. Prerequisite: CJS 251 or Soc 252. 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. F,S

331. Victimology. 3 credits. Prerequisite: Upper division (Jr./Sr.) standing. 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

337. Cooperative Education. 1-8 credits, repeatable to 16. Prerequisite: CJS 491 (1 cr.). A practical work experience with an employer closely associated with the student’s academic area. Arranged by mutual agreement among student, department, and employer. Any student registering for CJS 337 will not be eligible to register in CJS 480, Administrative Internship. S/U grading only. F,S,SS
351. **Police Administration**, 3 credits. Prerequisite: CJS 252. 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. Prerequisite: CJS 252. 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

393. **Problems in Criminal Justice Studies**, 1-3 credits. Maximum of 6 credits. Students study special topics under the direction and supervision of a member of the staff; prior consent of instructor is required before enrollment. F,S

452. **The Police Role in Society**, 3 credits. The police administrator’s role in society, focusing on contemporary issues of police organization and administering. S

480. **Administrative Internship**, 2-12 credits. Prerequisite: CJS 491 (1 credit). Prior approval of instructor required before enrollment. S/U grading only. On-the-job training in a criminal justice position with final report and analysis of the agency by the intern. F,S,SS

491. **Readings in Criminal Justice Studies**, 1-6 credits. Selected readings with oral and written reports. Consent of instructor required prior to enrollment. F,S

---

**Cytotechnology**

**R. Sopher, M.D. (Medical Director)**

**H. E. Thompson, SCT (Program Director)**

Cytotechnology is a high level medical laboratory specialty centered on the subject of diagnostic cytology, a field practiced by both pathologists and technologists. It specializes in the detection and diagnosis of abnormal human body cells, especially for the diagnosis of cancerous, or pre-cancerous conditions. A cytotechnologist's work consists primarily of screening cell samples using a microscope, searching for abnormal cells. Once found and marked, these cells are reviewed by a pathologist. Cytotechnologists are also trained to be proficient in cytology specimen preparation and in laboratory quality assurance methods.

Diagnostic cytology practice is documented at UND back to 1952. The Department of Pathology has offered an accredited course in cytotechnology since 1967. In 1975 it was upgraded from a non-credit, certificate course to a four-year, degree granting program, and in 1988 expanded from a maximum capacity of four to six students. Most recently awarded reaccreditation in 1993, the program currently exists as one of 55 accredited cytotechnology programs in only 34 states which graduate a total of about 300 cytotechnologists annually.

The Cytotechnology Program (Path 401 & Path 402) is a 12-month professional course designed to prepare students for a career in cytotechnology. Enrollment in the senior year professional phase is limited to 6 students per year. University commencement and graduation from the program both occur at the end of summer sessions. Students are selected using criteria of academic performance, references, an interview with program officials, and a background in life sciences. 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.

Applications for admission to the Cytotechnology Program (professional phase) must be submitted to the Program Director by January 1 to be considered for enrollment Fall semester. If permission to enroll is granted, it will be subject to the following conditions:

(A) All remaining required courses except Path 402 must be completed with a grade of C or better prior to enrollment in Path 401.

(B) Students must be classified by the University as having good academic standing (i.e., not on probation and eligible to enroll in the University).
(C) Prior to enrollment in Path 401 all other admission requirements (as noted on the Cytology Program application form) must be completed.

Failure to meet any of these conditions may result in denial of permission to register. To be eligible for enrollment in the Professional Phase, applicants must meet the following requirements:

1. They must receive departmental approval.
2. They must have completed all other required courses.
3. Upon successful completion of the professional phase (Path 401 & 402), they must be eligible to be awarded a bachelor’s degree (or already possess a degree). Persons without a bachelor’s degree will not be permitted to take the national registry examination. For those students who already possess a bachelor’s degree, transcripts must indicate that a minimum of 20 semester hours of biological science, 8 semester hours of chemistry, and 3 semester hours of college mathematics have been taken.

School of Medicine

B.S. IN CYTOTECHNOLOGY

Required 125 hours, including:

1. General Graduation Requirements, see pages 32-40.
2. The Following Curriculum:

   Anat 204......................Anatomy for Paramedical Personnel. ........................................(3-5)
   Biol 101, 102. ....................Introduction to Biology .........................................................(8)
   Biol 369 ............................Histology.................................................................(4)

   12 hours from:
   - Biol 341............................Cell Physiology .................................................................(4)
   - Biol 357............................Genetics.................................................................(3)
   - Biol 364............................Parasitology .................................................................(4)
   - Biol 370............................Vertebrate Zoology ......................................................(2)
   - Biol 371............................Anatomy and Adaptations Laboratory .........................(2)
   - Biol 470............................Biometry ....................................................................(3)
   - Path 325............................Hematology .................................................................(5)

4 hours from:
- MBio 202 + 202 L ..............Introduction to Medical Microbiology and Laboratory ....(5)
- MBio 302 + 302 L ..............General Microbiology and Laboratory ...............................

4 hours from:
- Phy 301............................Mechanics of Human Physiology ....................................(4)
- Biol 442............................Physiology of Organs and Systems ...............................(4)

8 hours from:
- Chem 105.....................General Chemistry .................................................................(4)
- Chem 106.....................General Chemistry 11 and Quantitative Analysis .................(4)
- Chem 107.....................Introduction to Organic & Biochemistry .............................(4)
- Chem 212.....................Organic Chemistry ...............................................................(5)
- BiCh 301............................Biochemistry Structure ...................................................(3)

*(Students who elect to take BiCh 301 should NOT take Chem 107, but must take Chem 106 and 212.)

3 hours from:
- Math 103......................College Algebra .................................................................(3)
- Math 104......................Finite Mathematics ............................................................(3)

2 hours from:
- Path 330......................Qualitative Management for the Clinical Laboratory .......(2)
- Mgmt 305......................Managerial Concepts .........................................................(3)

4 hours from:
- CSci 101......................Introduction to Computers .......................................................(2)
- CSci 110......................Computer Programming I .......................................................(3)
- CSci 11 ..............................Computer Programming II ..........................................(3)
- Phys 203......................General Physics (medical science) ........................................(4)
- Phys 204......................General Physics (science, engineering) ..............................(4)
III. Cytotechnology Program, professional phase: (Senior year, 12 months)

Path 401 ........................................Diagnostic Cytology I .................................................................(12)
Path 402 ........................................Diagnostic Cytology II ..............................................................(6-18)

The Cytotechnology Program is part of the Pathology department. The Pathology courses for Cytotechnology majors are listed below:

401, Diagnostic Cytology I, 12 credits. 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, 6-12 credits. Repeatable summer term for a total of 18 credits. Prerequisite: Pathology 401 and Departmental approval S, SS

---

Earth Science
Perry Cook, Adviser
Center for Teaching and Learning

B.S.ED. WITH MAJOR IN EARTH SCIENCE

Required 125 hours, including:

1. General Graduation Requirements, see pages 32-40

11. The Center for Teaching and Learning Program in Secondary Education, see page 178.

111. The Following Curriculum:

65 hours, including:

Geol 101, 102.............................................General Geology—Physical and Historical
Geol 311..................................................Geology I, Physical Geography
An additional 10 hours, in consultation with adviser
Geog 121.............................................Introduction to Physical Geography
Geog 134, 134L............................Introduction to Weather and Climate
Geog 354.......................................Conservation of Resources
Geog 334.......................................Climatology
Chem 105, 106..............................General Chemistry I and II and Qualitative Analysis
Phys 203, 204................................General Physics
Biol 101, 102 .....................................Introduction to Biology
Math 103, 105 or equivalent

---

Economics

D. Ramsett (Chair), Bagheri, Biederman, Blackwell, Ceyhun, Khactu, Korbach, O’Neill, and Stradley

Economics can be described as the “Study of Efficiency” in maximizing the economic goals of individuals, business firms, organizations, societies, or even the entire world, subject to various limitations. The Department of Economics offers degrees in Economics, Business Economics, and Banking and Financial Economics, each emphasizing efficiency concepts in somewhat different contexts, but all based on the same general concepts. The importance of knowledge of Economics for citizens and future leaders cannot be overemphasized, and this is provided by all the above programs.
All programs in Economics include the necessary undergraduate economics courses for students who plan to do graduate work in economics. They also include courses which have normally been required by the Federal Civil Service for positions as economic analysts, statisticians, and industrial relations analysts. Courses in Economic Education for teachers are also offered.

The B.A. with Major in Economics program is offered through the College of Arts and Sciences. This is a flexible program for the student wishing to acquire a general knowledge of Economics, and especially to combine Economics with such fields as Mathematics, Statistics, the Social Sciences, or Industrial Technology. The Social Science Option (see below) has proven to be excellent preparation for Law School. The Quantitative Option is highly recommended for students desiring to pursue graduate study in Economics or Actuarial Science.

The B.B.A. with a Major in Business Economics and the B.B.A. with a Major in Banking and Financial Economics are offered through the College of Business and Public Administration. The B.B.A. with a Major in Business Economics emphasizes the business firm, integrating economics with related areas in management, marketing, accounting, and quantitative analysis. This program provides students with analytical and technical skills increasingly required in business and government at regional, national and international levels.

The B.B.A. with a Major in Banking and Financial Economics is designed to provide a comprehensive understanding of the principles and practices of financial economics in banks and other financial institutions. Emphasis is placed on economic analysis and additional tools from accounting, finance, and quantitative analysis. Experience has shown that graduates of this program are prepared to immediately function in highly responsible positions in financial institutions or regulatory agencies, and also have the advantages of the “big picture” perspective provided by a knowledge of economics in general, which is increasingly important with growing responsibilities.

**College of Arts and Sciences**

**B.A. WITH MAJOR IN ECONOMICS**

Required 125 hours, including:

1. General Graduation Requirements, see pages 32-40.

II. All students must complete part A (below), and either the Social Science Option, or the Quantitative Option.

A. Required for all students in this program:

- Econ 201 ..................................Principles of Microeconomics .............................................(3)
- Econ 202 ..................................Principles of Macroeconomics ...........................................(3)
- Econ 210 ..................................Introduction to Business & Economic Statistics .................(3)
- Econ 303 ..................................Money and Banking .........................................................(3)
- Econ 308 ..................................Intermediate Microeconomic Theory ..............................(3)
- Econ 309 ..................................Intermediate Macroeconomic Theory ..............................(3)
- Econ 400 ..................................History of Economic Thought ..........................................(3)

B. Social Science Option:

1) Required from other departments:

- Hist 203 ..................................Economic Development of the U.S. since 1865 .....................(3)
- Phil 408 ..................................Philosophy of Human Nature ..........................................(3)

2) Required: a minimum of 12 hours of electives from the following:

- Econ 304 ..................................Financial Markets and Institutions ...................................(3)
- Econ 310 ..................................Intermediate Business and Economic Statistics ...............(3)
- Econ 311 ..................................Business Cycles and Forecasting ....................................(3)
- Econ 324 ..................................Public Finance .................................................................(3)
- Econ 331 ..................................Comparative Economic Systems .....................................(3)
- Econ 334 ..................................Economics of Development .............................................(3)
- Econ 337** ..................................Cooperative Education .................................................(1-4)
Econ 338....................................International Economics.......................................................(3)
Econ 341....................................Labor Economics and Labor Relations.................................(3)
Econ 355....................................Economics of Regulation.....................................................(3)
Econ 360....................................Marxian Economic Analysis.............................................(3)
Econ 375....................................Econ of Natural Resources & the Environment.............(3)
Econ 395**.............................Special Topics in Economics..................................................(1-3)
Econ 403....................................Commercial Bank Operations.........................................(3)
Econ 414....................................Managerial Economics....................................................(3)
Econ 416*......Mathematics........Mathematics for Economists...........................................(3)
Econ 430....................................Political Economy..............................................................(3)
Econ 438....................................International Money and Finance.....................................(3)
Econ 444....................................Economics of Human Resources.....................................(3)
Econ 450....................................Industrial Organization and Public Policy.......................(3)
Econ 485**.............................Internship.............................................................................(1-4)
Econ 496**.............................Research in Economics.........................................................(1-3)
Econ 497**.............................Readings in Economics..........................................................(1-3)

**No more than 6 hours of electives from Econ 337, 395, 485, 496, 497 may count toward the major requirements.

C. Quantitative Option:
1) Required:
   Econ 310...........................Intermediate Business and Economic Statistics..................(3)
   Econ 416...........................Mathematics for Economists.............................................(3)
2) Required: a minimum of 12 hours from:
   Math 212..........................Calculus II........................................................................(4)
   Math 213..........................Calculus III.........................................................................(4)
   Math 351..........................Elementary Differential Equations......................................(3)
   Math 352..........................Advanced Engineering Mathematics 1.............................(3)
   Math 353..........................Advanced Engineering Mathematics 11............................(3)
   Math 421..........................Statistical Theory I................................................................(3)
   Math 422..........................Statistical Theory II..............................................................(3)

MINOR IN ECONOMICS
Required 20 hours including:
   Econ 201..........................Principles of Microeconomics...............................................(3)
   Econ 202..........................Principles of Macroeconomics................................................(3)
   Econ 303..........................Money and Banking...............................................................(3)
   Econ 308..........................Intermediate Microeconomic Theory..................................(3)
   Econ 309..........................Intermediate Macroeconomic Theory & Policy....................(3)
   Economics Electives.........................................................................................(5)

College of Business and Public Administration

All B.B.A. candidates must fulfill the College of Business and Public Administration degree requirements.

B.B.A. WITH MAJOR IN BUSINESS ECONOMICS

Required 125 hours, including:
1. General Graduation Requirements, see pages 32-40.
11. The Following Curriculum:
   Business Administration Requirements:
   Acct 200,201..........................Elements of Accounting......................................................(6)
   Acct 315..........................Business in the Legal Environment.......................................(3)
   BVED 217..........................Fundamentals of Management Information Systems........(4)
   Comm 161..........................Fundamentals of Public Speaking......................................(3)
   Fin 310..........................Principles of Finance...............................................................(2)
   Fin 310L..........................Problems in Financial Management.....................................(1)
   Math 104..........................Finite Mathematics.............................................................(3)
   Math 204..........................Survey of Calculus...............................................................(3)
   Mgmt 300..........................Principles of Management...................................................(3)
   Mgmt 301..........................Production Management......................................................(3)
   Mgmt 475..........................Strategic Management..........................................................(3)
   Mrkt 301..........................Principles of Marketing..........................................................(3)
   PSci 101..........................American Government I........................................................(3)
B.B.A. WITH MAJOR IN BANKING AND FINANCIAL ECONOMICS

Required 125 hours, including:

I. General Graduation Requirements, see pages 32-40.

II. The Following Curriculum:

Business Administration Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc 200</td>
<td>Elements of Accounting</td>
<td>6</td>
</tr>
<tr>
<td>Acc 355</td>
<td>Business in the Legal Environment</td>
<td>3</td>
</tr>
<tr>
<td>BVED 217</td>
<td>Fundamentals of Management Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>Fin 310</td>
<td>Principles of Finance</td>
<td>2</td>
</tr>
<tr>
<td>Fin 310L</td>
<td>Problems in Financial Management</td>
<td>1</td>
</tr>
<tr>
<td>Math 104</td>
<td>Finite Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Math 204</td>
<td>Survey of Calculus</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>Production Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 475</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>Mrkt 301</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>PSci 101</td>
<td>American Government 1</td>
<td>3</td>
</tr>
</tbody>
</table>

Elect one course from the following:

Anh 171 | Introduction to Anthropology | 3 |
| Psy 101 | Introduction to Psychology | 3 |
| Soc 101 | Introduction to Sociology | 3 |

Required Economics courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>Econ 304</td>
<td>Financial Markets &amp; Institutions</td>
<td>3</td>
</tr>
<tr>
<td>Econ 308</td>
<td>Intermediate Macroeconomic Theory</td>
<td>3</td>
</tr>
<tr>
<td>Econ 309</td>
<td>Intermediate Macroeconomic Theory and Policy</td>
<td>3</td>
</tr>
<tr>
<td>Econ 311</td>
<td>Business Cycles and Forecasting</td>
<td>3</td>
</tr>
<tr>
<td>Econ 395*</td>
<td>Special Topics in Economics</td>
<td>1-3</td>
</tr>
<tr>
<td>Econ 485*</td>
<td>Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>Econ 497*</td>
<td>Readings in Economics</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Econ 403 | Commercial Bank Operations | 3 |
| Econ 404 | Commercial Bank Simulation | 3 |
| Econ 416 | Mathematics for Economics | 3 |
| Econ 430 | Political Economy | 3 |
| Econ 448 | International Money and Finance | 3 |
| Econ 444 | Economics of Human Resources | 3 |
| Econ 450 | Industrial Organization and Public Policy | 3 |
| Econ 485* | Internship | 1-4 |
| Econ 496* | Research in Economics | 1-3 |

Required Economics electives: choose at least 8 hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc 315</td>
<td>Business in the Legal Environment</td>
<td>3</td>
</tr>
<tr>
<td>Math 204</td>
<td>Survey of Calculus</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>Production Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 475</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>Mrkt 301</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>PSci 101</td>
<td>American Government 1</td>
<td>3</td>
</tr>
<tr>
<td>Acc 315</td>
<td>Business in the Legal Environment</td>
<td>3</td>
</tr>
<tr>
<td>Math 204</td>
<td>Survey of Calculus</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>Production Management</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 475</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>Mrkt 301</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>PSci 101</td>
<td>American Government 1</td>
<td>3</td>
</tr>
</tbody>
</table>

** No more than 6 hours of electives from Econ 395, 485, 497 and 304 may count toward the major requirements.
Required courses:
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)
Econ 304...............................Intermediate Macroeconomic Theory .........................(3)
Econ 305...............................Intermediate Macroeconomic Theory and Policy ...............(3)
Fin 340...............................Capital Market Theory .................................................(3)
Econ 403...............................Commercial Bank Operations ..................................(3)
Econ 438...............................International Money and Finance .............................(3)
Acct 301...............................Intermediate Accounting ............................................(4)

Required electives: a minimum of 8 hours from:
Acct 302...............................Intermediate Accounting ............................................(4)
Fin 350...............................Financial Information Systems .....................................(3)
Econ 310...............................Intermediate Business and Economic Statistics ..........(3)
Econ 311...............................Business Cycles and Forecasting ................................(3)
Econ 324...............................Public Finance ..............................................................(3)
Econ 331...............................Comparative Economic Systems ............................(3)
Econ 334...............................Economics of Development ......................................(3)
Econ 337...............................Cooperative Education ..............................................(3)
Econ 338...............................International Economics ............................................(3)
Econ 341...............................Labor Economics and Labor Relations .......................(3)
Econ 355...............................Economics of Regulation ..........................................(3)
Econ 360...............................Marxian Economic Analysis ....................................(3)
Econ 375...............................Economics of Natural Resources and the Environment ....(3)
Econ 395**...............................Special Topics in Economics ....................................(1-3)
Econ 400...............................History of Economic Thought ...................................(3)
Econ 404...............................Commercial Bank Simulation .......................................(3)
Econ 414...............................Managerial Economics ...........................................(3)
Econ 416...............................Mathematics for Economists ....................................(3)
Econ 430...............................Political Economy .........................................................(3)
Econ 444...............................Economics of Human Resources ..............................(3)
Econ 450...............................Industrial Organization and Public Policy ....................(3)
Econ 485**...............................Internship .................................................................(1-4)
Econ 496**...............................Research in Economics ...........................................(1-3)

** No more than 6 hours of electives from Econ 395, 485, 496 and 497 may count toward the major requirements.

Courses
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 1 and 11, have been completed or audited. Not available to students in the College of Business and Public Administration.) F.S

201. Principles of Macroeconomics. 3 credits. Open to freshmen. Prerequisite: Math 103 or 104. 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: Math 103 or 104. Continuation of Econ 201. Analysis of aggregate levels of income and employment, inflation, monetary and fiscal policy, economic growth and development, international finance, and comparative economic systems. F.S

205. Foundations of Economic Analysis. 3 credits. (For MBA students only.) A foundations course in economic theory which analyzes the economic forces that determine income, output, employment, economic growth, prices, wages, rents, interest, and profit; stress is on the allocation of resources under the market system, and its corresponding problems. On demand.

210. Introduction to Business and Economic Statistics. 3 credits. Prerequisite: Math 103 or 104, or equivalent. Descriptive statistics; probability distributions; sampling distributions; statistical inference for means and proportions; hypothesis testing; simple regression and correlation; non-parametric statistics. F.S
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

304. **Financial Markets and Institution, 3 credits.** Prerequisite: Econ 201 and 202. Organization of money and capital markets; the role of financial institutions and their impact on these markets. Capital Markets and the term structure of interest rates; portfolio policies of financial institutions. The impact of monetary and fiscal policies on markets and institutions. F

308. **Intermediate Macroeconomic 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

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, expenditures 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 payments, and economic growth. (Core requirement for students planning advanced study in Economics.) S

310. **Intermediate Business and Economic Statistics, 3 credits.** Prerequisites: Econ 210, Math 204 or equivalent, BVED 217 or equivalent. Estimation and interpretation of models widely used in Business and Economics. Topics include multiple regression, analysis of variance and covariance, cross-sectional and time-series problems, and multiple equation models. F

311. **Business Cycles and Forecasting, 3 credits.** Prerequisite: Econ 210. An examination of the nature and theory of cyclical changes in economic activity; practical applications of direct and indirect methods of forecasting economic trends at various levels of aggregation. 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. For S

331. **Comparative Economic Systems, 3 credits.** Prerequisite: Econ 201 and Econ 202. Theoretical foundation of capitalism; comparative role of the price mechanism and centralized planning; historical development of the British and Soviet economies; analysis of resource allocation, economic institutions and problems under contrasting economic systems. On demand.

334. **Economics of Development, 3 credits.** Prerequisite: Econ 201 and Econ 202. An analysis of the factors affecting the economic growth and development of nations consisting of an examination of principal theories of development, past and present. Discussion of the problems of formulating effective development policies. On demand.

337. **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

338. **International Economics, 3 credits.** Prerequisite: Econ 201 and 202. Economic basis for gain in international trade; capital and population movements; international disequilibrium and the process of balance-of-payments adjustments; tiff's, underdeveloped countries. For S

341. **Labor Economics and Labor Relations, 3 credits.** Prerequisite: Econ 201 and Econ 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 organizations and legislation, 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. **Economics of Regulation, 3 credits.** Prerequisite: Econ 201 and Econ 202. The economic and legal basis of regulating business will be explored, with particular attention paid to whether regulation is an adequate substitute for free market competition. The goals of regulators will be discussed. The regulatory process will be examined: how to determine a fair rate of return; how to establish a reasonable rate structure; and the control of business practices. Current cases at the federal and state levels will be employed to provide a realistic evaluation of regulation. F

364a. **Marxian Economic Analysis, 3 credits.** Prerequisite: Econ 201 and Econ 202. Introduction to Marxian philosophy and economic analysis. Course examines dialectical and historical materialism, and the Marxian critique of capitalism. The latter includes an analysis of value, especially the labor theory of value, commodities, money, accumulation of capital, production of surplus value, the circulation of capital, and the
determination of prices of production. This leads to an examination of Marx’s theory of crisis and the contradictions of capital, especially the tendency of the rate of profit to decline. On demand.

375. Economics of Natural Resources and the Environment. 3 credits. Prerequisites: Econ 201 and 202. Studies economic development of a society in the context of natural resource use and environmental spillovers; interrelates physical processes with economics; demonstrates how physical resource base and its use leads to benefits and costs for society. F, when offered.

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.

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, Marxist, Socialist, Historical, Austrian, Neoclassical, Institutional, Keynesian, and Monetarist. The coverage includes value theory, income/expenditure theory, growth/development theory, scientific method, scope and public policy. S

403. Commercial Bank Operations. 3 credits. Prerequisite: Econ 303. Focuses primarily on principles of commercial bank management and the changing banking environment; topics include asset management, liability management, capital adequacy, bank holding companies, international banking, new payment technologies (EFTS), bank market structure, and regulations. S

404. Commercial Bank Simulation. 3 credits. Prerequisite: Econ 403. Team competition running a computer simulated bank involving investment and loan portfolio operation, loan and deposit pricing, capital acquisition, regulatory compliance, and interest rate risk decisions. For S

414. Managerial Economics. 3 credits. Prerequisites: Econ 210, 308; Math 204 or equivalent; BVED 217 or equivalent. A synthesis relating economic theory, statistics, and mathematics to pricing, output, and resource allocation decisions by business firms. S

416. Mathematics for Economists. 3 credits. Prerequisite: Econ 308 and 309; Math 204 or 211. Study of mathematical methods in the areas of introductory calculus and linear algebra 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.

430. Political Economy. 3 credits, Prerequisite: Econ 201 and 202. The course examines the relationship between the political authority and the market economy. Also examines the constitutional background that defines and delineates the role of government in the economy, the development of government policy vis-à-vis the private economy, and the various forms in which government activity appears in the private economy. Special attention is given to regulation, promotion, and ownership. F; 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. S

444. Economics of Human Resources. 3 credits. Prerequisites: Econ 201 and 202. Applied study of human resources in the American economy. Course examines policies and programs for developing and conserving human resources. Various techniques for empirical study of human resource problems are introduced, including human capital theory and benefit-cost analysis. On demand.

450. Industrial Organization and Public Policy. 3 credits. Prerequisites: Econ 201. A study of industrial structure, conduct, and performance; purposes and effectiveness of antitrust law; particular attention to corporate concentration, its extent and trend; the efficiency, inventiveness and profitability of American industries; the social costs of monopoly and appropriate remedies. On demand.

485. 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. F,S,SS

496. Research in Economics. 1-3 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. F,S,SS

497. 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
Electrical Engineering

N. Bengiamin (Chair), Hootman, Johnson, Kuruganty, Miles, Moe, and Whaeidon

The Electrical Engineering program covers the traditional areas of Electrical Engineering, such as electronics, power generation and transmission, communications, control systems, microcomputers, computer-aided design (CAD), robotics, and energy. Students may elect courses to emphasize particular areas of electrical engineering during the junior and senior years. The faculty and facilities provide students with a broad-based, high quality education that prepares them for professional practice, as well as for additional professional or graduate education.

School of Engineering and Mines

B.S. IN ELECTRICAL ENGINEERING

Required 136 hours, including:

I. General Graduation Requirements, see pages 32-40 & pages 90-97.

II. The Following Curriculum:

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105</td>
<td>General Chemistry I</td>
<td>(4)</td>
</tr>
<tr>
<td>Engl 101</td>
<td>Composition I</td>
<td>(3)</td>
</tr>
<tr>
<td>Engr 101</td>
<td>Engineering Graphics</td>
<td>(2)</td>
</tr>
<tr>
<td>Engr 201</td>
<td>Fundamentals of Computer Programming</td>
<td>(2)</td>
</tr>
<tr>
<td>Math 211, 212</td>
<td>Calculus I, II</td>
<td>(4)</td>
</tr>
<tr>
<td>Phys 205</td>
<td>General Physics</td>
<td>(4)</td>
</tr>
<tr>
<td>Arts and Humanities (See page 94)</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Social Science (See page 94)</td>
<td>(2)</td>
<td></td>
</tr>
</tbody>
</table>

Sophomore Year

| CE 300       | Analytical Mechanics (Statics) | (2) |
|EE 206        | Electrical Engineering Fundamentals | (3) |
|EE 306        | Electrical Engineering Laboratory | (1) |
|Engl 209      | Technical & Business Writing   | (3) |
|Econ 201      | Principles of Macroeconomics  | (3) |
|Math 211      | Calculus III                 | (4) |
|Math 351      | Elem. Differential Equations  | (3) |
|Phys 206, 208 | General Physics              | (4) |
|Engineering Science Elective* | (3) |
|Social Science (See page 94) | (3) |

Junior Year

| EE 307,308   | Electrical Engineering Laboratory | (1) |
|EE 313, 314   | Linear Electric Circuits          | (3) |
|EE 316        | Electric & Magnetic Fields        | (4) |
|EE 321        | Electronics                       | (4) |
|EE 409        | Distributed Networks              | (3) |
|Math 352 and 353 | Adv. Engineering Math I & II | (3) |
|Phil 370      | MQ&P: Ethics in Engineering       | (3) |
|Phys 320      | Elementary Solid State Physics    | (3) |
|              | or Optics                        | (3) |
|              | Engineering Science Elective*     | (3) |
|              | Technical Elective*              | (3) |

Senior Year
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

201. Introduction to Digital Electronics. 1 credit. Corequisite: EE 202. Introduction to Ore fundamentals of digital circuits design. Logic gates; Boolean algebra; Karnaugh maps; Mathematical operations; Flip Flops; Counters. S

202. Electrical Engineering Laboratory. 1 credit. Co-requisite: 201. Introduction to design and implementation of digital electronic circuits. S

206. Electrical Engineering Fundamentals. 3 credits. Prerequisite: Math 212*. Co-requisite: Math 213. Introduces the foundations 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: EE 206, Engr 201. The principles of the use of a computer in a measurement and control environment are presented. Software is designed to drive interfaces to perform measurement and control algorithms. The software and concepts presented are evaluated in a laboratory environment. (For non-majors) F,S


307. Electrical Engineering Laboratory. 1 credit. Prerequisite: EE 206*. Co-requisite: EE 313. Introduction to methods of experimental circuit analysis and to proper uses of laboratory equipment. F,S

308. Electrical Engineering Laboratory. 2 credits. Co-requisite: EE 321. Practical application and design using theory studied in concurrent electrical engineering courses. S

313, 314. Linear Electric Circuits. 3 credits first semester, 3 credits second semester. Prerequisites: EE 206*, Math 213*, physics 2136*, Corequisite Math 35). Linear Electric Circuits in the steady state and transient condition, single and polyphase systems, filter design wave analysis, and digital circuits. 313 F,S 314 S

316. Electric and Magnetic Fields. 4 credits. Prerequisites: EE 206*, Math 351, and Physics 206*. Field produced by simple distributions of electric charges and magnetic poles, field mapping and application to engineering problems. F,S


337. Cooperative Education. 1-8 credits repeatable to 24. 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,S

351. Computer Hardware Logic. 3 credits. Prerequisites: Fundamentals of Computer Programming or consent of instructor. The study of the logical structure of computer hardware, including basic logical concepts, computer memories, adders, decoders, and data transfer methods. F,S


402. Design of Electrical Apparatus 3 credits. Prerequisite: EE 401. Analysis and design of relays, transformers, and single phase induction motors, interaction of magnetic circuits and electrical circuits and effects of each on the other. On demand.


405. Control Systems I. 3 credits. Prerequisite: EE 313 and Math 351 or consent of instructor. Dynamics response to linear control systems; design and synthesis techniques used in determining stability of
linear systems.  

409. Distributed Networks. 3 credits. Prerequisites: EE 313 and 316. Fundamentals of power and communications transmission lines.  

411. Communications Engineering. 3 credits. Prerequisites: EE 314. Mathematical definition of random and deterministic signals and a study of various modulation systems. On demand.  

421. Electronics 111.3 credits. Prerequisite: EE 321. Analysis of electronic devices, including power amplifiers, pulse and digital circuits. F  


424. Electronic Circuits. 3 credits. Prerequisite: EE 421. Principles, applications, and design of electronic equipment studied from viewpoint of complete systems. On demand.  

425. Electronics Laboratory. 2 credits. Concurrent with EE 421. Laboratory work to parallel the material in Electrical Engineering 421. F  

428. Robotics Fundamentals. 3 credits. Prerequisite: EE 313 and consent of instructor. Fundamentals of industrial robots’ configuration, programming, and control are addressed. Actuators, sensing devices, coordinates transformation and task planning are emphasized. The laboratory provides hands-on experience with numerical control and robots’ control. On demand.  

430. Radiating Systems. 3 credits. Prerequisite: EE 409. Analysis and synthesis of a variety of telecommunication and sensor systems. On demand.  

434. Microwave Engineering. 3 credits. Prerequisite: EE 409 or consent of instructor. Review of transmission lines and plane waves, analysis of microwave networks and components using scattering matrices, analysis of periodic structures, transmission and cavity type filters, high frequency effects, microwave oscillators, amplifiers, and microwave measurement techniques. On demand.  

451. Computer Hardware Organization. 3 credits. Prerequisites: EE 206* and 351 or consent of instructor. The study of complete computer systems including digital hardware interconnection and organization and various operation and control methods necessary for realizing digital computers and analog systems. On demand.  

452. Microprocessor Hardware. 3 credits. Prerequisite: EE 351 or permission of instructor. The study of the interaction of microprocessor hardware with devices so that communication and control of the computer can be accomplished with external signals. On demand.  

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  

*Course must be completed with a “C” grade or better.

Engineering  
(Engr)  

Courses  

101. Engineering Graphics. 2 credits. Analysis and representation of planes and solids in orthogonal and axonometric projection; graphical expression and communication of three dimensional objects by technical sketching, instrumental delineation, size specifications and fundamental applications in interactive computer-aided drawing. This course is available via both the traditional L-L (lecture, lab) format and the individualized A-T (audio-tutorial) approach, with laboratory hours arranged. F,S  

102. Descriptive Geometry. 2 credits. Prerequisite: Engineering Graphics 101 or equivalent. Graphical analysis, synthesis and solutions of three dimensional design problems via technical drafting and an introduction to computer generated imagery. Point, line and plane relationships as related to basic engineering and geological applications are studied by using both the successive auxiliary view approach and revolution methods. Students may elect to study descriptive geometry either via the traditional L-L (lecture, lab) format or the individualized A-T (audio-tutorial) approach. S  

201. Fundamentals of Computer Programming. 2 credits. The fundamentals of digital computer programming are presented with special emphasis on the Fortran language and engineering applications. F,S
Engineering Management  
(EM)  
D. Naismith (Chair)

The Engineering Management program provides a strong background in mathematics, science and engineering science. It prepares an individual who has a strong interest in people, business organizations and the conduct of technological industry for an engineering career which offers multiple life long choices. Graduates have the opportunity to pursue careers in engineering production, engineering supervision, engineering sales and service, construction management and the administrative or business aspects of technologically oriented industry.

School of Engineering and Mines

B.S. IN ENGINEERING MANAGEMENT

Required 142-147 hours including:

I. General Graduation Requirements, see pages 32-40. (Social Science requirements are met for E.M. by the required courses listed in the curriculum).

II. The Following Curriculum:

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105</td>
<td>(4)</td>
<td></td>
</tr>
<tr>
<td>Engl 101</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Engr 101</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>Math 211, 212</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>Soc 10 I</td>
<td>(4)</td>
<td>(4)</td>
</tr>
<tr>
<td>Arts &amp; Humanities (See page 94)</td>
<td>(3)</td>
<td></td>
</tr>
</tbody>
</table>

Electrical, Civil, & Mechanical Engineering Options

Phys 205 General Physics ........................................... (4)
Econ 201 Principles of Economics I ................................ (3)

Chemical Engineering Option

Chem 107 Intro to Organic & Biochemistry. ........................ (4)
ChE 102 Chemical Engineering Process Synthesis ................... (2)
Econ 201 Principles of Macroeconomics ............................. (3)

Geological Engineering Option

Phys 205 General Physics ........................................... (4)
Geol 203 Geology for Engineers ..................................... (3)

Sophomore Year

Acct 200 Elements of Accounting ..................................... (3)
CE 300 Analytical Mechanics (Statics) ............................... (2)
CE 305 Analytical Mechanics (Dynamics) ............................... (3)
Engl 209 (or 102) Technical & Business Writing .................... (3)
Math 213 Calculus III .................................................. (4)
Math 351 Applied Mathematics I ..................................... (3)
Psy 101 Intro to Psychology (Social Science) ........................ (3)

Civil and Mechanical Engineering Options

Chem 106 General Chemistry II ........................................ (4)
CE 301 Mechanics of Materials I ...................................... (3)
EE 206 Electrical Engineering Fundamentals ......................... (3)
Mgmt 300 Principles of Management .................................. (3)
Phys 208 General Physics ............................................. (4)
### Chemical Engineering Option
- **ChE 201**: Stoichiometry (3)
- **EE 206**: Electrical Engineering Fundamentals (3)
- **Phys 205, 206**: General Physics (4)
- **Arts and Humanities** (See page 94) (3)

### Electrical Engineering Option
- **EE 206**: Electrical Engineering Fundamentals (3)
- **Mgmt 300**: Principles of Management (3)
- **Phys 206, 208**: General Physics (4)
- **Arts and Humanities** (See page 94) (3)

### Geological Engineering Option
- **Chem 106**: General Chemistry (4)
- **EE 206**: Electrical Engineering Fundamentals (3)
- **Geol 102**: The Earth Through Time (4)
- **Phys 206**: General Physics (4)

### Junior Year

#### Math
- **353**: Adv. Engineering Math 11. (3)
- **EM 333**: Operations Research Modeling (3)
- **EM 460**: Engineering Economy (3)
- **ME 490**: Sp. Lab: Statistics for Process and Quality Improvement (3)

#### Technical Electives
- **Civil Engineering Option**
  - **Mgmt 301**: Production Management (3)
  - **CE 313**: General Surveying (4)
  - **CE 351**: Structural Mechanics I (3)
  - **CE 352**: Structural Mechanics II (3)
  - **CE 412**: Soil Mechanics (3)
  - **CE 431**: Sanitary Engr I (3)
  - **ME 306**: Fluid Mechanics (3)

#### Chemical Engineering Option
- **Mgmt 300**: Principles of Management (3)
- **ChE 301**: Production Management (3)
- **ChE 306**: Unit Operations in Chem (4)
- **ChE 313**: Chemical & Physical Principles I (3)
- **ChE 314**: Chemical & Physical Principles II (3)
- **Phil 370**: M Q & P: Ethics in Engineering (3)

#### Electrical Engineering Option
- **Mgmt 301**: Production Management (3)
- **EE 313**: Linear Elec Circuits (3)
- **EE 316**: Elect & Magnetic Fields (4)
- **EE 321**: Electronics I (4)
- **Phil 370**: M Q & P: Ethics in Engineering (3)

#### Geological Engineering Option
- **Mgmt 300**: Principles of Management (3)
- **Mgmt 301**: Production Management (3)
- **Geol 314**: Structural Geology (3)
- **Geol 301**: Principles of Mining (3)
- **Geol 318**: Mineralogy (4)
- **Geol 319**: Analytical Mineralogy & Petrology (3)
- **Econ 201**: Principles of Macroeconomics (3)

#### Mechanical Engineering Option
- **Mgmt 301**: Production Management (3)
- **ME 301**: Materials Science (3)
- **ME 306**: Fluid Mechanics (3)
- **ME 311**: Manufacturing Processes I (3)
- **ME 322**: Mechanical Design I (3)
- **ME 341**: Thermodynamics (3)
- **ME 342**: Thermodynamics (3)
### Senior Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</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>Acct 207</td>
<td>Managerial Accounting</td>
<td>2</td>
</tr>
<tr>
<td>Mk 301</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>EM 431, 432</td>
<td>EM Design/Seminar</td>
<td>2</td>
</tr>
<tr>
<td>CE 444</td>
<td>Contracts and Specifications</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Business Elective</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### Civil Engineering Option

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 423</td>
<td>Hydraulics Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CE 432</td>
<td>Sanitary Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CE 451</td>
<td>Structural Design I</td>
<td>3</td>
</tr>
<tr>
<td>Phil 370</td>
<td>M &amp; P: Ethics in Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Chemical Engineering Option

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChE 405</td>
<td>Mass Transfer Operations</td>
<td>3</td>
</tr>
<tr>
<td>ChE 408</td>
<td>Process Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ChE 421</td>
<td>ChE Reactor Design</td>
<td>3</td>
</tr>
<tr>
<td>ChE 431</td>
<td>ChE Lab IV</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Electrical Engineering Option

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 401</td>
<td>Electromechanical Engr Conversion</td>
<td>4</td>
</tr>
<tr>
<td>EE 405</td>
<td>Controls Systems I</td>
<td>3</td>
</tr>
<tr>
<td>EE 409</td>
<td>Distributed Networks</td>
<td>3</td>
</tr>
<tr>
<td>EE 421</td>
<td>Electronics II</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Geology Engineering Option

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geol 407</td>
<td>Petroleum Geology</td>
<td>3</td>
</tr>
<tr>
<td>Geol 423</td>
<td>Engineering Geology</td>
<td>3</td>
</tr>
<tr>
<td>Geol 417</td>
<td>Groundwater Geology</td>
<td>3</td>
</tr>
<tr>
<td>Phil 370</td>
<td>M &amp; P: Ethics in Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Mechanical Engineering Option

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 318</td>
<td>Manufacturing Processes I</td>
<td>3</td>
</tr>
<tr>
<td>ME 421</td>
<td>Mechanical Design I</td>
<td>3</td>
</tr>
<tr>
<td>Phil 370</td>
<td>M &amp; P: Ethics in Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Courses

333. **Operations Research Modeling.** 3 credits. Prerequisite: Math 351. An introduction to several different modeling techniques used to solve complex mathematical problems encountered in the management of technical organizations. Some of the topics to be covered: arc simplex algorithms, transportation, PERT, CPM, inventory modeling, and integral programming. F

337. **Cooperative Education.** 1-8 credits repeatable to 24. Prerequisites: Admission to the engineering management 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,SS

431. **Engineering Management Design/Seminar.** 2 credits. Prerequisites: Senior standing. Analysis, planning, and design of industrial plants, processes, and systems. Emphasis on effective and economic use of human, material, machine and time resources. Includes laboratory. F

432. **Engineering Management Design/Seminar.** 2 credits. Prerequisites: Senior standing and EM 431. Analysis, planning, and design of industrial plants, processes, and systems. Emphasis on effective and economic use of human, material, machine and time resources. Includes laboratory. S

460. **Engineering Economy.** 3 credits. Prerequisite: Econ 201 or equivalent, junior standing. Economic effects of engineering decisions involving time, value of money, economic balance, cost estimating and venture analysis. F,S
Engineering Physics

G. Lykken, Director

The B.S. in Engineering Physics, offered through the School of Engineering and Mines, is administered by the Physics Department in cooperation with the Departments of Electrical and Mechanical Engineering.

Engineering Physics is an interdisciplinary field combining applied physics and engineering design with emphasis on instrumentation. Students take most of the courses in the Physics core curriculum, basic engineering science courses, engineering design courses in either Electrical or Mechanical Engineering and Engineering Physics courses that combine the applied physics and engineering design components of the curriculum.

School of Engineering and Mines

B.S. IN ENGINEERING PHYSICS

Required 134 hours including:

I. General Graduation Requirements, see pages 32-40 and pages W-97.

II. The Following Curriculum:

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 211</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>Chem 151, 161</td>
<td>Fundamental Concepts of Chemistry</td>
<td>(4)</td>
</tr>
<tr>
<td>Engl 101</td>
<td>Composition I</td>
<td></td>
</tr>
<tr>
<td>Engr 101</td>
<td>Intro to Engineering Graphics</td>
<td>(2)</td>
</tr>
<tr>
<td>Engr 103</td>
<td>Intro to Engineering Computer Graphics</td>
<td>(1)</td>
</tr>
</tbody>
</table>

| Math 212      | Calculus II    |                  |
| Phys 205     | General Physics |                  |
| Arts & Humanities, see page 94 | (4) |

<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 213</td>
<td>Calculus III</td>
<td></td>
</tr>
<tr>
<td>Phys 206</td>
<td>General Physics</td>
<td></td>
</tr>
<tr>
<td>CE 300</td>
<td>Analytical Mechanics (Statics)</td>
<td>(2)</td>
</tr>
<tr>
<td>Econ 201</td>
<td>Principles of Microeconomics</td>
<td>(3)</td>
</tr>
<tr>
<td>Social Science, see page 94</td>
<td>(3)</td>
<td></td>
</tr>
</tbody>
</table>

| Math 351      | Elem. Differential Equations |                  |
| Phys 208      | General Physics |                  |
| CE 301       | Mechanics of Materials I | (3) |
| EE 206       | Electrical Engineering Fundamentals | (3) |
| EE 306       | Electrical Engineering Laboratory | (1) |
| Engl 209     | Technical and Business Writing | (3) |

<table>
<thead>
<tr>
<th>Junior Year</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phys 307</td>
<td>Mechanics</td>
<td></td>
</tr>
<tr>
<td>Phys 327</td>
<td>Electricity &amp; Magnetism</td>
<td>(3)</td>
</tr>
<tr>
<td>or EE 316</td>
<td>Electric &amp; Magnetic Fields</td>
<td>(3)</td>
</tr>
<tr>
<td>Phys 316</td>
<td>Electric &amp; Magnetic Fields</td>
<td>(3)</td>
</tr>
<tr>
<td>Phys 316</td>
<td>Mechanics</td>
<td></td>
</tr>
<tr>
<td>Phys 328</td>
<td>Electricity &amp; Magnetism</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Engineering Physics...
Phys 324..........................Thermal Physics ........................................... (3)
or ME 341...............................Thermodynamics
or ChE 313.............................Chemical & Physical Principles I
EP 303..............................Engineering Physics Laboratory . (2)

Electronic Hardware Option
EE 307. ................................Electrical Engineering Laboratory (1)
EE 313. ................................Linear Electric Circuits, ................................ (3)
EE 308 ................................Electronics Lab I. ........................................... (2)
EE 321 ................................Electronics I. .............................................. (4)

Mechanical Hardware Option
Engr 301 ................................Materials Science ................................ (3)
ME 311 ................................Manufacturing Processes I. ............................ (3)
ME 413 ................................Engineering Materials ............................... (3)

Senior Year

*** Physic Elective .................................................... (3)
Phys 428 ....................................Modern Physics Lab................................ (2)
Social Science, see page 94......................... (3)
Phys 431 .............................Introductory Quantum Physics ....................... (3)
EP 401 ..................................Engineering Physics Design..................... (3)
**** Engineering Elective ..................................... (3)
**** Engineering Elective ................................. (3)
Phil 370. ..................................M Q & P: Ethics in Engineering .............. (3)

Electronics Hardware Option
EE 421 ....................................Electronics IL ........................................ (3)
EE 425 ....................................Electronics Lab II.................................. (2)
EE 351 ....................................Computer Hardware Logic ........................ (3)
EE 452 (or 451) ...........................Microprocessor Hardware ..................... (3)

Mechanical Hardware Option
ME 318 ....................................Manufacturing Processes II.................. (3)
ME 322 .....................................Mechanical Design I.......................... (3)
ME 483 .....................................Mechanical Measurements Laboratory .... (3)
ME 486 .....................................Mechanical Engineering Practice........... (3)

*Any introductory course in Biology, Chemistry or Geology.
**** Engineering Electives: Approved (by adviser) 300 or higher level engineering courses which are design oriented.

Courses

EP 303. Engineering Physics Laboratory. 2 credits. Prerequisites: Phys 208, Math 351. Laboratory introduction to a variety of fabrication and measurement techniques. S/Z
EP 401. Engineering Physics Design. 3 credits. Prerequisite: senior standing. Systematic study and practice in the optimal design and/or fabrication of instruments and devices. F

English Language and Literature

Engl

D. Sheridan (Chair), Anderagg, Beard, Borden, Carson, Coleman, Dixon, Donaldson, Hampsten, King, Koprince, Lewis, Little, Marshall, McKenzie, J. Meek, M. Meek, O'Donnell, O'Kelly, Rankin, and Wiener

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.

English 251 and 252 (3 hours each) are courses at the sophomore level recommended for English majors. The courses require a reasonable degree of ability to analyze orally and in writing a wide variety of literary texts. These courses are introductory to all other literature courses. Students who become English majors after their sophomore year or after having taken 211, 213, and/or 217, or their equivalents, may substitute those courses or their equivalents with the approval of their advisers.

Other courses for the 36-hour English major must be approved by each student’s English Department adviser. Programs of study are intended to be tailored to each student’s needs and plans, and it is in recognition of a wide range of interests in literature and language that the student is required to work out the specific selection of courses with an adviser. At the same time, the Department recognizes the importance of breadth in English studies and therefore requires that the English major complete at least three credits in any five of six groups of courses: 1. historical period or survey courses, 2. major author courses, 3. genre courses, 4. thematic courses, 5. language and linguistic courses, and 6. writing courses. Students without a departmental adviser should see the Chair of the Department.

Students planning or considering graduate work in English are urged to take the History of the English Language (English 442) and a balanced” program of literature courses to include a range of genres, periods, and major-author courses. They are further urged to continue their study of foreign languages beyond the minimum required for the undergraduate major, and to consult graduate catalogs for stipulations of undergraduate requirements.

Students concentrating in language and linguistics will ordinarily take much of their course work in area 5. They should also note these related courses: Linguistics 450, Articulator Phonetics; Linguistics 451, Phonology I; Linguistics 452, Grammatical Analysis I. Moreover, they are urged to take either four years of one foreign language or two years of two foreign languages particularly if they are considering graduate work in language or linguistics.

The following is a listing of courses grouped in categories to fulfill distribution requirements for the major. At least 3 credits must be taken in each of five of the following six categories. A minimum of 2 credits is acceptable in category six.

1. Historical period or survey courses, including:
   151, 152  Masterpieces of European Literature
   200* Topics in Language and Literature (when applicable and approved), e.g., The Twenties
   301,302 Survey of English Literature
   303,304 Survey of American Literature
   357 Women Writers and Readers (when applicable and approved)
   365 Black American Writers (when applicable and approved)
   367 American Indian Literature (when applicable and approved)
   369 Literature and Culture
   401 Studies in Medieval Literature
   402 Studies in Early Renaissance Literature
   403 Studies in Colonial American Literature
   404 Studies in Late Renaissance Literature
   405 Studies in Restoration and Eighteenth Century (English) Literature
   406 Studies in Nineteenth Century Literature
   407 Studies in Twentieth Century Literature
   415 Special Topics in Literature (when applicable and approved), e.g., Nineteenth Century American Humor, Restoration Satire, Modern Canadian Literature
2. Major author courses, including:
   - 200*, 315, 316 Topics in language and literature (when applicable and approved)
   - Shakespeare
   - 415 Special Topics in Literature (when applicable and approved), e.g., Keats, Melville, Dickinson, Faulkner

3. Generic courses, including:
   - 200* Topics in language and literature (when applicable and approved), e.g., The Modern Short Story
   - 211* Introduction to Fiction
   - 213* Introduction to Poetry
   - 217* Introduction to Drama
   - 219* Introduction to Film
   - 320 Studies in American Fiction
   - 321 Studies in American Poetry
   - 322 Studies in American Drama
   - 330 Studies in English Fiction
   - 331 Studies in English Poetry
   - 332 Studies in English Drama
   - 357 Women Writers and Readers (when applicable and approved)
   - 365 Black American Writers (when applicable and approved)
   - 367 American Indian Literature (when applicable and approved)
   - 369 Literature and Culture (when applicable and approved)
   - 413 Studies in Literature for Young Readers
   - 409 Art of Cinematic Drama
   - 415 Special Topics in Literature (when applicable and approved), e.g., Modern European Drama, Russian Fiction, Twentieth Century Lyric Poetry

4. Thematic courses, including:
   - 200* Topics in language and literature (when applicable and approved), e.g., The Literature of the Sea, The Faust Legend in Modern Literature
   - 357 Women Writers and Readers (when applicable and approved)
   - 365 Black American Writers (when applicable and approved)
   - 369 Literature and Culture (when applicable and approved)
   - 413 Studies in Literature for Young Readers
   - 415 Special Topics in Literature (when applicable and approved), e.g., Literature and Psychology, Literature of Courtly Love, Literature of Empire

5. Language and Linguistics courses, including:
   - 200* Topics in language and literature (when applicable and approved)
   - 207 Introduction to Linguistics
   - 309 Modern Grammar
   - 361, 362 American Indian Languages I and II
   - 370 Language and Culture
   - 417 Special Topics in Language, e.g., Transformational Grammar, Classic Rhetoric
   - 419 Teaching English as a Second Language
   - 442 History of the English Language

6. Writing courses, including:
   - 203, 308 Composition 111 and IV
   - 305 Creative Writing (the course may be repeated once for credit)
   - 411, 412 The Art of Writing (each course maybe repeated once for credit)

*No more than 2 credits may be applied to the distribution requirement.

**College of Arts and Sciences**

**B.A. WITH MAJOR IN ENGLISH**

Required 125 hours, including:

I. General Graduation Requirements, see pages 32-40.

II. The Following Curriculum:

   Major Requirements—36 hours including 5-6 hours of introductory literature, preferably:
   - Engl 251.................................Analysis of Literature I.................................................................(3)
   - Engl 252.................................Analysis of Literature II..........................................................(3)

   English courses from the following categories—at least 3 hours from each of five of the six categories as selected in consultation with major adviser. Twenty hours must be at the 300 and 400 level. ..................................................................................................................................................(30-31)
Historical period or survey courses
Major author courses
Genre courses
Thematic courses
Language and Linguistics courses
Writing courses

**MINOR IN ENGLISH**

Required: 20 hours, including 5-6 hours of introductory literature, preferably:

Engl 251.................................Analysis of Literature I.................................................................(3)
Engl 252.................................Analysis of Literature II...............................................................(3)

Other studies: English majors are encouraged to explore other fields related to literature and language, notably: history, philosophy, art history, theatre arts, speech, journalism, communication, media-television, religious studies, and library science.

**B.A. or B.S.Ed. WITH MAJOR IN ENGLISH AND SECONDARY CERTIFICATION PREPARATION**

Required 125 hours including:

I. **General** Graduation Requirements, see pages 32-40.

II. The Center for Teaching and Learning program in Secondary Education. See page 177.

Must include:

CTL 400.................................Methods and Materials of Teaching Literature and Reading .......... (3)

and

CTL 404.................................Methods and Materials of Teaching Writing...............................(3)

III. The Following Curriculum:

Major Requirements — 36 hours including:

5-6 hours of introductory literature, preferably:

Engl 251.................................Analysis of Literature I.................................................................(3)
Engl 252.................................Analysis of Literature II...............................................................(3)

2 hours from:

Engl 203.................................Composition III.................................................................(2)
Engl 308.................................Composition IV.................................................................(2)

3 hours of:

Engl 309.................................Modern Grammar .................................................................(3)

20 hours minimum (including 309) must he at the 300 and 400-level-3 hours from each of five of the following categories-chosen in consultation with advisor.................................................(25.26)

Historical period or survey courses
Major author courses
Genre courses
Thematic courses
Language and Linguistics courses
Writing courses

Required in other departments:

Level IV proficiency in a language other than English.

Other studies: English majors should be encouraged to explore other fields related to literature and language, notably: history, philosophy, art history, theater arts, speech, journalism, communications, radio-television, religious studies, and library science.
MINOR IN ENGLISH

Required — 20 hours, including:

5-6 hours of introductory literature, preferably:

Engl 251 .................................................... Analysis of Literature I ................................................................. (3)
Engl 252 .................................................... Analysis of Literature II ............................................................. (3)
Engl 203 or 308 ......................................... Composition I or IV ............................................................... (2)
Engl 309 .................................................... Modern Grammar. ................................................................. (3)

English electives numbered 300 or above ............................................................... (9-10)

Courses

101. Composition I. 3 credits. Guided practice in writing, with emphasis on thoughtful analysis of one’s subject matter, clear understanding of the writing situation, flexible use of rhetorical strategies, and development of stylistic options. Does not apply to English major or minor. F,S

102. Composition II. 3 credits. prerequisite: English 101. Guided practice in writing, with an emphasis on more demanding writing situations. Does not apply to English major or minor. F,S

151, 152. Masterpieces of European Literature. 6 credits. Great literature of western Europe, or in the European tradition, studied with emphasis upon intellectual and cultural values. F,S

200. Topics in Language and Literature. 1-4 credits. A course for undergraduate students, on topics varying from term to term. F,S

203. Composition III. 2 credits. Prerequisite: English 102 or permission of department. Advanced writing. Emphasis on the rhetorical appeals and style. F,S

207. Introduction to Linguistics. 3 credits. An introduction to the nature of language, phonology, grammar, semantics, and historical, geographical, social, and developmental aspect’s of language. F,S

209. Technical and Business Writing. 3 credits. Prerequisite: English 101. Dries not apply on the English major or minor. F,S

211. Introduction to Fiction. 2 credits. Fiction studied as a literary type, for understanding and for critical appreciation. F,S

213. Introduction to Poetry. 2 credits. Poetry studied as a literary type, for understanding and for critical appreciation. F,S

217. Introduction to Drama. 2 credits. Drama studied as a literary type, for understanding and for critical appreciation. F,S

219. Introduction to Film. 2 credits. The study of film drama, concentrating on appreciation and evaluation of motion pictures. F,S

251,252. Analysis of Literature I and II. 4-6 credits. Recommended for English majors. Prerequisite: English 102. Students read, write about and discuss significant literary texts in English. A critical introduction to advanced literature courses. F,S

301,302. Survey of English Literature. 6 credits. English literature from its beginnings to the twentieth century. F,S

303, 304. Survey of American Literature. 6 credits. The literature of the United States from its beginnings to the twentieth century. F,S

305. Creative Writing. 2 credits. Imaginative writing of various types. The course may be repeated once for credit. F,S

308. Composition IV. 2 credits. Advanced writing. Emphasis on the conventions of particular kinds of writing such as research reporting, writing for teachers, and article writing. English 203 recommended before English 308. S

309. Modern Grammar. 3 credits. Various approaches to the structure of modern English, with emphasis on dialect variation and applications to the problems of teaching. F

315,316. Shakespeare. 6 eds. Shakespeare’s works studied in chronological sequence. F,S

320. Studies in American Fiction. 3 credits. Prior course recommended: 211, 251, or 252. Repeatable when topics vary. F


322. Studies in American Drama. 3 credits. Prior course recommended: 217, 251, or 252. Repeatable when topics vary. S

330. Studies in English Fiction. 3 credits. Prior course recommended: 211,251, or 252. Repeatable when topics vary. S

331. Studies in English Poetry. 3 credits. Prim course recommended: 213, 251, or 252. Repeatable when topics vary. S
332. **Studies in English Drama.** 3 credits. Prior course recommended: 217,251, or 252. Repeatable when topics vary. F

337. **Cooperative Education.** I-8 credits, repeatable to 15. Prerequisites: 15 credits completed in English; 2.5 GPA; 2.75 CPA in English. A course designed to offer English majors work experience related to their disciplinary training in close reading, careful writing, and interpretative analysis. F,S,SS

357. **Women Writers and Readers.** 2-4 credits. Literature by and about women, examining the social, historical, and aesthetic significance of the works. Repeatable when topics vary. F,S

361. **American Indian Languages I.** 3 credits. Prerequisite: English 207. Introductory study of one of the Native American Languages of North Dakota. Repeatable for different languages. F

362. **American Indian Languages II.** 3 credits. prerequisite: 207; 361. Continuing introductory study of one of the Native American Languages of North Dakota; repeatable for different languages. S

365. **Black American Writers.** 3 credits. Writing by Black Americans studied for understanding and critical appreciation. S

367. **American Indian Literature.** 3 credits. Writings by and about American Indians, studied for understanding and critical appreciation. S

369. **Literature and Culture.** 1-3 credits. Repeatable when topics vary. Prerequisite: 3 hours of English (excluding composition) or consent of the department. F,S

370. **Language and Culture.** 3 credits. Prerequisite: English 207. Interaction of language with other cultural subsystems. (Same course as Anthropology 370.) S

398. **Independent Study.** 1-4 credits. For English majors only. Prerequisite: Written consent of the department. Supervised independent study, Only 6 hours may apply to the 36 hour English major. F,S

401. **Studies in Medieval Literature.** 3 credits. A course in the literature of England in the Medieval period. Repeatable when topics vary. F/2


403. **Studies in Colonial American Literature.** 3 credits. A course in the literature of America in the colonial period. Repeatable when topics vary. F/2

404. **Studies in Late Renaissance Literature.** 3 credits. A course in the literature of the English Renaissance, 1603-1660. Repeatable when topics vary. F/2, S/2


406. **Studies in Nineteenth Century Literature.** 3 credits. A course in literature in English of the Nineteenth Century. Repeatable when topics vary. F,S

407. **Studies in Twentieth Century Literature.** 3 credits. A course in literature in English of the Twentieth Century. Repeatable when topics vary. F,S

409. **Art of the Cinematic Drama.** 3 credits. Prerequisite: English 219. An investigation of the esthetics of the film drama with a concentration on the theory and evaluation of the medium. This course examines the relationship of the verbal and visual arts. Repeatable when topics vary. S

411, 412. **The Art of Writing.** 6 credits. Prerequisite: English 305 or consent of instructor. Writing of various types, with emphasis upon a critical and professional approach. Genres vary with instructor. Each course may be repeated once for credit. F,S

413. **Studies in Literature for Young Readers.** 3 credits. A course in literature for young people, examining the social, historical, and aesthetic significance of the works. Course may “vary by reading level, genre, historical period, and theme. Repeatable when subject matter varies. S/2

415. **Special Topics in Literature.** 1-4 credits. A course for advanced students on topics varying from year to year. Repeatable. S

417. **Special Topics in Language.** 1-4 credits. A course for advanced students on topics varying from year to year. Repeatable. F

419. **Teaching English as a Second Language.** 3 credits. Prerequisite: Engl 207. An introduction to the principles of teaching English as a second language, with special attention to tutoring. F/2

442. **History of the English Language.** 3 credits. The development of the language from the earliest times to the present. This course is required of all English graduate students and is recommended for all prospective English teachers. S

499. **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
The mission of the Department of Family and Consumer Sciences is to offer theoretical and experiential preparation for professionals. The department is accredited by the Council for Accreditation of the American Home Economics Association. The professional programs offered are:

B.S. in Family and Consumer Sciences: Coordinated Program in Dietetics (CP)
B.S. in Family and Consumer Sciences: Textiles, Clothing and Merchandising (TC&M)

The Coordinated Program in Dietetics combines academic preparation with clinical experiences for students who wish to become Registered Dietitians (R.D.). Upon completion of this degree, students are eligible for membership in the American Dietetic Association and to take the examination for professional registration. Students work in a variety of settings to assist clients to improve or maintain nutritional health. Students apply for admission to the program during the second semester of the sophomore year or when they have completed the pre-professional requirements. A cumulative grade point of 2.6 or higher and a minimum of a “C” grade in all science, foods, and nutrition courses are required. The Coordinated Program in Dietetics is fully accredited by the American Dietetic Association Council on Education, a specialized accrediting body recognized by the Council on Postsecondary Accreditation and the United States Department of Education.

The Textiles, Clothing and Merchandising major provides for the professional development necessary for careers in fashion management, merchandising, sales, promotion and media, manufacturing, design and the field of textiles. The curriculum provides for a selection of elective credit hours as a concentration or minor designed to meet the student’s personal, educational, professional and social goals.

College for Human Resources Development

B.S. IN FAMILY AND CONSUMER SCIENCES:
COORDINATED PROGRAM IN DIETETICS

Required 125 hours, including:

I. General Graduation Requirements, see pages 32-40.
II. College for Human Resources Development Requirements, see page 102.
III. The Following Curriculum:

   Pre-professional Requirements:
   FCS 100 Introduction to Family and Consumer Sciences ............................................(1)
   FCS 231 Food Management .........................................................................................(3)
   FCS 240 Fundamentals of Nutrition ..............................................................................(3)
   FCS 252 Child Development .........................................................................................(3)
   or FCS 352 Family Relationships ...............................................................................(3)
   FCS 332 Fundamentals of Food Science .........................................................................(3)
   FCS 335 World Food Patterns .....................................................................................(3)
   Acct 200 Elements of Accounting ................................................................................(3)
   Anat 204 and 204L Anatomy for Paramedical Personnel .........................................(5)
   or Biol 101 Introduction to Biology .............................................................................(4)
   Chem 105, 106 General Chemistry 1,11 ......................................................................(8)

*Formerly Home Economics and Nutrition
### B.S. in Family and Consumer Sciences: Textiles, Clothing and Merchandising

Required 125 hours, including:

I. General Education Requirements, see pages 32-40.

II. College for Human Resources Development Requirements, see page 102.

III. One of the following two options is also required:

1. A minor in another subject matter field.
2. A concentration of 16-20 credits decided in consultation with an advisor from the Textiles, Clothing and Merchandising program according to the needs of the student.

IV. The Following Curriculum:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCS 100</td>
<td>Introduction to Family and Consumer Sciences</td>
<td>1</td>
</tr>
<tr>
<td>FCS 106</td>
<td>Image Management</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 110</td>
<td>Textiles</td>
<td>(4)</td>
</tr>
<tr>
<td>FCS 202</td>
<td>Evaluating Apparel Quality</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 211</td>
<td>Apparel Industry</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 240</td>
<td>Fundamentals of Nutrition</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 252</td>
<td>Child Development</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 352</td>
<td>Family Relationships</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 286</td>
<td>Clinical /Community Experience:</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 310</td>
<td>Textile Analysis</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 311</td>
<td>Fashion Merchandising</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 312</td>
<td>Visual Merchandising</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 365</td>
<td>Educational Strategies &amp; Evaluation</td>
<td>(2)</td>
</tr>
<tr>
<td>FCS 386</td>
<td>Field Study TC&amp;M</td>
<td>(2)</td>
</tr>
<tr>
<td>FCS 400</td>
<td>Professional Issues</td>
<td>(2)</td>
</tr>
<tr>
<td>FCS 414</td>
<td>History of Costume</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 416</td>
<td>Social Psychology of Clothing</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 420</td>
<td>Retail Buying</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 486</td>
<td>Clinical Community Experience</td>
<td>(3)</td>
</tr>
</tbody>
</table>

9 credits from

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCS 320</td>
<td>Housing and Furnishings</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 360</td>
<td>Consumer Issues</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 361</td>
<td>Personal and Family Finance</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 362</td>
<td>Family Management</td>
<td>(3)</td>
</tr>
</tbody>
</table>
Required in other departments:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acct 200</td>
<td>Elements of Accounting</td>
<td>(3)</td>
</tr>
<tr>
<td>Acct 315</td>
<td>Business in the Legal Environment</td>
<td>(3)</td>
</tr>
<tr>
<td>Chem 101</td>
<td>Fundamentals of Chemical Analysis</td>
<td>(4)</td>
</tr>
<tr>
<td>or</td>
<td>General Chemistry I</td>
<td>(4)</td>
</tr>
<tr>
<td>Econ 105</td>
<td>Elements of Economics</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 104</td>
<td>Finite Mathematics</td>
<td>(3)</td>
</tr>
<tr>
<td>Mgmt 305</td>
<td>Managerial Concepts</td>
<td>(3)</td>
</tr>
<tr>
<td>Mrkt 301</td>
<td>Principles of Marketing</td>
<td>(3)</td>
</tr>
<tr>
<td>Mrkt 311</td>
<td>Personal Selling</td>
<td>(3)</td>
</tr>
<tr>
<td>Mrkt 312</td>
<td>Advertising</td>
<td>(3)</td>
</tr>
<tr>
<td>Psy 101</td>
<td>Introduction to Psychology</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
<td>(3)</td>
</tr>
<tr>
<td>Soc 101</td>
<td>Introduction to Sociology</td>
<td>(3)</td>
</tr>
<tr>
<td>VA 173</td>
<td>Design I: Two Dimensional</td>
<td>(3)</td>
</tr>
<tr>
<td>VA 174</td>
<td>Design II: Three Dimensional</td>
<td>(3)</td>
</tr>
<tr>
<td>or VA 276</td>
<td>Surface Design on Fabric</td>
<td>(3)</td>
</tr>
</tbody>
</table>

2-3 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comm 320</td>
<td>Promotional Methods</td>
<td>(2)</td>
</tr>
<tr>
<td>Mrkt310</td>
<td>Buyer Behavior</td>
<td>(3)</td>
</tr>
<tr>
<td>Mrkt 325</td>
<td>International Marketing</td>
<td>(3)</td>
</tr>
<tr>
<td>Mrkt 412</td>
<td>Promotional Strategy</td>
<td>(3)</td>
</tr>
</tbody>
</table>

3-4 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BVED 217</td>
<td>Fundamentals of Management Information Systems</td>
<td>(4)</td>
</tr>
<tr>
<td>CSci 101</td>
<td>Introduction to Computers</td>
<td>(2)</td>
</tr>
<tr>
<td>CSci 101 L.</td>
<td>Introduction to Computers Laboratory</td>
<td>(1)</td>
</tr>
<tr>
<td>IT 202</td>
<td>Technical Illustration Techniques</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 312</td>
<td>Computer Aided Design/Drafting</td>
<td>(3)</td>
</tr>
<tr>
<td>BVED 217</td>
<td>Fundamentals of Management Information Systems</td>
<td>(4)</td>
</tr>
</tbody>
</table>

Courses

"100. Introduction to Family and Consumer Sciences 1 credit. The philosophy, history, present and future trends of Family and Consumer Sciences will be discussed. The career opportunities in the Family and Consumer Sciences majors (Community Dietetics; Textiles, Clothing and Merchandising) will be described. The commonalities of the two majors will be presented. S/U grading only. F

106. Image Management. 3 credits. The study of clothing needs and selection throughout the lifespan within the context of aesthetic, economic, social, psychological, and physical relationships. F

110. Textiles. 4 credits. Selection, use, performance and care of textiles in relation to fiber characteristics, yarn and fabric structure, color, and finish. Includes laboratory. F

202. Evaluating Apparel Quality. 3 credits. Prerequisite: FCS 110 or consent of instructor. Corequisites: FCS 211 or consent of instructor. Effects of raw materials and manufacturing processes on quality of mass produced apparel products. Analysis and evacuation of the components of apparel structures as they relate to quality and pricing from the manufacturer, retailer and consumer perspective. F

211. Apparel Industry. 3 credits. Corequisite: FCS 202. Structure, operation, and issues concerning domestic and foreign apparel and accessory industries. Interrelationships with the textile industry and distributors. F

231. Food Management. 3 credits. Management of personal and economic resources in planning and providing for food consumption by individuals and family groups. (Laboratory) F

240. Fundamentals of Nutrition. 3 credits. Basic principles of nutrition with application for individuals and family groups. F

250. Personal and Family Health. 3 credits. A basis for healthful living for individuals and families developed through a study of major health problems, their treatment and control. S

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 a means of meeting them in the child’s home and community environment. F,S
286. Clinical/Community Experience: Fashion Business I. 1 credit. Prerequisite: Sophomore standing. Textiles, Clothing and Merchandising major and consent of instructor. Structured educational experiences in selected areas of textiles, clothing and merchandising. S

313. Textile Analysis. 3 credits. Prerequisite: FCS 110. Analysis of textiles with respect to performance and end use characteristics; textile product specification and standard test methods for evaluating the aesthetic, physical, performance and functional aspects of textiles in the consumer environment. S

311. Fashion Merchandising. 3 credits. Focuses on the planning, selection, promoting and selling of fashion as it relates to targeted markets, store profiles and trends. F

312. Visual Merchandising. 3 credits. Creation of a retail store environment through merchandise presentation, store layout and design. Group store design projects will be completed. S

320. Housing and Furnishings. 3 credits. Trends and issues in housing. Application of art principles to the selection, Arrangement and design of residential architecture and its furnishings. S

322. Trends in Home Equipment. 2 credits. A study of trends in household equipment and an exploration of issues related to resource allocation. S

325. Introduction to Dietetics. 1 credit. Co-requisite: Admission to dietetic program. Study of the profession of dietetics, the employment opportunities and the dietetic program at UND. S-U grading only. F

332. Fundamentals of Food Science. 3 credits. Prerequisites: Any college level chemistry course. The study and application of chemical and physical principles applied to food preparation. Consumer and technological information involved in the selection, preparation and serving of foods. (Laboratory) 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. F

337. Cooperative Education. 1-6 credits repeatable to 12. This course provides practical work experience with an employer closely related to the student’s major and professional goals. S/U grading only. F,S,SS

340. Food Service Management. 3 credits. Prerequisites: FCS 231, 332. Principles of organization, management and promotion as applied to preparation, service, marketing and evaluation of foods with reference to quality and production costs; use and operation of equipment, quantity food production and analysis. F

341. Maternal and Child Nutrition. 2 credits. Prerequisite: FCS 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

342. Community Nutrition. 3 credits. Prerequisite: FCS 341, 345 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

345. Nutrition in the Aging Process. 2 credits. Prerequisite: FCS 240. Application of physiological, socio-psychological, and educational aspects of nutrition as it impacts the health and well-being of people as they age. S

348. Sports Nutrition. 3 credits. Prerequisites: FCS 240 and Phy 301. A study of nutrition designed to meet the specialized needs of the athlete. S

352. Family Relationships. 3 credits. A study of the family from mate selection through old age. Constancy and change in individuals and families over the course of life are included. The strengths, stresses and problems of families are examined. F

3643. Consumer Issues. 3 credits. Analyses of consumer issues and decisionmaking with emphasis of antecedent conditions and consequences to consumers and to global environments. Development of skill in addressing issues. Includes discussion of U.S. consumption practices with comparisons from other cultural contexts. S

361. Personal and Family Finance. 3 credits. Analysis of personal and family financial decisions, resources, and planning as related to life cycle, socio-cultural, and economic contexts. Includes discussion of cash management, credit, insurance, investments, retirement and estate planning. F,S

362. Family Management. 3 credits. Analysis of how families manage resources. Includes identification of values and goals, communication, planning, implementation, and evaluation. Emphasis on the relationship of work and family roles. Field experience planned to meet individual student need. S

365. Educational Strategies and Evaluation. 2 credits. Development of instructional presentation and evacuation skills in home economics related fields. Emphasis on developing lessons and units, selecting and designing appropriate instructional and evaluation methods. F

386. Field Study in Textiles, Clothing and Merchandising. 1-3 credits, repeatable to 6. Restricted to majors and minors. Structured educational study tours of manufacturing, fashion, and/or merchandising centers including professional visits to retail stores, design houses and textile mills, and cultural visits to museums. Pre- and post-tour seminars. May repeat when field site varies. S/U grading only. S

400. Professional Issues. 2 credits. Prerequisites: Senior status, FCS 100 and 365. Analysis of professional issues across family and consumer sciences related fields at macro and micro levels. Development of skills and formulation of strategies to address issues. Development of job seeking skills. F

414. History of Costume. 3 credits. A comparative study of dress from ancient to modern time with consideration of social, economic and political factors affecting dress, and the contributions to apparel design of the western world. S/2
416. Social psychology of Clothing. 3 credits. Prerequisites: Psy 101, Soc 101, FCS 106. Application of the concepts and theories from the social sciences to the study of dress and human behavior. Emphasis on social science research as it applies to clothing and personal appearance. S/2

420. Retail Buying. 3 credits Prerequisite: Math 104, Acc 200, FCS 311. Analysis of buying practices and techniques, with a focus on the impact of consumer buying power, market resources, governmental regulations, merchandise planning and control, pricing, purchase negotiations and open-to-buy. S/2

430. Experimental Foods. 3 credits. Prerequisite: FCS 332, Chem 106. Development of experimental food methods and techniques and their application to investigation in cookery processes. (Laboratory) F

436. Integration of Dietetic Knowledge and Practice. 3 credits. Prerequisites: FCS 340, 342, 442, 486, I, II, 111. Synthesizes the skills of program supervised practice experiences and the didactic courses which present tire knowledge comparent. S

441. Advanced Nutrition. 4 credits. Prerequisits: FCS 240, Chem 212. A comprehensive investigation of the nutritional needs of humans with emphasis on nutritional biochemistry and current issues. S

442. Medical Dietetics. 4 credits. Prerequisites: FCS 441, Phy 301. Application of nutritional intervention principles to disease states and appropriate therapeutic measures. F

465. Vocational Family and Consumer Sciences Education. 2 credits. Prerequisites: FCS 365. Analysis of program planning and evaluation in vocational home economics education. Incorporation of FHA/HERO as an integral part of instruction. Development of human relations skills. S

470. Methods of Adult Education. 2 credits. An analysis of planning and presenting adult education programs. Exploration of appropriate methods for reaching varying audiences. S/2

475. Workshop in Family and Consumer Sciences. 1-4 credits (repeatable to a maximum of 6 credits). Prerequisite: Consent of the instructor. Opportunity for students to work cooperatively on problems arising out of actual situations. On demand.

486. Clinical/Community Experience. 1-8 credits (repeatable to 24 credits). Prerequisite Consent of instructor one semester prior to enrollment. Development of professional skills by Working directly in Family and Consumer Sciences and related programs and services integral to the community. Students in Family and Consumer Sciences, Textiles, Clothing and Merchandising and Dietetics will participate in clinical/community experiences appropriate to professional goals and college programs. Textiles, Clothing and Merchandising-3 credits, and Dietetics-24 credits. F/S

495. Special Problems in Family and Consumer Sciences. 1-4 credits (repeatable to a maximum of 6 credits). Prerequisite: Consent of instructor. Special problems and/or independent study offered in selected content areas of family and consumer sciences. On demand.

496. Contemporary Readings in Family and Consumer Sciences. 1-4 credits (repeatable to 6 credits). Prerequisite: Consent of instructor. Recent developments, techniques and research findings. Offered to each of the content areas of family and consumer sciences. On demand.

498. Research in Family and Consumer sciences. 1-4 credits (repeatable to 6 credits). Prerequisite: Consent of the instructor. Study of research procedures and designs appropriate to family and consumer sciences. On demand.

Family Medicine
(FMed)

Bushell, Bushfield, Crawford, Frappier, Gourneau, Greek, Halvorson, Heyde, Jensen, Johnson, Mann, Peterson, Rudd, and Walker

The Department of Family Medicine offers the B.S. degree in Athletic Training under the auspices of the Division of Sports Medicine. This degree program was formally approved by the North Dakota Board of Higher Education in September, 1990. Athletic Training was recognized as an allied health field by the AMA in June, 1990.

The degree program entails a four-year curriculum designed to prepare the student for an entry-level position in the field of athletic training. Upon completion of the curriculum, the student will be prepared to take the NATA Certification Examination.

Admission to the curriculum is competitive. Students are selected using the following criteria: academic performance, departmental application, references, 100 hours of directed observation, and completion of FMed 207, 207L, Anat 204, 204L, and HPER 310. It is recommended that students applying for this program meet with the curriculum coordinator early in their freshman year.
Students pursuing the Athletic Training degree are encouraged to utilize the electives in this program to prepare for advanced study. Suggested areas of study include: post-graduate study, in exercise science, physical therapy or medicine.

### School of Medicine

#### B.S. IN ATHLETIC TRAINING

**Required 125 hours including:**

I. General Graduation Requirements, see pages 30-39.

II. Required Curriculum

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anat 204, 204L</td>
<td>Anatomy for Paramedical Personnel</td>
<td>5</td>
</tr>
<tr>
<td>Biol 101, 101L</td>
<td>Intro to Biology, Lab</td>
<td>4</td>
</tr>
<tr>
<td>Chem 105</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>CSci 101, 101L</td>
<td>Intro to Computers, Lab</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101, 102</td>
<td>Composition I, II</td>
<td>6</td>
</tr>
<tr>
<td>FCS 240</td>
<td>Fundamentals of Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>FMed 101</td>
<td>Orientation to Athletic Training</td>
<td>1</td>
</tr>
<tr>
<td>FMed 207, 207L</td>
<td>Prevention and Care of Athletic Injuries</td>
<td>3</td>
</tr>
<tr>
<td>FMed 250O</td>
<td>Understanding Medicine</td>
<td>3</td>
</tr>
<tr>
<td>OT 205</td>
<td>Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>Phys 102</td>
<td>Introductory College Physics</td>
<td>4</td>
</tr>
<tr>
<td>Psy 301</td>
<td>Mechanics of Human Physiology</td>
<td>4</td>
</tr>
<tr>
<td>Psy 101</td>
<td>Intro to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Psy 24L</td>
<td>Intro to Statistics</td>
<td>4</td>
</tr>
<tr>
<td>Psy 25L</td>
<td>Developmental Psychology</td>
<td>4</td>
</tr>
<tr>
<td>Soc 101</td>
<td>Intro to Sociology</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMed 207, 207L</td>
<td>Prevention and Care of Athletic Injuries</td>
<td>3</td>
</tr>
<tr>
<td>FMed 207L</td>
<td>Laboratory Prevention and Care of Athletic Injuries. 1 credit.</td>
<td></td>
</tr>
<tr>
<td>FMed 208, 208L</td>
<td>Procedures in Athletic Training, Lab</td>
<td>2</td>
</tr>
<tr>
<td>FMed 213</td>
<td>Beginning Clinical Practicum in Athletic Training</td>
<td>1</td>
</tr>
<tr>
<td>FMed 312</td>
<td>Medical Aspects of Sports</td>
<td>2</td>
</tr>
<tr>
<td>FMed 313</td>
<td>Intermediate Clinical Practicum in Athletic Training</td>
<td>2</td>
</tr>
<tr>
<td>FMed 320</td>
<td>Athletic Training Modalities</td>
<td>2</td>
</tr>
<tr>
<td>FMed 321, 321L</td>
<td>Athletic Injury Rehabilitation Techniques, Lab.</td>
<td>2</td>
</tr>
<tr>
<td>FMed 343</td>
<td>Organization and Administration of Athletic Training</td>
<td>2</td>
</tr>
<tr>
<td>FMed 413</td>
<td>Advanced Clinical Practicum in Athletic Training</td>
<td>3</td>
</tr>
<tr>
<td>FMed 48L</td>
<td>Athletic Injury Assessment</td>
<td>4</td>
</tr>
<tr>
<td>FMed 482</td>
<td>Internship in Athletic Training</td>
<td>3</td>
</tr>
<tr>
<td>FMed 490</td>
<td>Seminar in Athletic Training</td>
<td>2</td>
</tr>
<tr>
<td>HPER 310</td>
<td>First Aid and CPR</td>
<td>2</td>
</tr>
<tr>
<td>HPER 332</td>
<td>Biomechanics</td>
<td>4</td>
</tr>
<tr>
<td>HPER 402</td>
<td>Exercise Physiology</td>
<td>4</td>
</tr>
<tr>
<td>HPER 403</td>
<td>School Health Education</td>
<td>2</td>
</tr>
<tr>
<td>PhTx 402</td>
<td>Principles of Drug Interaction</td>
<td>2</td>
</tr>
<tr>
<td>PhTx 410</td>
<td>Drugs Subject to Abuse</td>
<td>2</td>
</tr>
</tbody>
</table>

Electives (Selected in consultation with advisor) ........................................................................................................... 16

### 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 breadth of medical science. Guest speakers are brought in to discuss various facets of medicine. S

207. **Prevention and Care of Athletic Injuries.** 2 credits. Corequisite: FMed 207L. An introductory course into the care and treatment of athletic injuries. F, 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, Anat 204, 204L, Corequisite: FMed 208L. This course serves as an orientation class for incoming sports health majors. Policies and procedures as well as record keeping are covered. F
208L. Laboratory Procedures in Athletic Training. 1 credit. Prerequisites: FMed 207, 207L, Anat 204, 204L. Corequisite: FMed 208. A course designed to allow students to get practical experiences in injury management, modality usage and record keeping skills taught in FMed 208. F

213. Beginning Clinical practicum in Athletic Teaching. 1 credit. Prerequisites: FMed 208, 208L. A clinical course designed to allow the students to develop specific clinical competencies in a directed, progressive manner. S

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 in Athletic Training. 2 credits. Prerequisite: FMed 481. Corequisites: FMed 320, 321, 321L. A clinical course designed to allow the students to develop specific 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

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 321. A course designed to allow students practical skill development of rehabilitation techniques utilized in athletic injury care as taught in FMed 321. 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

350. American Indian Health Topics. 1 credit. This course will present an American Indian perspective on health needs, patient compliance, and related issues. S/U grading.

401. Physiology of Aging. 3 credits. A review of aging from the physiological perspective with specific attention to the medical model and the problems of aging, gerontology in North Dakota. This is co-sponsored with the College of Nursing.

413. Advanced Clinical Practicum in Athletic Training. 3 credits. Prerequisite: FMed 313. A clinical course designed to allow Ore students to develop specific clinical competencies in a directed, progressive manner. S

481. Athletic Injury Assessment. 4 credits. Prerequisite: FMed 213. A course designed to instruct the students in the theories and skills of injury evaluation. F

482. 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,SU

490. Seminar in Athletic Training. 2 credits. Permission of instructor. Advanced work in athletic training to include surgical and conservative injury management, rehabilitation and injury. F,S

495. Directed Studies in Sports Medicine. 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

---

Finance (Fin)

T. Nelson (Chair), Eacarraz, Lee, Markovich, and Potter

The Department of Finance offers a major in Financial Management, which covers the areas of managerial finance, investments, real estate, and insurance. The focus of managerial finance is internal to the enterprise with particular emphasis on problem-solving in small and medium sized firms and entrepreneurial enterprises. In portfolio and investment management courses enterprises are analyzed from the perspective of external investors considering securities of enterprises for inclusion in portfolios. Real estate courses expand the scope of the program to include real property analysis and investments. Insurance courses expand the risk management function to include a variety of insurance contracts. The Financial Management major has been designed to give students an
appropriate balance between general background knowledge and particular decision-making skills. Foundation courses cover modern finance theory and modeling using information technologies and databases. Particular decision-making skills are developed through case analyses. Upon completion of the Financial Management major, students are prepared for careers as financial managers, investment analysts, real property analysts, financial planners and a variety of sales careers in firms marketing stocks, bonds, options, real estate and insurance.

**B.B.A. WITH MAJOR IN FINANCIAL MANAGEMENT**

Required 125 hours, including:

1. General Graduation Requirements, see pages 32-40.

11. The College of Business and Public Administration Requirements, see page 85.

### III. The Following Curriculum (suggested sequence)

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>Engl 101. ............................................. <strong>Composition I</strong>. ..................................................(3)</td>
<td></td>
</tr>
<tr>
<td>One of the Following:</td>
<td></td>
</tr>
<tr>
<td>Psy 101. ............................................. Introduction to Psychology.................................................(3)</td>
<td></td>
</tr>
<tr>
<td>Soc 101. ............................................. Introduction to Sociology.. ............................................(3)</td>
<td></td>
</tr>
<tr>
<td>Anth 171. ............................................. Introduction to Cultural Anthropology...........................(3)</td>
<td></td>
</tr>
<tr>
<td>PSci 101 ............................................. American Government I. .............................................(3)</td>
<td></td>
</tr>
<tr>
<td>Math 104. ............................................. Finite Mathematics. ....................................................(3)</td>
<td></td>
</tr>
</tbody>
</table>

**Second Semester**

| Engl 102* ............................................. **Composition II**.....................................................(3) |
| or |
| Engl 209*............................................. Technical and Business Writing .....................................(3) |
| Comm 161. ............................................. Fundamentals of Public Speaking..................................(3) |
| Math 204*............................................. Survey of Calculus. ....................................................(3) |
| Lab Science .............................................(4) |
| Arts & Humanities.............................................(3) |

**Sophomore Year**

| **First Semester** | |
| Acct 200. ............................................. **Elements of Accounting**.........................................(3) |
| Acct 315. ............................................. Business in the Legal Environment ..................................(3) |
| Econ 201*. ............................................. Principles of Microeconomics .....................................(3) |
| Econ 21 O*............................................. Introduction to Business and Economic Statistics.........(3) |
| Arts & Humanities.............................................(3) |

**Second Semester**

| Acct 201*............................................. **Elements of Accounting**.........................................(3) |
| BVED 217. ............................................. Fundamentals of Management Information Systems...........(4) |
| Econ 202* ............................................. Principles of Macroeconomics.....................................(3) |
| Arts & Humanities.............................................(6) |

**Junior Year**

| **First Semester** | |
| Acct 301* ............................................. **Intermediate Accounting**....................................(4) |
| Mgmt 300. ............................................. Principles of Management.........................................(3) |
| Mrkt 301*. ............................................. Principles of Marketing .............................................(3) |
| Fin 310*............................................. **Principles of Financial Management**............................(2) |
| Fin 310L............................................. Problems in Financial Management ............................(1) |
| Fin 320. ............................................. Principles of Real Estate.............................................(3) |

**Second Semester**

| Mgmt 301*. ............................................. **Production Management**.....................................(3) |
| Fin 340*............................................. **Capital Market Theory**...........................................(3) |
| Fin 350. ............................................. **Financial Data Inputs: Analysis and Interpretation**.......(3) |
| Fin 360. ............................................. **Capital Market Financing and Investment Strategies**......(3) |
Courses

**210. Personal Financial Management.** 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 rule of financial planning professionals and financial planning as a career option are also discussed. F,S

**301. Principles of Management.** 2 credits. Prerequisites: Acct 201, BVED 217, Econ 210. Corequisite: Fin BIOL. This course introduces students to asset management, cost of capital, dividend, valuation, capital structure planning, and working capital management. Forms of business organizations and tax environments are surveyed. Managerial implications of current developments in national and international capital markets are reviewed. F,S

**310L. Problems in Financial Management.** 1 credit. Prerequisites: Acct 201, BVED 217, Econ 210. Corequisite: Fin 310. Financial management problem solving in a laboratory setting utilizing computer applications and a financial calculator. F,S

**320. Principles of Real Estate.** 3 credits. Principles of real property ownership and transfer, contracts, types of deeds, leases, restrictions, real estate brokerage, property management, land utilization. F,S

**321. Real Estate Finance and Investment.** 3 credits. Prerequisite: Fin 320. Nature of real estate finance, financial sources, role of government, real estate financial instruments, loan processing, defaults and foreclosures in real estate finance, fundamentals of real estate investment analysis. S

**322. Real Estate Management.** 3 credits. Prerequisite: Fin 320. Principles of real estate property, asset and brokerage management. Includes the management of real property in a portfolio context for both individuals and institutional investors, as well as fundamentals of real estate brokerage options. S

**323. Real Estate Law.** 3 credits. Judicial structure; legal procedures; sources of real estate law; estate and fixtures; proof of title; closing, deeds; mortgages; landlord-tenant; civil-rights; zoning. S

**324. Real Estate Appraisal.** 3 credits. 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

**330. Principles of Risk Management and Insurance.** 3 credits. Description of industry structure and regulation. Introductory coverage of risk management, life and health insurance, property and liability insurance, social insurance. F,S

**331. Life and Health Insurance.** 3 credits. Prerequisite: Fin 330. Basic principles of life and health insurance. Applications to meet demands of individuals and firms in society. Life and health insurance as an economic institution, policy provisions, rate making, policy reserves, programming insurance needs. F

**332. Property and Liability Insurance.** 3 credits. Prerequisite: Fin 330. Basic principles of property and liability insurance, risks and probability; the functions and finances of insurance carriers; basic legal concepts of insurance contracts; rate making; loss adjustment; specific types of coverage for fire, marine, crime, public liability, and surrounding. S

**337. Cooperative Education.** 1-6 credits. Maybe repeated to a total of 12 credits. Prerequisites: Acct 200, 201; BVED 217; Econ 201,202, and 210; approved of Department Chairperson. On-the-job compensated work experience in various areas of Finance. S/U grade only. F,S

**340. Capital Market Theory.** 3 credits. Prerequisite: Fin 310. Restricted to Financial Management and Banking and Financial Economics majors. Integrated coverage of topics in finance theory. Includes capital asset pricing model, arbitrage pricing theory, option pricing model and futures market, capital structure theory, the signaling hypothesis, the agency problem, income measurement from the perspective of investors and financial managers. F,S

360. Capital Market Financing and Investment Strategies. 3 credits. Cover’s 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, limited partnerships. F,S

381. Internship in Finance. 3-6 credits. Repeatable to 12 credits. Prerequisites: Acct 200, 201, BVED 217, 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,S,SS

391. Special Topics in Finance. 1-3 credits. Multiple sections covering different topics may be offered in any one semester. Repeatable with approval by department. Enrollment may be restricted by department. Designed for non-traditional students and community service. Offered primarily through the Division of Continuing Education. S/U grading only. F,S

410. Cases in Managerial Finance. 3 credits. Prerequisites: Fin 340 and Fin 350. Introduces students to financial management decision models. Includes working capital management, capital budgeting, cost of capital structure planning, dividend policy, mergers, valuation. Cases are used to show how finance theory serves as a guide to decision makers. F,S

420. Investment Analysis and Portfolio Management. 3 credits. Prerequisites: Fin 340 and Fin 350. 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, portfolio performance evaluation. Extensive use of financial databases and software. F,S

430. International Financial Management. 3 credits. Prerequisites: Fin 310 and senior standing, Financial management implications of exchange risk exposure, accounting conventions, international constraints on capital flows. Other topics include multi-national investment management and related financing problems, taxation, working capital management. F,S

491. Senior Topics in Finance 3 credits. Repeatable to 6 credits. Prerequisites: Fin 340 and Fin 350. Restricted to Financial Management and Banking and Financial Economics majors. 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 lecturers. F,S

492. Readings and Research in Finance. 1-3 credits. Repeatable to 6 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

---

Fine Arts (FA)

The College of Fine Arts and Communication as such has only three course numbers, all its other course offerings being listed under its departments: Music, School of Communication, Theatre Arts and Visual Arts. The following inter-arts courses are non-departmental and may be used in partial fulfillment of the requirements for the degree of Bachelor of Music or Bachelor of Fine Arts.

Courses

150. Introduction to the Fine Arts. 3 credits. Preparatory presentations and discussion sessions combined with attendance at a variety of campus arts events to provide understanding and appreciation of the fine arts and their importance to the individual and the community. F,S

491. Special Projects. 1-4 credits. Special research or independent-study projects in integrated study of the major fine arts disciplines. May be repeated for credit up to 8 hours. Guidelines for special projects proposals are available in the Office of the Dean of the College of Fine Arts and Communication, and should be studied before registration in this course. F,S

495. Symposium in the Arts. 1-3 credits. Workshops and seminars in various specialized topics relating to the fine arts. Course varies with topic selected. May be repeated for credit up to 10 hours. On demand.
The Department of Geography offers major and minor programs in the College of Arts and Sciences. Specific programs of study which emphasize physical geography, cultural geography, regional geography, cartography, remote sensing and/or geographic information systems may be developed in consultation with an academic adviser.

A Major and Minor in geography offered through the Center for Teaching and Learning will prepare the student with the geography education necessary for a secondary school teaching career and the Bachelor of Science in Education degree.

Facilities

The Department of Geography operates the U.S. National Oceanographic and Atmospheric Service Weather Station at Grand Forks and maintains an extensive collection of climactic data for the Northern Plains region. In addition to well-equipped cartographic, photographic, and geographic information system facilities, the Department houses the University of North Dakota Institute for Remote Sensing.

College of Arts and Sciences

B.S. WITH A MAJOR IN GEOGRAPHY

Required: 125 hours including:

1. General Graduation Requirements, see pages 32-40.

11. The Following Curriculum:

31 major hours including:

Geog 121.......................................Physical Geography .................................................................(3)
Geog 121L .....................................Physical Geography laboratory ...................................................(1)
Geog 151.......................................Cultural Geography .............................................................(3)
Geog 161.......................................World Regional Geography ......................................................(3)
Geog 372, 372L............................Cartography and Laboratory ....................................................(4)
Geog 377.......................................Quantitative Applications in Geography ..................................(2)
Geog 377L .....................................Spatial Analysis Laboratory ......................................................(1)
Electives in Geography .................................................. .........................................................(14)

Electives must include a minimum of one course from each of the disciplines of cultural geography, physical geography, and regional geography.

MINOR IN GEOGRAPHY

Required 20 hours including:

Geog 121.......................................Physical Geography .................................................................(3)
Geog 121L .....................................Physical Geography Laboratory ...................................................(1)
Geog 151.......................................Cultural Geography .............................................................(3)
Geog 161.......................................World Regional Geography ......................................................(3)
Electives in Geography .................................................. .........................................................(10)

Electives must include a minimum of one course from each of the disciplines of cultural geography, physical geography, and regional geography.

Center for Teaching and Learning

B.S.ED. WITH A MAJOR IN GEOGRAPHY

Required 125 hours including:

1. General Graduation Requirements, see pages 32-40
II. The Center for Teaching and Learning Program in Secondary Education, see page 177.

III. The Following Curriculum:

30 major hours including:

Geog 121 ........................................... Physical Geography. ............................................................(3)
Geog 122 ........................................... Physical Geography Laboratory. ............................................(1)
Geog 151 ........................................... Cultural Geography............................................................(3)
Geog 152 ........................................... Economic Geography. .......................................................(3)
Geog 161 ........................................... World Regional Geography. ..............................................(3)
Geog 339 ........................................... Geography for Teachers......................................................(2)

Electives in Geography. ..................................................................................................................(15)

Electives must include a minimum of one course from each of the disciplines of cultural
geography, physical geography, and regional geography.

MINOR IN GEOGRAPHY

Required 20 hours including:

Geog 121 ........................................... Physical Geography............................................................(3)
Geog 121L ........................................... Physical Geography Laboratory. .............................................(1)
Geog 151 ........................................... Cultural Geography............................................................(3)
Geog 161 ........................................... World Regional Geography....................................................(3)

Electives in Geography. ..................................................................................................................(10)

Electives must include a minimum of one course from each of the disciplines of cultural
geography, physical geography, and regional geography.

Courses

The geography courses that may be used to satisfy the 4-credit General Education laboratory science
requirement are Geography 121 and 134.

Geography courses that may be used to satisfy the 9-credit General Education social science requirement
include: Geography 151, 152, 161, 162, 354, and 457.

121. Physical Geography. 3 credits. A study of the pattern of distribution of the physical elements of
man’s environment. The origin and characteristics of the terrestrial grid, earth-space relations, climate,
landforms, vegetation, and soils. F, S, SS

121L. Physical Geography Laboratory. 1 credit. Corequisite or Prerequisite: Geog 121. A basic
physical geography laboratory to complement Geography 121. F, S, SS

134. Introduction to Global Climate. 3 credits with an optional 1 credit lab. An introduction to basic
atmospheric processes, weather and climate elements, and basic climatic distribution; emphasis is placed
upon the factors which control climate, and climatic distributions. F, S

134L. Introduction to Global Climate Laboratory. 1 credit. Optional lab for geography 134. A basic
physical science laboratory focused upon specific atmospheric-climatic phenomenon; wet and dry lab
experiments, plus written lab exercises. F, S

151. Cultural Geography. 3 credits. A systematic analysis of people’s cultural regions including
settlement patterns and change via migration and diffusion. F, S

152. Economic Geography. 3 credits. The geographical basis for the production, exchange, and
consumption of the earth’s resources and the relationships involved with people engaged in economic activity. 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 L 3 credits. A spatial approach to the development of the United
States and Canada which stresses changing cultural landscapes and assessing impacts of planning for resource
utilization. F

271. Map Reading and Interpretation. 2 credits. A course designed to acquaint the student with
various types of maps and charts available and introduce them to the basic analysis and interpretation of these
media of communication. S

275. Remote Sensing of the Environment. 3 credits. The study of current optical, infrared, and
microwave methods for the remote observation of the earth. Aircraft and satellite data are examined as sources
of information for evaluating environmental and resource problems. F

300. Special Topics in Geography. 1-4 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
334. Climatology. 4 credits. Prerequisite: Geol 134 or Metr 150. An overview of the field of climatology, emphasizing surface transfers of energy and water, the general circulation of the atmosphere, and climate change. Includes a weekly laboratory. S

337. Cooperative Education. 1-8 credits. May be repeated to a maximum of 24 credits. Prerequisite: 60 credits completed, minimum G.P.A. of 2.75. A practical work experience with an employer closely associated with geography. S-U grading only. F,S,SS

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,SS

369. Geography of North Dakota. 3 credits. An analysis of the development and distribution of the physical, cultural and economic characteristics of the state. S

372. Cartography. 3 credits. Co-requisite: Geog 372L. Topics include map projections, relationships between data and map symbols, quantitative map symbols, topographic mapping, and an introduction to computer-assisted cartography and different mapping techniques. F

372L. Cartography Laboratory. 1 credit. Co-requisite: Geog 372. Mapping projects involving compilation, data processing, map design, and map production are introduced. F

373. Graphics and Air Photo Interpretation. 3 credits. Co-requisite: Geog 373L. Advanced techniques used in the compilation of maps and the cartographic presentation of data. Interpretation of aerial photographs, remote sensing, cartograms; geographic diagrams, and topographic quadrangles. Introduction to procedures utilized by governmental mapping agencies and private sector cartographic firms. S

373L. Air Photo Interpretation Laboratory. 1 credit. Co-requisite: Geog 373. A systematic coverage of laboratory techniques used in interpretation of aerial photographs. Emphasis is on direct experience with optical/mechanical instruments used in photo interpretation and on developing skills in data extraction from aerial photos. S

375. Remote Sensing Systems. 2 credits. Prerequisite: Geog 275 or consent of instructor. The study of current optical, infrared and microwave systems used in making remote observations of the earth and its atmosphere. On demand.

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 revolve solving problems by spatial-oriented computations. Use of relevant statistical programs on computers are emphasized. Once a year.

421. Seminar in Physical Geography. 3 credits. Prerequisites: Geog 334, or consent of instructor. A topic selected from hydrogeography, drought, climate change, applied climatology, and conservation is examined. F

422. Geography of Water Resources. 3 credits. Prerequisites: Geog 121 or Geol 101. A geographical perspective on water resources issues in various regions of the United States. Water distribution and use. Water quality, drainage basin management, land use hydrology, floods, and drought will be examined. F/S

452. Location of Economic Activity. 3 credits. Development of economic geography with an emphasis on location theory as applied to research in the discipline. S

453. Historical Geography. 3 credits. An examination of the relationships between the physical environment, the cultural patterns of settlement, and sequent occupancy. F

455. Political Geography. 3 credits. A geographic approach to the patterns of power and conflicts among nations. Consideration of regional blocks, strategic areas, disputed zones, and the dynamic impact of technology. On demand.

457. Urban Geography. 3 credits. Prerequisite: cultural geography or consent of instructor. An analysis of urban settlement patterns and the spatial interaction involved in intra-city, inter-city, and city-hinterland relationships including current urban geography theory and regional planning. S

462. Geography of North America II. 3 credits. Prerequisite: Geog 262 or consent of instructor. A regional and topical analysis of the physical, cultural and economic features of a selected region or group of regions within North America. F,S,SS

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. Computer-Assisted Cartography. 2 credits. Principles of graphic communication and skills for producing maps and charts using computer technology. It involves creating both geographic and attribute databases for input to mapping programs. Data analysis, classing techniques, and methods of displaying point, line, area, and surface data are emphasized. F

471L. Computer Mapping Laboratory. 1 credit. Corequisite: Geog 471. Knowledge of computer operating systems and competency to use various mapping software packages to produce accurate and aesthetically pleasing maps and charts. Students implement projects and organize their finished products into a portfolio for presentation. Once a year.
472. Map Design. 3 credits. Prerequisite: Geography 372. A study of major elements of map design; data differentiation and symbolization, quantitative map symbols, the figure-ground relationship, map structure, lettering design, and color in cartography. With laboratory work in the darkroom. S

474. Introduction to Geographic Information Systems (GIS). 3 credits. An introductory course which examines the nature of raster and vector data models and the analytical capabilities and products which they bring to bear on the solution of geographic problems. S

475. Remote Sensing Applications and Analysis. 2 credits. Applications and analysis of remotely sensed data as related to environmental and resource problems. Emphasis is placed on the selection of sensors and imagery for environmental monitoring and resource management. S

491. Directed Studies in Geographical Problems. 1-3 credits. Prerequisites: upper division status and consent of the instructor. May be repeated to a maximum of six credit hours. Designed for students who wish to explore advanced topics in Geography on an individual or small group basis. FS, SS

Geology and Geological Engineering

Kelley (Chair), Forsman, Gerla, Gosnold, Groenewold, Karner, Kuszmaul, LeFever, Matheney, Perkins, Reid, and Saluja

Our mission is to provide challenging programs in the geosciences adapted not only to the needs of undergraduate and graduate majors, but also non-majors seeking to gain a greater understanding of earth and planetary environments and resources. Our focus is on the geological interpretation and proper utilization of knowledge of materials, surface and internal features, dynamic processes, and developmental histories of Earth and other planetary bodies. Teaching and research is concentrated in the following areas: environmental studies, hydrogeology, geological engineering, sedimentary geology, field mapping, paleontology, surface processes, petrology, geochemistry, planetary geology, geophysics, and tectonics.

RESOURCES

Classroom offices and laboratory facilities are located in Leonard Hall. The North Dakota Geological Survey maintains the Wilson M. Laird Core and Sample Library, in a large adjacent laboratory, as the repository and research facility for all North Dakota oil-well, water-well and other drilling samples.

Extensive research and engineering facilities are administered by the Energy and Environmental Research Center on campus, and include modern x-ray diffraction, x-ray fluorescence, scanning electron microscope, and microprobe equipment, and other supporting facilities for use in both teaching and research.

The F. D. Holland, Jr. Geology Library is a branch of the Chester Fritz University Library. It contains over 35,000 bound volumes and maintains subscriptions to more than 500 periodicals in geology and related subjects. It is also a repository for all U.S. Geological Survey publications and maps. Maps, aerial photographs and literature pertaining to geology around the world may be found here.

The Leonard Hall Museum contains a wide range of displays of regional interest including displays of North Dakota and regional fossils, rocks and minerals, and glacial and other features.
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 Geology and Technology in the School of Engineering and Mines.

College of Arts and Sciences

B.S. IN GEOLOGY
Required 125 hours, including:

I. General Education Requirements, see pages 32-40.

II. The Following Curriculum:
45 major hours, including:

Geol 101..............................Introduction to Geology .................................................................(3)
Geol 101L............................Introduction to Geology Laboratory.............................................(1)
Geol 102..............................The Earth Through Time ............................................................(3)
Geol 102L............................The Earth Through Time Laboratory.........................................(1)
Geol 204..............................Structural Geology.................................................................(3)
Geol 311..............................Geomorphology .................................................................(4)
Geol 318..............................Mineralogy .................................................................(3)
Geol 320..............................Petrology .................................................................(3)
Geol 415..............................Invertebrate Paleontology ....................................................(4)
Geol 420..............................The Evolving Earth.................................................................(3)

Field Geology (Summer; not available at UND0) .........................................................

3 hours from:

Geol 321..............................Geochemistry .................................................................(3)
Geol 414..............................Geophysics .................................................................(3)
Geol 417..............................Hydrogeology .................................................................(3)

Required in other departments:

Chem 105, 106.............................General Chemistry I, General Chemistry II and Qualitative Analysis .........................................................(8)
Engl 101..............................Composition I .................................................................(3)
Engl 209..............................Technical and Business Writing .............................................(3)
Engr 201..............................Fundamentals of Computer Programming .........................(2)
Math 211..............................Calculus I ..............................................................................(4)
Math 212..............................Calculus II ............................................................................(4)
Phys 203, 204..............................General Physics .............................................................(8)

4 hours from:

Math 213..............................Calculus III ............................................................................(4)

Computer Science and/or Statistics Econ 210, Psy 241, or Math 321) ..............................................(4)

Additional hours required in science (including geology), computer science, statistics, engineering, mathematics or a foreign language upon consultation with a departmental adviser. ..............................................(23)

*English 102 acceptable alternate course.

B.A. WITH MAJOR IN GEOLOGY
Required 125 hours, including:

I. General Education Requirements, see pages 32-40

II. The Following Curriculum:
40 major hours, including:

Geol 101..............................Introduction to Geology .................................................................(3)
Geol 101L............................Introduction to Geology Laboratory.............................................(1)
MINOR IN GEOLOGY

Required: 20 hours including:

7-8 hours from:
- Geol 101..................Introduction to Geology .................................................................(3)
- Geol 101L..................Introduction to Geology Laboratory ..............................................(1)
- Geol 102..................The Earth Through Time ...............................................................(3)
- Geol 102L..................The Earth Through Time Laboratory ..............................................(1)

6 hours from:
- Geol 103..................Introduction to Environmental Issues.............................................(3)
- Geol 11 L..................Views of the Earth and Planets. .........................................................(3)
- Geol 311..................Geomorphology. .............................................................................(4)
- Geol 316..................Introduction to Oceanography. .........................................................(3)

Remaining electives chosen from Geology courses numbered 214 or higher, not including 303,305 or 425.

School of Engineering and Mines

The Geological Engineering curriculum gives the student a solid background in geology and engineering that should serve as a spring board for meaningful professional practice, especially in environmental, land use and resource-related fields. To meet these demands, the curriculum contains a broad background in the physical and social sciences, humanities, mathematics, geology, engineering science, and design-oriented courses.

B.S. IN GEOLOGICAL ENGINEERING

Required: 139 hours, including:

1. General Education Requirements, see pages 32-40 and pages 90-97

II. The Following Curriculum:
Freshman Year

Math 211 ......................... Calculus I ........................................ (4)
Chem 105 ......................... General Chemistry I ........................... (4)
Engr 101 ........................... Composition ................................ (2)
Engr 103 ........................... Engineering Graphics ..................... (3)
GeoE 203 ......................... Geology for Engineers ....................... (3)
Geo 318 .............................. Mineralogy ............................. (3)
Math 212 ......................... Calculus II .................................... (4)
Chem 106 ........................... General Chem 11 and
                                 Qualitative Analysis ....................... (4)
Phys 205 ............................ General Physics ......................... (4)
Engr 102 ........................... Descriptive Geometry ................ (2)

Sophomore Year

Math 213 ........................... Calculus III ................................ (4)
Phys 206 ............................ General Physics ........................ (4)
CEEn 300 ............................. Analytical Mechanics (Statics) .... (2)
Geol 320 ......................... Petrology ................................... (3)
Engr 201 ......................... Fundamentals of Computer Programming.. (2)
                                 Social Science (see pages 94-99) .................. (3)
EE 206 ............................. Electrical Engineering Fundamentals. (3)
Engl 209 ............................ Technical and Business Writing ...... (3)
Econ 201 ......................... Principles of Macroeconomics .......... (3)
Geo 244 ............................. Structural Geology ....................... (3)
                                 Arts and Humanities (see page 94) ....... (3)

Junior Year

Math 351 ............................. Elem. Differential Equations ........ (3)
CE 301 ............................. Mechanics of Materials I ............. (3)
ME 341 ............................... Thermodynamics ....................... (3)
Geol 314 ......................... Geomorphology ......................... (3)
Geol 414 ......................... Sedimentology & Stratigraphy .... (4)
GeoE 323 ............................. Engineeriirrg Geology ......... (3)
                                 Technical Elective* .......................... (3)
                                 Statistics Elective Econ 210,
                                 Psy 241, or Math 321) ...................... (3)
                                 Arts and Humanities (See page 94) ...... (3)
CE 412 ............................. Soil Mechanics .......................... (3)
Engr 306 ............................ Fluid Mechanics ........................ (3)

Summer

Field Geology (South Dakota School
                                 of Mines and Technology
                                 Black Hills Field Station) ...................... (5)

Senior Year

Geol 414 ............................. Geophysics ............................... (3)
Phil 370, ......................... M Q & P: Ethics in Engineering ...... (3)
GeoE417 ............................ Hydrogeology ........................... (3)
GeoE 455 ............................. Geomechanics ......................... (3)
GeoE 484 ............................. Geological Engineering Design ..... (4)
EM 460 ............................. Engineering Economy ................. (3)
GeoE 485 ............................. Geological Engineering Design. (3)
Geo 422 ............................. Seminar ......................... (1)
                                 Social Science (See page 94) .................. (3)
                                 Arts and Humanities (See page 94) ...... (3)
                                 Technical Elective* .......................... (3)

*Technical Electives: 6 credits required from courses in Geology, Geological Engineering, or Civil or other engineering. Must be approved by student’s advisor.
B.S. IN ENVIRONMENTAL GEOLGY AND TECHNOLOGY

Required 125 hours, including:

I. General Education Requirements, see pages 32-40.

II The following Core Curriculum (70 hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geol 101*</td>
<td>Intuition to Geology (or GeoE 203)</td>
</tr>
<tr>
<td>Geol 110L</td>
<td>Introduction to Geology Laboratory</td>
</tr>
<tr>
<td>Geol 102*</td>
<td>The Earth Through Time</td>
</tr>
<tr>
<td>Geol 102L*</td>
<td>The Earth Through Time Laboratory</td>
</tr>
<tr>
<td>Geol 311</td>
<td>Geomorphology</td>
</tr>
<tr>
<td>Geol 318</td>
<td>Mineralogy</td>
</tr>
<tr>
<td>Geol 322</td>
<td>Environmental Geology</td>
</tr>
<tr>
<td>Geol 422*</td>
<td>Seminar</td>
</tr>
<tr>
<td>Chem 101*</td>
<td>General Chemistry</td>
</tr>
<tr>
<td>Comm 100*</td>
<td>Introduction to Communication</td>
</tr>
<tr>
<td>Engl 101*</td>
<td>Composition I</td>
</tr>
<tr>
<td>Biol 201*</td>
<td>Principles of Microeconomics</td>
</tr>
<tr>
<td>Engl 209*</td>
<td>Technical and Business Writing</td>
</tr>
<tr>
<td>Geog 354*</td>
<td>Conservation of Resources</td>
</tr>
<tr>
<td>Math 105*</td>
<td>College Algebra</td>
</tr>
<tr>
<td>Math 105*</td>
<td>Trigonometry</td>
</tr>
<tr>
<td>Metr 150*</td>
<td>Meteorology</td>
</tr>
<tr>
<td>Math 105*</td>
<td>Trigonometry</td>
</tr>
</tbody>
</table>

One of the following options is required:

A. ENVIRONMENTAL STUDIES OPTION: 55 Hours

1. Required Courses (18 hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
</tr>
<tr>
<td>Geol 214</td>
<td>Structural Geology</td>
</tr>
<tr>
<td>Biol 332</td>
<td>General Ecology</td>
</tr>
<tr>
<td>Biol 333L</td>
<td>General Ecology Laboratory</td>
</tr>
<tr>
<td>Math 204</td>
<td>Survey of Calculus (or CSci 260 or Econ 210)</td>
</tr>
<tr>
<td>Phys 203</td>
<td>General Physics</td>
</tr>
</tbody>
</table>

General Electives (approved by advisor) | (14)

2. Option Electives. Select 23 hours from the list below (substitutions maybe approved by advisor):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 230</td>
<td>Natural History of the Northern Plains</td>
</tr>
<tr>
<td>Biol 235</td>
<td>Human Environment</td>
</tr>
<tr>
<td>Biol 240</td>
<td>Wildlife...Wildlife Conservation</td>
</tr>
<tr>
<td>Biol 332L</td>
<td>General Ecology Laboratory</td>
</tr>
<tr>
<td>Biol 333</td>
<td>Population Biology</td>
</tr>
<tr>
<td>Biol 433</td>
<td>Aquatic Ecology</td>
</tr>
<tr>
<td>Biol 433L</td>
<td>Aquatic Ecology Laboratory</td>
</tr>
<tr>
<td>Biol 438</td>
<td>Fisheries Management</td>
</tr>
<tr>
<td>Chem 106</td>
<td>General Chemistry H and Qualitative Analysis</td>
</tr>
<tr>
<td>Econ 202</td>
<td>Principles of Macroeconomics</td>
</tr>
<tr>
<td>Econ 475</td>
<td>Economics of Natural Resources and the Environment</td>
</tr>
<tr>
<td>Geol 11I</td>
<td>Views of the Earth and Planets</td>
</tr>
<tr>
<td>Geol 11IR</td>
<td>Views of the Earth and Planets Recitation</td>
</tr>
<tr>
<td>Geol 316</td>
<td>Introduction to Oceanography</td>
</tr>
<tr>
<td>Geol 401</td>
<td>Remote Sensing in Geology</td>
</tr>
<tr>
<td>Geog 275</td>
<td>Introduction to Remote Sensing</td>
</tr>
<tr>
<td>Geog 375</td>
<td>Remote Sensing Systems</td>
</tr>
<tr>
<td>IS 210</td>
<td>Natural Science and Culture of the Plains Indians</td>
</tr>
<tr>
<td>Metr 470</td>
<td>Air Pollution</td>
</tr>
<tr>
<td>Phil 210</td>
<td>Contemporary Moral Issues</td>
</tr>
<tr>
<td>Phil 370</td>
<td>Moral Questions and the Professions</td>
</tr>
<tr>
<td>Phys 204</td>
<td>General Physics</td>
</tr>
<tr>
<td>SpSt 200</td>
<td>Introduction to Space Studies</td>
</tr>
<tr>
<td>SpSt 430</td>
<td>Earth System Science</td>
</tr>
<tr>
<td>VA 260</td>
<td>Slide Photography</td>
</tr>
</tbody>
</table>
## B. WATER RESOURCES OPTION: 55 hours

**Required Courses (41 hours):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geol 321</td>
<td>General Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>GeoE 417</td>
<td>Hydrogeology</td>
<td>3</td>
</tr>
<tr>
<td>GeoE 418</td>
<td>Hydrogeological Field Methods.</td>
<td>2</td>
</tr>
<tr>
<td>Cien 300</td>
<td>Analytical Mechanics (Statics)</td>
<td>2</td>
</tr>
<tr>
<td>Chem 106</td>
<td>General Chemistry II and Qualitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>Chem 212</td>
<td>Organic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>Econ 210</td>
<td>Introduction to Business and Economic Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Math 211</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>Math 212</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>Math 213</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>Geol 320</td>
<td>Petrology</td>
<td>3</td>
</tr>
<tr>
<td>Geol 316</td>
<td>Introduction to Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>MBio 302</td>
<td>General Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>Meta 470</td>
<td>Air Pollution</td>
<td>3</td>
</tr>
<tr>
<td>Phil 210</td>
<td>Contemporary Moral Issues</td>
<td>3</td>
</tr>
<tr>
<td>Phil 370</td>
<td>Moral Questions and the Professions</td>
<td>3</td>
</tr>
<tr>
<td>Phys 205</td>
<td>General Physics</td>
<td>4</td>
</tr>
</tbody>
</table>

**General Electives (approved by advisor):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 332</td>
<td>General Ecology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 332L</td>
<td>General Ecology Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>Biol 433</td>
<td>Aquatic Ecology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 433L</td>
<td>Aquatic Ecology Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>Chem 305</td>
<td>Organic Chemistry</td>
<td>10</td>
</tr>
<tr>
<td>Chem 351</td>
<td>Organic Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>Chem 352</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>Chem 353</td>
<td>Analytical Chemistry</td>
<td>2</td>
</tr>
<tr>
<td>Chem 362</td>
<td>Organic Chemistry Lab I</td>
<td>2</td>
</tr>
<tr>
<td>Chem 450</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>Chem 451</td>
<td>Physical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>Cien 421</td>
<td>Hydrology I</td>
<td>3</td>
</tr>
<tr>
<td>Cien 422</td>
<td>Hydrology II</td>
<td>3</td>
</tr>
<tr>
<td>Cien 423</td>
<td>Hydraulic Engineering</td>
<td>3</td>
</tr>
<tr>
<td>Cien 431</td>
<td>Environmental Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>Cien 432</td>
<td>Environmental Engineering II</td>
<td>3</td>
</tr>
<tr>
<td>Cien 434</td>
<td>Environmental Engineering Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>Econ 202</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 475</td>
<td>Economics of Natural Resources and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>Geol 214</td>
<td>Structural Geology</td>
<td>3</td>
</tr>
<tr>
<td>Geol 316</td>
<td>Introduction to Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>Geol 320</td>
<td>Petrology</td>
<td>3</td>
</tr>
<tr>
<td>Geol 360</td>
<td>Subsurface Disposal of Liquid Waste</td>
<td>3</td>
</tr>
<tr>
<td>Geol 414</td>
<td>Geophysics</td>
<td>3</td>
</tr>
<tr>
<td>Math 342</td>
<td>Elementary Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>Math 351</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>Math 352</td>
<td>Advanced Engin. Math I</td>
<td>3</td>
</tr>
<tr>
<td>Math 353</td>
<td>Advanced Engin. Math II</td>
<td>3</td>
</tr>
<tr>
<td>MBio 302</td>
<td>General Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>Meta 470</td>
<td>Air Pollution</td>
<td>3</td>
</tr>
<tr>
<td>Phil 210</td>
<td>Contemporary Moral Issues</td>
<td>3</td>
</tr>
<tr>
<td>Phil 370</td>
<td>Moral Questions and the Professions</td>
<td>3</td>
</tr>
<tr>
<td>Phys 205</td>
<td>General Physics</td>
<td>4</td>
</tr>
</tbody>
</table>

**Option Electives. Select 6 hours from list below (substitution may be approved by advisor):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 212</td>
<td>Organic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>Chem 351</td>
<td>Organic Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>Chem 352</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>Chem 353</td>
<td>Analytical Chemistry</td>
<td>2</td>
</tr>
<tr>
<td>Chem 362</td>
<td>Organic Chemistry Lab I</td>
<td>2</td>
</tr>
<tr>
<td>Chem 450</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>Chem 451</td>
<td>Physical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>Cien 421</td>
<td>Hydrology I</td>
<td>3</td>
</tr>
<tr>
<td>Cien 422</td>
<td>Hydrology II</td>
<td>3</td>
</tr>
<tr>
<td>Cien 423</td>
<td>Hydraulic Engineering</td>
<td>3</td>
</tr>
<tr>
<td>Cien 431</td>
<td>Environmental Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>Cien 432</td>
<td>Environmental Engineering II</td>
<td>3</td>
</tr>
<tr>
<td>Cien 434</td>
<td>Environmental Engineering Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>Econ 202</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 475</td>
<td>Economics of Natural Resources and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>Geol 214</td>
<td>Structural Geology</td>
<td>3</td>
</tr>
<tr>
<td>Geol 316</td>
<td>Introduction to Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>Geol 320</td>
<td>Petrology</td>
<td>3</td>
</tr>
<tr>
<td>Geol 360</td>
<td>Subsurface Disposal of Liquid Waste</td>
<td>3</td>
</tr>
<tr>
<td>Geol 414</td>
<td>Geophysics</td>
<td>3</td>
</tr>
<tr>
<td>Math 342</td>
<td>Elementary Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>Math 351</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>Math 352</td>
<td>Advanced Engin. Math I</td>
<td>3</td>
</tr>
<tr>
<td>Math 353</td>
<td>Advanced Engin. Math II</td>
<td>3</td>
</tr>
<tr>
<td>MBio 302</td>
<td>General Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>Meta 470</td>
<td>Air Pollution</td>
<td>3</td>
</tr>
<tr>
<td>Phil 210</td>
<td>Contemporary Moral Issues</td>
<td>3</td>
</tr>
<tr>
<td>Phil 370</td>
<td>Moral Questions and the Professions</td>
<td>3</td>
</tr>
<tr>
<td>Phys 205</td>
<td>General Physics</td>
<td>4</td>
</tr>
</tbody>
</table>

## C. TECHNOLOGICAL STUDIES OPTION: 55 hours

**Required Courses (37 hours):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geol 214</td>
<td>Structural Geology</td>
<td>3</td>
</tr>
<tr>
<td>Geol 320</td>
<td>Petrology</td>
<td>3</td>
</tr>
<tr>
<td>Geol 414</td>
<td>Geophysics</td>
<td>3</td>
</tr>
<tr>
<td>GeoE 417</td>
<td>Hydrogeology</td>
<td>3</td>
</tr>
<tr>
<td>Chem 106</td>
<td>General Chemistry II and Qualitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>Cien 300</td>
<td>Analytical Mechanics (Statics)</td>
<td>2</td>
</tr>
<tr>
<td>Econ 210</td>
<td>Introduction to Business and Economic Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Math 211</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>Math 212</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>Math 213</td>
<td>Calculus III</td>
<td>4</td>
</tr>
</tbody>
</table>
Phy 205. General Physics. ...
Phy 206. General Physics. ...

General Electives (approved by advisor) ...

One of the following concentrations is required for option C:

C.1. Mining and Reclamation

Option Electives — Select 9 hours from the list below (substitutions maybe approved by advisor):

Biol 332. General Ecology. ...
Biol 332L. General Ecology Laboratory.
CiEn 301. Mechanics of Materials I...
CiEn 412. Soil Mechanics ...
CiEn 413. Soil Mechanics Laboratory ...
GeoE 418. Hydrogeological Field Methods ...
GeoE 453. Explosives and Blasting Technology ...
Metr 470. Air Pollution ...
Phil 210. Contemporary Moral Issues ...
Phil 370. Moral Questions and the Professions ...

C.2. Geotechnical Studies

Option Electives — Select 9 hours from the list below (substitutions maybe approved by advisor):

Biol 332. General Ecology. ...
Biol 332L. General Ecology Laboratory ...
CiEn 301. Mechanics of Materials I ...
CiEn 412. Soil Mechanics ...
CiEn 413. Soil Mechanics Laboratory ...
CiEn 414. Foundation Engineering ...
CiEn 42-1. Hydrology I ...
Econ 202. Principles of Macroeconomics ...
Econ 475. Economics of Natural Resources and the Environment ...
GeoE 418. Hydrogeological Field Methods ...
GeoE 453. Explosives and Blasting Technology ...
Metr 470. Air Pollution ...
Phil 210. Contemporary Moral Issues ...
Phil 370. Moral Questions and the Professions ...

Phys 206. General Physics ...

Cours es

For Geology majors, a grade of C or better is required in Geology 318 before any other 300 or 400 numbered courses are taken.

100. Earth Science. 4 credits. The geologic aspects of earth science are featured. Geologic hazards, mineral and energy resources, and the significance of geology in the national parks and monuments are among the topics covered. This lecture-recitation course will fulfill part of the non-laboratory General Education Science requirement. F.S

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

10 IL. 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
111. Views of the 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. 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: GeoE 203L. Physical geology discussed from the engineering point of view. Required of students in civil engineering and geological engineering. Includes laboratory. F

214. Structural Geology. 3 credits. Prerequisites: Geology 101, or GeoE 203, and Geology 102 or consent of instructor. Mathematics 105. Mechanics of rock deformation, description of rock structures and tectonics. Includes laboratory. S

301 GeoE Mining Engineering I. 3 credits. Prerequisites: Geology 101 or GeoE 203, Chemistry 105. Introduction to economic minerals and role of the mining industry, with emphasis on coal. Surface mining and reclamation. Underground mining; in situ gasification of coal; hydraulic mining; and mining legislation. Field trip required. Includes laboratory. F

302. GeoE Mining Engineering II. 3 credits. Prerequisites: Geology 101 or GeoE 203, Chemistry 105. Surface mining of coal. Reclamation; emphasis on mining methods practiced in the northern Great Plains; exploration; geologic and hydrologic aspects of mine design; and leasing. Permitting and bonding reclamation of abandoned mine lands; coal preparation and beneficiation. Field trip required. Includes laboratory. S

303. Selected Topics in Geology. 1-4 credits. Prerequisite: Geology 100, 101, 102 or consent of instructor. Each topic is concerned with a special aspect of geology. May be repeated up to a maximum of 8 hours. F,S

305. Geologic Field Methods. 2 credits. Prerequisite: Consent of instructor. Introduction to the techniques and equipment of geologic field work, intended to prepare Ore student for geology field camp. S

311. Geomorphology. 4 credits. Prerequisites: Geology 101 and 102. Dynamics of weathering, mass movement, running water, groundwater, waves, wind and ice in the production of landform includes field trips and laboratory. F

316. Introduction to Oceanography. 3 credits. Prerequisite: Geology 101 or Geography 121. The ocean basins, their origin, structure, geomorphology and resources; the ocean’s water, its circulation, tides, waves, sediment, life and geological significance. F

318. Mineralogy. 3 credits. Prerequisite: Geology 101 or GeoE 203, and Chem 105 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. F

320. Petrology. 3 credits. Prerequisite: Geology 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: Geology 318, Chem 106 and Math 212, 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. Environmental Geology. 3 credits. Prerequisite: One introductory geology course or upper division standing; Math 103 recommended. Relationship 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. 3 credits. Prerequisites: One introductory geology course, Math 211, 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.

337 GeoE Cooperative Education. 1-8 credits (repeatable to 24 credits) For qualified students majoring in geological engineering, geology, or environmental geology and technology. A practical work experience with an employer closely 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. F,S,SS

351 GeoE Petroleum Development Engineering. 3 credits. Well spacing and location, drilling equipment and methods, fishing tools, casing, cementing, oil field hydrology, and well completion. F

352 GeoE Petroleum Production Engineering. 3 credits. Well inflow performance, production tubing selection, oil and gas pipelines design, design of artificial-lift production system. F

360 GeoE Subsurface Disposal of Liquid Wastes. 3 credits. Prerequisites: Geol 100 or 101, or GeoE 203; Math 211 or consent of instructor. Introduction to geologic requirements for subsurface disposal of liquid wastes and design, operation, and maintenance of deep injection wells. S/2

401. Remote Sensing in Geology. 3 credits. Prerequisite: Geology 311 or consent of instructor. Use of remotely-sensed imagery to interpret geological structures, processes, and resources. Includes laboratory. S
405 (GeoE). Industrial Minerals. 3 credits. Prerequisite: Geology 320 or consent of instructor. Geology and utilization of industrial minerals. F/2

406. Ore Deposits. 3 credits. Prerequisite: Geology 320 or consent of instructor. Origin of ore deposits, their geology, and their economic importance. S

407 GeoE Petroleum Geology. 3 credits. Prerequisites: Geology 101 or GeoE 203, and Geology 102. Origin, accumulation and geologic occurrence of petroleum and gas. F/2 (odd numbered years)

408 (GeoE). Mine Examination, Valuation and Economics. 2 credits. Prerequisite: GeoE 301. Various phases of examination, valuation, and economics of solid mineral deposits. On demand.

411. Sedimentology and Stratigraphy. 5 credits. Prerequisite: Geology 320. Origin, transportation, deposition, and diagenesis of sediments; principles and applications of stratigraphy. Includes field trip and laboratory. F

414. Geophysics. 3 credits. Prerequisites: Geology 101, Mathematics 213, Physics 204 or 206. Principles of various geophysical methods and their application to geologic problems. F

415. Invertebrate Paleontology. 4 credits. Prerequisite: Geology 102. Recommended: Biology 101, 102. Major invertebrate groups preserved as fossils and their stratigraphic and paleoecologic use; invertebrate relationships; independent study of faunas. Includes field trip and laboratory. F

417 GeoE Hydrogeology. 3 credits. Prerequisite: Math 211, Physical and chemical aspects of groundwater movement, supply, and contamination. F

418 GeoE Hydrogeological Methods. 2 credits. Corequisite: Geo/EGeo 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

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

422. Seminar. 1 credit. Students prepare and give a seminar to a departmental audience, and attend lectures by visiting scholars. May be repeated. F,SS


442. Topics in Coal Geology. 1-3 credits. Prerequisite: Consent of instructor. Special topics in coal geology. F/2

444. Introduction to Palynology. 3 credits. Prerequisite: Consent of instructor. Systematic and paleoecology of spores and pollen. Includes laboratory. On demand.

450 (GeoE). Petroleum Reservoir Engineering. 3 credit% Prerequisites: Mathematics 213 and Physics 206 or consent of instructor. Darcy’s law, application of material balance equations to oil and gas reservoirs, pressure buildup and drawdown analysis. S

451 GeoE Valuation of Oil and Gas Properties. 3 credits. Prerequisite: GeoE 352 or consent of instructor. Expected value and investment decision analysis, estimation of oil and gas reserves, measures of profitability, production, decline curve analysis, and oil and gas reserves evaluations. S

452 GeoE Formation Evaluation. 3 credits. Prerequisites: GeoE 407. Introduction to the use of borehole measurements to evaluate subsurface formations. S/2

453 GeoE Explosives and Blasting Technology. 3 credits. Prerequisites: Consent of the instructor. Introduction to explosives and rock blasting; theory and application of explosives and blasting mechanics. Includes laboratory. F

455 GeoE Geomechanics. 3 credits. Prerequisites: GeoE 323 and CiEn 412 or consent of instructor. Principles of geomechanics and its application to geological engineering. F

460 GeoE Energy and Minerals Policy and Management. 2 credits. Prerequisite: Senior level standing and consent of instructor. An introduction to past, present and future sources of energy and to strategic minerals with emphasis on economics and management. On demand.

461 GeoE Mine Planning, Design and Management. 4 credits. Prerequisite: GeoE 301. principles of mine planning and their application to the design of mines with emphasis on surface mining; organization and management of mining operations. Includes laboratory. S

484 GeoE Geological Engineering Design. 4 credits. Prerequisites: Advanced level standing in Geological Engineering and consent of advisor. 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,SS

485 GeoE Geological Engineering Design. 3 credits. Prerequisite: GeoE 484. Corequisite: Geol 422. Continuation of GeoE 484 taken the preceding semester. Systematic study and design, with determination of feasibility, careful assessment of economic factors, safety, reliability, aesthetics, ethics, and social and environmental impact. Results presented in Geo 422 Seminar. F,SS

490. Senior Thesis. 3 credits. Prerequisite: Senior status in Geology, consent of instructor. Original student investigation of field or laboratory problems, after conference with a faculty member of the Department. F,S

491. Geologic Problems. 1-4 credits. Prerequisites: Consent of instructor. May be taken more than one semester to maximum of 8 hours. Individualized or group study on selected geoscience topics. F,SS
Health, Physical Education, and Recreation

**H P E R**

W. Bolonchuk (Chair), D. Anderson, L. Anderson, Brinkert, Eklund, Humphries, Parker, Schroeder, Steen, Stiles, Watson, and Whitehead

The mission of the Department of Health, Physical Education, and Recreation is to offer challenging undergraduate and graduate programs. These programs aim to demonstrate excellence in three main areas:

A. The education of students, who upon graduation are noted for their knowledge, professional skill, and future marketability.

B. Scholarly and creative activity which contributes notably to the field of knowledge in HPER

C. Contribution of the department’s particular expertise and talents as a service to the university community, the state, and the profession.

Graduates have the opportunity to pursue careers in physical education teaching, health and fitness education and management, athletic coaching, park and recreation administration, therapeutic recreation, recreation leadership or to continue their education in graduate studies.

I. UNDERGRADUATE PHYSICAL EDUCATION PROGRAM: The physical education program provides a major with a teacher education option or a major with a related area option.

A. Major in Physical Education — consists of a core of courses and a teacher education option or the same core of courses with a related area option which allows a student to study physical education and a related subdiscipline. The teacher education option is designed for those students who wish to teach physical education in grades 1-12. The related area option is for those students who wish to find employment in the commercial fitness field.

B. Minor in Athletic Coaching — offered to students who wish to prepare for athletic coaching.

C. Minor in Health Education. — preparation for school health teaching.

D. Combined Major in Elementary Education and Physical Education.

E. Basic Instruction Courses — the Department of HPER also provides basic instruction for all students of the University in a wide variety of sport, dance, fitness and exercise classes. Activity courses in physical education may count toward the hours required for graduation. These credit hours may be earned by enrolling in HPER 101, 102 or 103. In some cases, equipment is provided by the department; however, there are fees assessed for certain specified activities.
College for Human Resources Development

B.S. IN PHYSICAL EDUCATION

Required 125 hours, including:

I. General Graduation Requirements, see pages 32-40.

H. The College for Human Resource Development Requirements, see page 102.

III. Prerequisite courses, 19 hours including: (These credits may be used to satisfy the General Education requirements.

Chem 104 Introductory Chemistry
Psy 101 Introduction to Psychology
Soc 101 Introduction to Sociology
Anat 204, 204L Anatomy for Paramedical Personnel and Laboratory
Phy 301 Mechanics of Human Physiology

IV. Required curriculum, 32 hours including:

HPER 107 Introduction to Physical Education
HPER 223 Movement Performance and Analysis
HPER 276 Motor Learning
HPER 332 Biomechanics
HPER 401 Sport Sociology
HPER 402 Exercise Physiology
HPER 440 Sport Psychology

V. One of the following options:

A Teacher Education Option

Required 23 hours, including:

HPER 205 Physical Education for the Elementary Grades
HPER 310 First Aid and CPR
HPER 323 Intro to Teaching in Phys Ed. and Sport Settings
HPER 323L Lab — Introduction to Teaching
HPER 355 Motor Development
HPER 400 Methods and Mat. for Teaching Secondary
HPER 400L Lab — Methods and Mat. for Teaching Secondary Certification Sequence, CAL
HPER 403 School Health Education
HPER 404 Adapted Physical Education
HPER 406 Strategies for Teaching Phy. Ed. in the Elem. School
HPER 406L Lab — Strategies for Teaching/Elementary School
HPER 487 Senior Teaching Seminar

Required in other departments: 37 hours, including:

FCS 252 Child Development

Center for Teaching and Learning — Secondary Education Certification Preparation Sequence, including 16 hours of student teaching, see page 175

B Related Areas Option.

1. Students will complete a major and/or minor in a subject area related to physical education.

2. The remaining credit hours to satisfy the University minimum Graduation Requirements Of 125 credits will be chosen from elective courses with the consent of the adviser.

MINOR IN ATHLETIC COACHING

Required 27 hours, including:

HPER 109 Introduction to Coaching
HPER 207, 207L Prevention & Care of Injuries
HPER 223 Movement Performance and Analysis
HPER 323 Intro to Teaching in Physical Ed. and Sport Settings
HPER 323L Intro to Teaching in Phys Ed. and Sport Settings - Lab
HPER 324 Sport Physiology
HPER 325 Youth and Children in Sport
HPER 341 Organization & Administration of Athletics
MINOR IN ATHLETIC COACHING

Required 21 hours, including:

- HPER 423: Coaching Methods (2 hours each to coincide with sport specific HPER 223s) (6)
- HPER 466: Practicum in Coaching (2)

Students interested in a Minor in Athletic Coaching should consult with an advisor unphysical Education before beginning the Minor. This is necessary to ensure that courses are appropriately tracked toward the practicum.

MINOR IN HEALTH EDUCATION

Required 21 hours, including:

- Biol 235: Human Environment (2)
- HPER 327: Fitness for Life (3)
- HPER 310: First Aid and CPR (2)
- HPER 403: School Health Education (2)
- Psy 251: Developmental Psychology (4)

8-9 credits to include one course from each of the following groups:

- Biol 250: Human Sexuality (3)
- FCS 252: Child Development (3)
- FCS 352: Family Relationships (3)
- Soc 235: The Family (3)
- PETS 410: Drugs Subject to Abuse (2)
- Soc 355: Drugs and Society (3)
- SWK 410: Drugs: Addiction Dynamics (2)
- FCS 240: Fundamentals of Nutrition (3)
- FCS 342: Community Nutrition (3)

Special topics and other courses maybe substitutedonly with Physical Education advisor approved.

Students interested in a Minor in Health Education should consult with an advisor in physical Education before beginning the Minor.

Center for Teaching and Learning

B.S.ED. WITH A MAJOR IN PHYSICAL EDUCATION

The requirements are the same as those listed for the B.S. in Physical Education for the College for Human Resources Development. In addition, the Center for Teaching and Learning program in Secondary Education must be completed. See page 175. The student should notify the Center for Teaching and Learning if he/she is completing the CTL work for Teacher Certification in Physical Education.

B.S.ED. WITH A COMBINED MAJOR IN ELEMENTARY AND PHYSICAL EDUCATION

For curriculum outline see page 175 under the Center for Teaching and Learning.

College for Human Resources Development

IL RECREATION AND LEISURE SERVICES PROGRAM

The Recreation and Leisure Services Program offers the following areas of professional preparation:

A. The major in Recreation and Leisure Services.

B. The emphasis area in Therapeutic Recreation designed to qualify students for certification by the National Council on Therapeutic Recreation Certification.

C. The minor in Recreation and Leisure Services.

B.S. IN RECREATION AND LEISURE SERVICES

Required 125 hours, including:
I. General Graduation Requirements, see pages 32-40.

11. Recreation and Leisure Service Prerequisites:

Comm 161 ........................................ Fundamentals of Public Speaking ............................................... (3)
Psy 101 ........................................ Introduction to Psychology .............................................................. (3)
Soc 101 ........................................ Introduction to Sociology ............................................................... (3)

IV. Recreation and Leisure Services Major Core Requirements:

HPER 201 ...................................... Leisure and Society ................................................................. (3)
HPER 203 ...................................... Recreational Games ................................................................. (3)
HPER 222 ...................................... Program Planning in Recreation and Leisure ....................... (3)
HPER 272 ...................................... Recreation and the Natural Environment ......................... (3)
Mgmt 305 ..................................... Managerial Concepts ............................................................... (3)
HPER 321 ...................................... Human Resources for Recreation ........................................ (3)
HPER 360 ...................................... Recreation/Leisure Services and Individuals with Disabilities .... (3)
Psy/Soc 361 .................................. Social Psychology ................................................................. (4)
HPER 362 ...................................... Leisure Education and Counseling ...................................... (3)
HPER 385 ...................................... Practicum in Recreation ......................................................... (2)
HPER 421 ...................................... Evaluation and Research for Recreation ............................. (3)
HPER 442 ...................................... Recreation Administration ......................................................... (3)
HPER 479 ...................................... Recreation Areas and Facilities ............................................. (3)
HPER 485 ...................................... Internship in Recreation ............................................................. (12)

Total Hours .................................................. 49

V. Recreation and Leisure Services Emphasis Area (18 credits)

The emphasis area is developed along with the academic advisor to meet each student’s individual career goals. Some examples of emphasis areas which could be developed are: Recreation Administration, Outdoor Leadership, Prison Recreation, Tourism Administration, Commercial Recreation, and Therapeutic Recreation.

THERAPEUTIC RECREATION CERTIFICATION

The National Council on Therapeutic Recreation Certification (NCTRC) designates qualified individuals as Certified Therapeutic Recreation Specialists (CTRS). Many hospitals, treatment centers, rehabilitation institutions and other employers in the therapeutic recreation field require NCTRC certification. Although graduation with the B.S. in Recreation and Leisure Services and a therapeutic recreation emphasis does not guarantee NCTRC certification, it is intended to qualify the student to pass the certification exam. It is recommended that therapeutic recreation students become familiar with the requirements for NCTRC certification.

For the Therapeutic Recreation Emphasis Area, students wishing to obtain NCTRC certification should complete:

HPER 359 ................................ Introduction to Therapeutic Recreation
HPER 361 ................................ Principles of Therapeutic Recreation
HPER 460 ................................ Design and Administration of Therapeutic Recreation Programs

MINOR IN RECREATION AND LEISURE SERVICES

Required for the Recreation and Leisure Services minor:

20 hours, including:

HPER 201 ...................................... Leisure and Society ................................................................. (3)
HPER 222 ...................................... Programming in Recreation ......................................................... (3)
HPER 360 ...................................... Recreation/Leisure Services and Individuals with Disabilities .... (3)
HPER 385 ...................................... Practicum in Recreation ................................................................. (2)

Elect 9 hours of Recreation and Leisure Services content courses in HPER as approved by a Recreation advisor.

111. GRADUATE PHYSICAL EDUCATION PROGRAM: The graduate program offers a program of studies designed for graduate students in preparation for a Master of Science in physical education.
Courses

101. Physical Education. 1 credit. Instruction in aquatics, dance, fitness, individual sports, team sports, and outdoor pursuits at the introductory level. F,S,SS

102. Physical Education. 1 credit. Prerequisite: HPER 101 in the same activity or consent of the instructor. Instruction in aquatics, dance, fitness, individual sports, team sports, and outdoor pursuits at the intermediate level. F,S

103. Physical Education. 1 credit. Prerequisite: HPER 102 in the same activity or consent of the instructor. Instruction in aquatics, dance, fitness, individual sports, team sports, and outdoor pursuits at the advanced level. F,S

107. Introduction to Physical Education. 3 credits. The nature and scope of physical education by means of a critical examination of sport, play, exercise and dance. Includes laboratory. F,S

109. Introduction to Coaching. 1 credit. An introduction and overview of relevant philosophy, sport psychology, sport pedagogy, sport physiology, sport medicine and sport management issues confronting coaches. Coaching is presented with emphasis on effective instructional techniques and coaching principles based upon scientific knowledge. On demand.

110. Sports Officiating. 1 credit. Knowledge of the rules and techniques for officiating various sports. Offered by sport; credit is repeatable by sport. On demand.

201. Leisure and Society. 3 credits. Prerequisite: Soc 101 and Psy 101. Orientation to recreation and leisure, including sociological, psychological, historical, philosophical and professional implications and influences of recreation and leisure on society.

203. Recreational Games. 1 credit. Prerequisite: HPER 201. Emphasis on a wide variety of recreational games. F


206. HPER Workshop. 1 credit. Each workshop will emphasize an area related to HPER Course may be repeated as long as content varies. On demand.

207,207L. Prevention and Care of Injuries. 3 credits. An overview of the scope of athletic training with emphasis on injury management and preventative measures. F,S

222. Program Planning in Recreation and Leisure. 3 credits. Development of programming skills for recreation programs in various settings, i.e. public; nonprofit: profit with emphasis on activity selections, scheduling and staffing. S

223. Movement Performance and Analysis. 1 credit. Prerequisite: HPER 10 I or performance equivalence in appropriate activity. Development of performance, performance analysis and knowledge as they apply to aquatics, dance, fitness, individual sports, team sports, and outdoor pursuits. Professional preparation courses for HPER majors. F,S

250. Intermediate Dance Technique. 1 credit. Prerequisite: HPER 101 Ballet, Jazz or Modern Dance or placement testing. A second level foundation course with emphasis on skill proficiency and technique in ballet, modern or jazz dance. On demand.

270. Camping and Outdoor Activities. 2 credits. The principles and practice of lightweight camping and associated outdoor activities. F,S

271. Outdoor Recreation Planning Programs. 2 credits. An overview of the role of outdoor recreation agencies and their programs. A study of the principles and guidelines for outdoor recreation programming. F,2L

272. Recreation and the Natural Environment. 3 credits. An overview of the use of natural environments as formal and informal settings for leisure and recreation involvement and the interrelationship among people, the environment and leisure. S

276. Motor Learning. 3 credits. Co-requisite: HPER 276L. Consideration of various factors which may affect learning and performance in human movement activities. S

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. S

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,S

321. Human Resources for Recreation. 3 credits. Prerequisites: HPER 201. The supervision of human resources for the leadership of recreation and leisure services. F

323. Introduction to Teaching in Physical Education and Sport Settings. 3 credits. Prerequisite: HPER 107 & 223. Corequisite: HPER 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: HPER 107 & 223. Corequisite: HPER 323. Supervised experiences in laboratory and field settings for the purpose of developing teaching skills for physical education and sport settings. On demand.

324. Sport Physiology. 3 credits. Analysis of research findings in exercise physiology and sports medicine with applications to coaching. On demand.
325. Youth and Children in Sport. 3 credits. Analysis of research findings in sport studies, sport psychology and sport sociology with applications to coaching children and youth in sport. On demand.

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. On demand.

332. Biomechanics. 4 credits. Prerequisite: Anat 204, 204L. The study of human movement with special emphasis on those movements related to sport and physical activity. F

337. Cooperative Education in Recreation. 1-4 credits, repeatable to 16. Prerequisite: HPER 201. A practical work experience with an employer closely associated with the student’s academic area. Arranged by mutual agreement among student, department, and employer. Elective course, but may replace HPER 483 Practicum only with department/advisor written consent. On an individual basis. S/U grading only. F,S,SS

340. Organization and Administration of Physical Education. 2 credits. Principles and practices for management of comprehensive school physical education programs. S

341. Organization and Administering of Athletics. 2 credits. Principles and practices for management of the interscholastic athletic program. F

350. Dance Repertory. 1 credit. Repeatable to 4 credits. Prerequisite: HPER 250 or placement testing. Emphasis on performance skills of choreographed dances. Includes student composition experience. On demand.

355. Applied Motor Development. 3 credits. Changes in motor performance which occur with age, physical and mental development as they relate to these changes. On demand.

359. Introduction to Therapeutic Recreation. 3 credits. Prerequisite: HPER 201. An overview of the nature and scope of therapeutic recreation by examination of the history, philosophy, service delivery systems and issues that confront the profession. F

360. Recreational/Leisure Services and Individuals with Disabilities. 3 credits. Study of individuals with disabling conditions and their leisure-related needs with emphasis on integration strategies and legislation that facilitate community involvement. F

361. Principle of Therapeutic Recreation. 3 credits. Prerequisite: HPER 359. In depth examination of the therapeutic recreation process in clinical, residential and community settings. S

362. Leisure Education and Counseling. 3 credits. Prerequisite: HPER 201. The value and meaning of leisure to the individual and the principles and practices of leisure education and counseling in a variety of leisure service settings. S

363. Therapeutic Recreation for the Elderly. 3 credits. Prerequisite: HPER 361. Leisure related needs of elderly individuals and strategies to meet those needs through the therapeutic recreation process in clinical, residential and community settings. On demand.

370. Principle of Tourism. 3 credits. Overview of tourism including travel behavior, tourism planning and policy, tourism impacts and promotion of tourism. F/S

371. Outdoor Recreation and Resources Management. 3 credits. Prerequisite: HPER 442 or permission of instructor. The principles of managing outdoor recreation sites and visitor systems where the natural environment provides the dominant attraction. Selected parks, resorts, camps, and preserves will serve as sample applications of management strategies. On demand.

385. Practicum in Recreation. 2 credits. Prerequisite: HPER 222. Independent and group study of professional placement and leadership in recreation and leisure settings. Practical experiences in recreation settings within the community. Includes lectures, site visits, and fieldwork hours. F,S


400L. Methods and Materials for Teaching Physical Education in the Secondary School—Laboratory. 1 credit. Prerequisites: HPER 323, 323L, 406, 406L. Corequisite: HPER 400. 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 101. 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: Phy 301. The acute and chronic effect of the type, intensity and duration of exercise on physiological function. S

403. School Health Education. 2 credits. Provides prospective health educators with a cursory look at health curriculum construction and investigation of different methods, devices and classroom techniques. S

404. Adapted Activities Program. 2 credits. Etiology of specific handicaps and adaptations of various activities which the individual may participate in at various grade levels. Theory and practical work will be emphasized. S

405. Organization and Administration of Intramural-Recreational Sports. 2 credits. Principles and practices for management of comprehensive school intramural-recreational sports programs. F


407. Technique of Dance. 1 credit. Prerequisites: Ballroom dance, beginning modern dance and folk and square dance or consent of instructor. Methods of teaching and techniques of modern, ballroom, folk, and square dance. On demand.

415. Evaluation of Psychomotor Performance. 3 credits. The application of tests to measure and evaluate physical fitness, physique, body composition, sport skills and motor performance. Includes descriptive statistics for analyzing and interpreting measurements. F


421. Evaluation and Research for Recreation. 3 credits. Overview of evaluation and research methods utilized in the delivery of recreation and leisure services. S

423. Coaching Methods. 2 credits. Prerequisite: HPER 223 in same sport. Repeatable with different sports to a maximum of 10 credits. Methods employed in coaching specific sports. F,S

440. Sport Psychology. 3 credits. Prerequisite: Psy 101. Examination of psychological constructs influencing the competitive sport process and physical activity. S

442. Recreation Administration. 3 credits. An examination of theories and principles of administration of recreation and leisure services. S

450. Dance Production. 2 credits. Prerequisite: HPER 350 or consent of instructor. Group and individual experience in choreography and performance. Practical application of design theories for staging dance. On demand.

460. Design and Administration of Therapeutic Recreation. 3 credits. Prerequisite: HPER 361 or permission of instructor. An examination of the systematic design and administration of therapeutic recreation programs. Emphasis is on principles of program planning, development of program objectives, program content, program evaluation, and management of program resources. S/2

470. Environmental Interpretation. 3 credits. The principles, methods, and materials of interpretive naturalist programs for recreational agencies. Emphasis is placed on obtaining practical experience in developing interpretive materials and programs. On demand.

479. Recreation Areas and Facilities. 3 credits. Design and maintenance of recreation areas and facilities. Includes on-site visits. F

480. Field Experience in HPER. 1-8 credits. Prerequisite: Consent of instructor and upper division status. Placement of student in a practical setting under university faculty supervision. F,S

485. Internship in Recreation. 4-12 credits. Development of professional skills by working directly with established leisure, recreation and health and human service organizations under the supervision of professionals and faculty. S-U grading only. Majors only. F,S,SS

486. Practicum in Coaching. 2 credits. Prerequisites: HPER 423 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

487. Senior Teaching Seminar. 2 credits. Prerequisite: HPER 323. Corequisite: CTL 487. A critical analysis of problems, professional obligations and careers in teaching physical education. F,S

495. Directed Studies in Physical Education and Recreation. 1-4 credits. Prerequisite: Consent of the instructor. An in-depth study in a subject area selected by the student under tutorial supervision. F,S

History
(Hist)

R. Beringer (Chair), Berger, Ellis, Handy-Marchello, Howard, Iseminger, Mochoruk, Rowley, Thorson, and Vivian

The History program at the University prepares one to understand oneself and one’s society, as well as other people in different cultures in the past and in the present. Beyond this the department trains students for the teaching of history at all levels, government service, and graduate studies in history. The study of history may serve as preprofessional training for other areas such as law or the ministry.
Two programs are offered for the History major. Plan 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 on a graduate level. Plan B is designed primarily for those who want to enter government service, business, or teaching at the secondary level.

**College of Arts and Sciences**

**B.A. WITH MAJOR IN HISTORY**

Required 125 hours, including:

1. General Graduation Requirements, see pages 32-40.

11. One of the Following Curriculum Options:

Option A

35 major hours, including:

9 hours from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hist 101</td>
<td>Western Civilization to 1500</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 102</td>
<td>Western Civilization since 1500</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 103</td>
<td>United States to 1877</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 104</td>
<td>United States since 1877</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 240</td>
<td>The Historian's Craft</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 440</td>
<td>Research</td>
<td>(2)</td>
</tr>
</tbody>
</table>

Electives (16 must be upper level) ........................................(2)

Maximum 6 hours of Hist 300.

Required in other departments:

- Level IV proficiency in a foreign language.

Option B

35 major hours, including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hist 101</td>
<td>Western Civilization to 1500</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 102</td>
<td>Western Civilization since 1500</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 103</td>
<td>United States to 1877</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 104</td>
<td>United States since 1877</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 240</td>
<td>The Historian's Craft</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 440</td>
<td>Research</td>
<td>(2)</td>
</tr>
</tbody>
</table>

Electives (16 must be upper level) ........................................(18)

Of the 18 elective hours 12 must form a concentration in either World or American History.

Maximum 6 hours of Hist 300.

Required in other departments:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 171</td>
<td>Introduction to Cultural Anthropology</td>
<td>(3)</td>
</tr>
<tr>
<td>Econ 105</td>
<td>Elements of Economics</td>
<td>(3)</td>
</tr>
<tr>
<td>Econ 420</td>
<td>Economic Education</td>
<td>(3)</td>
</tr>
<tr>
<td>Geog 161</td>
<td>World Regional Geography</td>
<td>(3)</td>
</tr>
<tr>
<td>Geog 319</td>
<td>Geography for Teachers</td>
<td>(2)</td>
</tr>
<tr>
<td>PSci 101</td>
<td>American Government I</td>
<td>(3)</td>
</tr>
<tr>
<td>PSci</td>
<td>Elective</td>
<td>(3)</td>
</tr>
<tr>
<td>Soc 101</td>
<td>Introduction to Sociology</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**MINOR IN HISTORY**

Required 20 hours, including:

9 hours from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hist 101</td>
<td>Western Civilization to 1500</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 102</td>
<td>Western Civilization since 1500</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 103</td>
<td>United States to 1877</td>
<td>(3)</td>
</tr>
<tr>
<td>Hist 104</td>
<td>United States since 1877</td>
<td>(3)</td>
</tr>
</tbody>
</table>

History electives (Maximum: 4 hrs Hist 300) ........................................(11)
RELATED FIELD CONCENTRATION IN INTELLECTUAL HISTORY, MINOR ONLY:

Required: 20 hours Upper Level work approved by the chairs of the History or Philosophy Departments

Such courses as follows maybe used:

Hist 330, The United States: Social and Cultural 19th Century ..............................(3)
Hist 331, The United States: Social and Cultural 20th Century ..............................(3)
Hist 341, Ancient and Medieval Science, Technology and Magic ............................(3)
Hist 342, Modern Science and Technology. ................. ..............................(3)
Phil 305, Classical Greek and Hellenistic Philosophy ...........................................(3)
Phil 306, Medieval Period .....................................................................................(3)
Phil 307, Renaissance to Enlightenment ............................................................(3)
Phil 308, Nineteenth Century Philosophy ................................................................(3)
Phil 309, Classical American Philosophy ................................................................(3)
Phil 311, Basic Questions in Recent Philosophy ......................................................(3)
PSci 311, Development of Political Thought I .........................................................(3)
PSci 312, Development of Political Thought II .........................................................(3)
VA 210, Act History Survey ....................................................................................(6)
VA 315, American Art and Architecture ....................................................................(3)
VA 410, History of Art: Selected Subjects ...............................................................(3)

Courses

101. Western Civilization to 1500. 3 credits. An interpretive survey of cultural continuity from 3000 B.C. to the end of the European Middle Ages. F S

102. Western Civilization since 1500. 3 credits. An interpretive survey with emphasis on movements common to Western Europe from the Reformation through World War II. 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 last century of American history, including the transformation of an isolationist, agrarian nation into an urban, industrial, and world power, with emphasis upon the resulting domestic maladjustments. 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

200. History through Biography. 2 credits. (Repealable, with different figures, to 6 credits.) The study of history through the lives and contributions of major leaders or figures. The nation, period or development, and persons involved will change each semester. S F

203. Economic Development of the United States Since 1865. 3 credits. A survey of major developments in American economic growth. The first four weeks are devoted to the period before 1865: the remainder of the semester involves a more detailed study of events and changes during the past century. F

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 which have shaped Canada in the modern era. F

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 which have shaped Canada in the modern era. S

207. The Western World, 1939 to the Present. 3 credits. An examination of cultural trends affecting the two generations. S

208. U.S. 1932 to present. 3 credits. A survey of the Depression and New Deal, the Cold War, the consumer society and the travail of liberalism in recent America. Primarily for non-history majors F

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

214. Latin America to 1825. 3 credits. An examination of the historical evolution of the American hemisphere from pre-Columbian times to the collapse of the Spanish Empire, including the rise of indigenous cultures and civilizations, Spanish and Portuguese intrusion and conquest, and the character of colonial rule. F

215. Latin America: The National Experience since 1825. 3 credits. A survey of the Spanish American republics and Brazil during the 19th and 20th centuries, with emphasis on the challenges of democratic leadership, economic dependency, social integration, and cultural pluralism. S
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. F

221. The Scandinavian Countries Since 1500.3 credits. A survey of Denmark, Norway, and Sweden from the Lutheran Reformation to the present. Emphasis is on popular movements of the nineteenth and twentieth centuries. S

223. The City in History. 3 credits. A survey of the rise of the city and the development of urban life from ancient times to the present. F/S

239. 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

240. The Historian’s Craft. 3 credits. An introduction to the nature of history—how it should be read, understood, researched, reported and written. F/S

300. Topics in History. 1-3 credits. Repeatable to 12. Selected 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; 12 credits to degree requirements. 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. F

325. The United States: The Early Frontier. 3 credits. An examination of major interpretations of western history and major developments of Indians, ranching, mining, farming, fur trading, and the small town from colonial times to 1865. F

326. The United States: Western Frontier. 3 credits. An examination of major interpretations of western history and major developments of Indians, ranching, mining, farming, fur trading, and the small town from 1865 to the present. S

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, intellectualism, 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

331. The United States: Social and Cultural, 20th Century. 3 credits. A survey of the growth of government action in social welfare. Emphasis is given to the advent and growth of a mass, popular culture. S

332. Women in American History. 3 credits. A survey of U.S. women’s history from the colonial period to the present. Emphasis is given to nineteenth century movements and their contribution as well as to women’s participation in historical events. 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. F/S/S

339. 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

341. Ancient and Medieval Science, Technology and Magic. 3 credits. A survey of the origins and development of scientific thought in Greek, Roman, Medieval, and Renaissance cultures. F/2

342. Modern Science and Technology. 3 credits. A survey of the revolution in scientific thought in the age of the Renaissance, the Copernican Revolution, and the development of physics, chemistry, geology, biology, etc. into modern times. S/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 surveyed. F

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

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. F

350. Europe: The Reformation, 1500-1645. 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: The 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: The French Revolution and Napoleonic Era, 1789-1815.3 credits. A course which serves as an admirable vehicle to observe human nature at its best and worst, as people responded to unprecedented and
unexpected problems and opportunities. Study of this classic revolution compels a conclusion on how revolutions begin and, once begun whether they move under their own momentum to excess and then reaction. F/2

353. Europe: 1815-1918. 3 credits. A survey developing the theme that from 1815 to 1848 idealistic and utopian means were employed by those who sought to change frontiers, institutions, or governments. These methods were largely ineffective. With the 1848 revolutions, “a new toughness of mind” emerged, and those seeking to effect change became more pragmatic and realistic, as manifested, for example, in Marxism and Realpolitik. F

355. Europe Since 1918. 3 credits. A course divided into two equal part—1919-1929 and 1929-1939. Until 1929 the postwar settlement—with its institutions, values, agencies, and hopes—appeared to be working. After 1929 it obviously was not. The conclusion of the course is that postwar problems were not resolved in their fundamentals and that World War II was but a continuation of World War I, after a twenty-year armistice. S

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 in traditional societies and to the nature of fundamental social revolution. F/2

364. Modern Japan. 3 credits. A survey of the political, economic, social, and cultural transformation of Japan from the arrival of Commodore Perry in 1853 until recent times. Particular attention will be paid to modernization and its meaning for the Japanese people and to the international context of Japan’s military tragedy and economic success. S/2

403. The United States: The Colonial Period. 3 credits. A survey of the background of British colonization, the development of diverse colonial cultures, and the transformation in maturing provincial societies of the European heritage. The seventeenth-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 underlying 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 incompatibility of American and British constitutional and ideological views. American techniques of propaganda and resistance are analyzed; military history is deemphasized. The results of independence are discussed in terms of the changing attitudes reflected in the Declaration of Independeace, 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 creation of a new, expansive nationalism in the development of new institutions and new national character, and the simultaneous growth of sectional forces which brought the new nation to the brink of Civil War. F

406. The United States: Civil War and Reconstruction, 1850-1877.3 credits. A study of the acceleration of the forces of sectionalism and racism which caused the temporary breakdown of the American democratic process and the tragedy of Civil War and Reconstruction. S

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

408. The United States, 1920-1945. 3 credits. A study of American society from the end of World War I through World War II. Emphasis will be placed upon the Republican ascendency and social changes during the 1920s, the causes of the Great Depression, the New Deal, the road to World War II, and the war, especially the homefront. S

409. History of Argentina. 3 credits. The course examines the development of Argentina from its colonial foundations to contemporary times. Emphasis is placed upon political consolidation, economic growth and expansion, social integration, and democratic leadership patterns. F/2

410. History of Mexico. 3 credits. The study of modern Mexico from Independence to contemporary times, with concentration on the Revolution of 1911 and after, national integration, industrialization, and political consolidation. F/2

411. U.S., Foreign Relations, 1776-1900.3 credits. An advanced survey of the major foreign policies developed by the U.S. from the American Revolution through 19th century. S/2

412. U.S., Foreign Relations Since 1900.3 credits. An advanced survey of the major policies advocated and pursued by the U.S. during the 20th century. S/2

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 and political transformation, and economic decline. S/2

414. France Since 1815.3 credits. A survey of the Red versus Black tradition during the nineteenth century and its repudiating in the twentieth century. F/2

415. Germany Since 1815.3 credits. An interpretation of the Second Reich, Weimar, and the Third Reich. F

416. Russia to 1855.3 credits. A survey of Russia’s political, economic, and cultural development before the beginning of modern reforms and the growth of revolutionary ideas. F
417. Russia Since 1855. 3 credits. A survey of Russia and the Soviet Union, emphasizing failed reforms, successful revolutions, and the establishment of the Soviet State. S

419. Great Britain Since 1815. 3 credits. A survey developing the theme of the pragmatic response of the British people to the problems and opportunities provided by the Industrial Revolution. The conclusion presented is that the Welfare State established after World War II was the logical culmination of this pragmatic response. S/2

431. History of the Great Plains 3 credits. A historiographic and thematic approach to the area west of the 98 meridian and east of the Rocky Mountains, including the Canadian prairie provinces, from the period of Plains Indians to the present. S

440, Introduction to Research. 2 credits. A methodology course. Though designed primarily for history majors, History 440 may prove very useful for students in others of the social science fields. Through discussion and working in the library, the students develop skills both in the compiling of a bibliography and in the use of journals, newspapers, government documents, manuscript collections, pictorial materials, etc. Each student writes a paper that demonstrates the use and evaluation of these historical source materials. F,S

480. 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 public awareness of historical resources. F

481. Public History Practice. 3 credits. A practicum in which the student learns through experience the techniques of public history work. S

495. Readings in History. 1-3 credits. Repeatable to 6. F,S

499. Senior Honors Theses. 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

Honors

(Hen)

J. Anderegg, Program Coordinator

For a full description of the Honors Program, see page 49.

Graduation as a scholar in the Honors Program

Required 125 hours, including 24 credits from the following:

1. The following Honors Program coursework:
   Hon 101 ....................................................Inquiry in the Humanities ..................................................(3)
   Hon 102 ....................................................Inquiry in the Social Sciences..............................................(3)
   Hon 103 ....................................................Inquiry in the Sciences......................................................(3)
   Hon 250 ....................................................Sophomore Honors Essay ................................................(1)
   Hon 291 ....................................................Colloquium in the Humanities ......................................(2-4)
   Hon 292 ....................................................Colloquium in the Social Sciences .................................(2-4)
   Hon 293 ....................................................Colloquium in the Sciences ...........................................(2-4)
   Hon 301 ....................................................Honors Mode .................................................................(1)
   Hon 391 ....................................................Advanced Colloquium in the Humanities ......................(2-4)
   Hon 392 ....................................................Advanced Colloquium in the Social Sciences ..............(2-4)
   Hon 393 ....................................................Advanced Colloquium in the Sciences ...........................(2-4)
   Hon 399 ....................................................Independent Study .......................................................(1-4)
   Hon 499 ....................................................Senior Honors Thesis ..................................................(6-15)

H. The Honors Program General Education Requirements
   One course (at least 3 credits) of Honors work in each of the following areas:
   1. Fine Arts and Humanities
   2. Natural Science, Math, Technology
   3. Business, Social Science

III. The Honors Program English Composition Requirement
   Any two of the following courses (Honors sections preferred):
   Engl 101 .................................................Composition 1 .........................................................(3)
   Engl 102 .................................................Composition 11 ......................................................(3)
101. Inquiry in the Humanities, 3 credits. Prerequisite: admittance to the Honors Program. Reading and discussion of selected works of humanistic value: orientation to methods of Honors work. Normally taken by first-year students in the Honors Program. F,S

102. Inquiry in the social Sciences, 3 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. F,S

103. Inquiry in the Sciences, 3 credits. Prerequisite: admittance to the Honors Program. Readings and discussion of selected works that reflect the methodology and concerns of the sciences; orientation to methods of Honors work. May include laboratory component. Normally taken by first-year candidate-members of the Honors Program. F,S

250. Sophomore Honors Essay, 1 credit. Prerequisite: Hon 101 or equivalent. An in-depth essay used to evaluate writing and organizational skills at the sophomore level. Required in second year. F/S/SS

291. Colloquium in the Humanities, 2-4 credits, repeatable. Prerequisite: admittance to the Honors Program. Interdisciplinary courses on varying topics related to the humanities; student participation in the form of writing, research, and discussion is stressed. F,S

292. Colloquium in the Social Sciences, 2-4 credits, repeatable. Prerequisite: admittance to the Honors Program. Interdisciplinary courses on varying topics related to the social sciences; student participation in the form of writing, research, and discussion is stressed. F,S

293. Colloquium in the Sciences, 2-4 credits, repeatable. prerequisite: admittance to the Honors Program. Interdisciplinary courses on varying topics related to the sciences; student participation in the form of writing, research, and discussion is stressed. F,S

301. honors Mode, 1 credit. Corequisite: Standard course which Honors Mode complements. A method of using a 1 credit study load to increase the level of any standard course to an Honors quality course. It provides an intellectual enhancement to a standard course F,S,SS

391. Advanced Colloquium in the Humanities, 2-4 credits, repeatable. Prerequisite: admission to the Honors Program. Advanced interdisciplinary course on varying topics in the humanities. F,S

392. Advanced Colloquium in the Social Sciences, 2-4 credits, repeatable. Prerequisite: admittance to the Honors Program. Advanced interdisciplinary courses on varying topics in the social sciences. F,S

393. Advanced Colloquium in the Sciences, 2-4 credits, repeatable. Prerequisite: admittance to the Honors Program. Advanced interdisciplinary courses on varying topics in the sciences. F,S

399. Independent Study, 1-4 credits (repeatable to 12 credits). Prerequisite: Hon 101 or equivalent. Individual instruction on specified topics arranged by mutual agreement among teacher, student and the Program. F,S,SS

499. Senior Honors Thesis, 3-15 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,SS

**Human Resources Development (HRD)**

The College for Human Resources Development offers a limited number of non-departmental courses. Special Topics 250 and Special Problems 495 are nondepartmental and are intended to serve a variety of purposes. These courses are provided on demand in areas of particular relevance when students or faculty initiate them. No more than 12 credits may be earned in any combination of these courses over four years.

**Courses**

101. Career Decision-making, 1 credit. The process of making career choices and decisions is explored through assessment, instruments, class activities and assignments. Student interests, skills, and work values are explored and related to information about careers and job market trends. Recommended for students in the process of choosing an academic major. S-U grading only. F,S
102. Career/Educational Planning. 1 credit. The process of educational planning for specific occupations examined through class activities and assignments. Related work experience opportunities, resume writing, interviewing skills, and job search skills investigated. Recommended for students who have chosen a major. S-U grading only. S

250A. Special Topics (regular grading); 250B. Special Topics (S-U grading). 1-3 credits in anyone 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

486. Field Experience. 1-12 credits; four hours weekly constitutes one semester credit hour. Prerequisite: Consent of supervising department and department of student’s major. Opportunity for students to engage in professional learning activities related to their University preparation and/or interprofessional areas of interest within the human services fields under faculty-professional supervision. Student log and reports are required. S-U grading only. F,S,SS

493. Workshop. 1-4 credits. A workshop course available to all departments of the University. Primarily for, but not confined to, Continuing Education. F,S

495A. Special Problems (regular grading); 495B. Special Problems (S-U grading). 1-3 credits in any one semester; note limitation of 12 credits explained above. Specially arranged seminars or courses on contemporary topics, having professional orientation and possible prerequisites not covered by regular departmental offerings. May be initiated by the students with approval of dean and department involved, provided appropriate faculty are willing. F,S

Humanities
(Hum)

P. Sanborn (Coordinator), Barrentine, and Rand

The University requires twelve hours in arts and humanities for any baccalaureate degree. See pages 32-40.

A Related Fields Concentration in Humanities may he offered as a major in the College of Arts and Sciences. The student must complete 18 credit hours in each of at least two humanities disciplines; of these, at least 27 must be in Upper Level Work. Level IV proficiency in a language other than English, preferably Greek, Latin, French or German, is required.

101. Introduction to Humanities. 4 credits. This course is designed to introduce beginning university students to the modes of expression of the major disciplines of the Humanities: imaginative literature, philosophy, history, religion, drama, music, and art. A central theme provides the focus of the course, and in approaching that theme through each of the humanistic disciplines the way is opened to a perception of the value structure of our cultural tradition. F

102. Introduction to Humanities 4 credits. This course is structurally the same as Humanities 101, and has the same general goals, but differs from it in that its subject matter is the culture of classical Greece. The authors read in the course normally include Homer, Aeschylus, Sophocles, and Plato along with varying selections from other poets, dramatists, philosophers, and historians. S

Indian Studies
(Is)

M. J. Schneider (Chair), and Hans

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 hours, including:

I. General Graduation Requirements, see pages 32-40.

II. The Following Curriculum:

36 major hours, including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</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 375</td>
<td>History of Federal Indian Law and Policy</td>
<td>(3)</td>
</tr>
<tr>
<td>Anthropology 375</td>
<td>North American Indians</td>
<td>(3)</td>
</tr>
</tbody>
</table>

6 hours from Arts, Literature and Language:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 361</td>
<td>American Indian Languages I</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 362</td>
<td>American Indian Languages II</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 367</td>
<td>American Indian Literature</td>
<td>(3)</td>
</tr>
<tr>
<td>Engl 309</td>
<td>Literature and Culture: Traditional Amer. Indian</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 255</td>
<td>Survey of Native American Arts</td>
<td>(3)</td>
</tr>
<tr>
<td>Anthropology 220</td>
<td>Native American Technology</td>
<td>(3)</td>
</tr>
</tbody>
</table>

3 hours from History:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 203</td>
<td>Survey of Chippewa History</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 301</td>
<td>History of Western Sioux</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 331</td>
<td>Traditional Plains Indian Culture</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 352</td>
<td>American Indian Philosophical Thought</td>
<td>(3)</td>
</tr>
</tbody>
</table>

6 hours from Contemporary Social Issues:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 330</td>
<td>Contemporary Plains Indian Culture</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 341</td>
<td>Urban Indians</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 345</td>
<td>Contemporary American Indian Issues</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 346</td>
<td>Contemporary Indian Women</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 363</td>
<td>Native American Child Development</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 371</td>
<td>Reservation Government and Politics</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Electives

Any of the courses listed above that are not used to meet requirements may be taken as electives. Other electives in Indian Studies include IS 379, 491 and 497.

A concentration in an area or field other than Indian Studies is also required of all majors. This concentration may be met in the following ways:

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 course work 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 hours including:

IS 121..........................Introduction to Indian Studies.................................................................(3)
IS 240..............................Research and Writing in Indian Studies.................................(3)
IS 375..............................History of Federal Indian Law and and Policy .........................(3)
Anh 375............. North .................... North American Indians.........................................................(3)

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

203. Introductory Survey of Chippewa History. 3 credits. A study of Ojibway history, life, and culture from the original contacts with White traders: successive relocations in the interior of North America: warfare and contact with other tribes; treaties and land cessions and establishment upon reservations; and contemporary status and problems. F

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

235. Cross-Cultural Seminar. 2 credits. Cross-Cultural awareness through the use of audio-visual materials, simulation games, and resource people who are able to present various perspectives of American Indian culture. (May be repeated to a total of four credits).

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

255. Survey of Native American Art. 3 credits. Examination of the methods, materials, and techniques of Native American visual arts, music, dance, and drama. F

301. History of the Western Sioux. 3 credits. The history of the Sioux from their earliest known beginnings to the present day, with special emphasis upon the Teton Nation. F

303. Contemporary Plains Indian Culture. 3 credits. An examination of the ecology, social structure, economics, politics, and values of contemporary Plains Indians with special emphasis on reservation systems. S

331. Traditional Plains Indian Culture. 3 credits. An examination of the environment, social structure, political organization, religion and other aspects of Plains Indian life before the establishment of the reservations.

341. Urban Indian Studies. 3 credits. Reading and discussion on the particular issues confronting Native Americans as they leave the reservation and enter urban society. S

345. Contemporary American Indian Issues. 3 credits. Study and discussion of issues of general importance to contemporary Native American life. F

346. Contemporary Indian Women. 3 credits. An examination of the historical and contemporary traditions, role, contributions, and issues concerning Indian women.

“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 importance are discussed. F

363. Native American Child Development. 3 credits. Examines the physical, mental and social development of Native American children from birth to puberty. Differences between traditional tribal ways and modern concerns are related to historical and cultural factors. F

371. Reservation Government and Politics. 3 credits. To acquaint students with functions of diverse government agencies and the politics of Indian reservation self-government. F

375. History of Federal Indian Law and Policy. 3 credits. A detailed discussion of Federal Indian law and policy from their colonial antecedents into contemporary times. Among other dimensions, an examination of motives, court decisions, statutes, executive orders and proclamations, and their consequences.

379. Special Topics. I-3 credits (Repeatable when topics vary). Topics and credits will vary with availability of staff, and with student interests.

481. Practicum. 4-8 credits. Prerequisite: Upper class standing and consent of instructor. A work-study course designed to provide em-site experience. The Department and the student will select an assignment that is appropriate, and the number of credits will vary according to the assignments. All practica are under professional guidance and supervision. Most assignments will be in a reservation setting, but they may also be in an urban Indian community or other related professional settings. F,S

491. Independent Study in Indian Studies. 1-3 credits. Maximum 9 credits. Consent of Instructor required. F,S,SS

497. Directed Readings in Indian Studies. Prerequisites: Upperclass standing or consent of instructor. Under the direction of Indian Studies faculty, students will select readings in subjects not covered in sufficient detail in other Indian Studies classes. F,S,SS
Industrial Technology (IT)

M. Bender (Chair), Diez, Holten, Nwoke, Patrick, Smart, and Wang

The Department of Industrial Technology offers three four-year undergraduate degree programs (Bachelor of Sciences) and a graduate program leading to Master of Science or Master of Education degrees. The baccalaureate degree programs offered through the College of Business and Public Administration include Industrial Technology, Technology Teacher Education, and Occupational Safety and Environmental Health.

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 technological system areas: Graphic Communication, Energy & Electronics, and Manufacturing. The program is accredited by the National Association of Industrial Technology (NAIT). NAIT accreditation recognizes the attainment of professional standards for industrial technology.

The Technology Teacher Education program includes a major and minor designed for individuals interested in teaching technology education at secondary and post-secondary levels. Teacher certification is granted through the Center for Teaching and Learning.

The Occupational Safety & Environmental Health (OSEH) Program is designed for individuals interested in careers in safety and health. The OSEH degree is for preparation of managers in the safety, industrial hygiene, hazardous materials, and occupational safety and environmental health fields.

In addition, the Department of Industrial Technology offers interdisciplinary courses designed to enhance technological literacy to contribute toward the fulfillment of university general education requirements, to provide courses for a related fields concentration program in Graphic Communication through the College of Arts and Sciences, and to offer energy and electronics courses for the Airway Science Electronic Systems program through the Center for Aerospace Sciences.

College of Business and Public Administration

B.S. INDUSTRIAL TECHNOLOGY DEGREE PROGRAM

1. General Education Requirements, see pages 3240.
   Requirement: 2.2 overall GPA

11. Industrial Technology Major Requirements:
   Technology Technical Base (18 Semester Hours Required)
   IT 101: Introduction to Energy and Power Systems (1)
   IT 102: Introduction to Graphic Communication (1)
   IT 103: Introduction to Manufacturing (1)
   IT 201: Electromechanical Fundamentals (3)
   IT 202: Technical Drawing (3)
   IT 203: Production Processes: Manufacturing (3)
   IT 212: Principles of Graphic Design and Layout (3)
   IT 312: Computer-Aided Design/Grifting (3)

   Technology Management Base (14 Semester Hours Required)
   IT 260: Computer Applications in Industrial Technology (3)
   IT 300: Technology, Society and the Individual (2)
   IT 310: Industrial Planning and Control (2)
   IT 330: Quality Assurance (3)
   IT 420: Industrial Facility Design (2)
   IT 440: Industrial Safety (2)
B.S. INDUSTRIAL TECHNOLOGY (Teacher Education Program Option).

The teacher education program option offers a major and minor in technology education with teacher certification preparation through the Center for Teaching and Learning. The program is designed to prepare individuals for teaching technology education at the secondary and post-secondary levels.

Required 125 hours, including:

I. General Education Requirements, see pages 32-40.

II. Teacher Certification Requirements, see page 175.

III. The Following Curriculum:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 211</td>
<td>Electric Circuits and Services</td>
<td>3</td>
</tr>
<tr>
<td>IT 301</td>
<td>Microelectronic Circuits</td>
<td>3</td>
</tr>
<tr>
<td>IT 341</td>
<td>Digital Integrated Circuits</td>
<td>3</td>
</tr>
<tr>
<td>IT 401</td>
<td>Electronic Communication Systems</td>
<td>2</td>
</tr>
<tr>
<td>IT 416</td>
<td>Transportation Technology</td>
<td>2</td>
</tr>
<tr>
<td>IT 441</td>
<td>Computer Aided Circuit Analysis and Design</td>
<td>3</td>
</tr>
</tbody>
</table>

Manufacturing Technology Systems (20 Semester Hours Available):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 104</td>
<td>Industrial Materials</td>
<td>3</td>
</tr>
<tr>
<td>IT 213</td>
<td>Production Processes: Construction</td>
<td>3</td>
</tr>
<tr>
<td>IT 223</td>
<td>Applied Synthetics</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 353</td>
<td>Computer Numerical Control</td>
<td>(2)</td>
</tr>
<tr>
<td>IT 344</td>
<td>Construction Materials and Processes</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 34O</td>
<td>Manufacturing Cost Estimating</td>
<td>(2)</td>
</tr>
<tr>
<td>IT 343</td>
<td>Motion and Time Study</td>
<td>(2)</td>
</tr>
<tr>
<td>IT 383</td>
<td>Robotics and Automation</td>
<td>(2)</td>
</tr>
<tr>
<td>IT 403</td>
<td>Product Research and Development</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 404</td>
<td>Materials Testing</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 423</td>
<td>Computer Integrated Manufacturing</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Graphic Communication Technology Systems (18 Semester Hours Available):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 302</td>
<td>Applied Graphic Design and Layout</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 322</td>
<td>Fundamentals of Photography</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 412</td>
<td>Design/Drafting</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 422</td>
<td>Systems Design</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 432</td>
<td>Fundamentals of Color Photography</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 442</td>
<td>Desktop Publishing</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Technological Systems Support Courses (These may be used to support each of the above three Technology Systems Areas):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 337</td>
<td>Cooperative Education in Industrial Technology</td>
<td>(1-8)</td>
</tr>
<tr>
<td>IT 485</td>
<td>Field Experiences in Industrial Technology</td>
<td>(1-6)</td>
</tr>
<tr>
<td>IT 493</td>
<td>Workshop</td>
<td>(1-6)</td>
</tr>
<tr>
<td>IT 497</td>
<td>Directed Studies in Industrial Technology (On Demand)</td>
<td>(1-6)</td>
</tr>
</tbody>
</table>

Required Support Courses Selected From the Following or Higher Level (35 Semester Hours Minimum)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 103</td>
<td>College Algebra</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 105</td>
<td>Trigonometry</td>
<td>(2)</td>
</tr>
<tr>
<td>Math 204 or 211</td>
<td>Survey of Calculus or Calculus I</td>
<td>(3,4)</td>
</tr>
<tr>
<td>Chem 105</td>
<td>General Chemistry I</td>
<td>(4)</td>
</tr>
<tr>
<td>Phys 101 &amp; 102</td>
<td>Introduction to College Physics</td>
<td>(8)</td>
</tr>
<tr>
<td>CSci 111</td>
<td>Computer Programming II</td>
<td>(3)</td>
</tr>
<tr>
<td>Econ 210</td>
<td>Intro. to Business &amp; Economic Statistics</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>Production Management</td>
<td>(3)</td>
</tr>
</tbody>
</table>

B.S. INDUSTRIAL TECHNOLOGY (Teacher Education Program Option).

A technological emphasis may be chosen from the following systems areas. However a minimum of one course having each of the third-digit number (1), (2), (3), and (4) must be included.

Energy and Electronic Technology Systems (18 Semester Hours Available):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 211</td>
<td>Electric Circuits and Services</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 213</td>
<td>Production Processes: Construction</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 301</td>
<td>Microelectronic Circuits</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 341</td>
<td>Digital Integrated Circuits</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 401</td>
<td>Electronic Communication Systems</td>
<td>(2)</td>
</tr>
<tr>
<td>IT 416</td>
<td>Transportation Technology</td>
<td>(2)</td>
</tr>
<tr>
<td>IT 441</td>
<td>Computer Aided Circuit Analysis and Design</td>
<td>(3)</td>
</tr>
</tbody>
</table>
IT 103: Introduction to Manufacturing .................................................................(1)
IT 104: Industrial Materials ..................................................................................(3)
IT 201: Electromechanical Fundamentals ............................................................(3)
IT 202: Technical Drawing ....................................................................................(3)
IT 203: Production Processes: Manufacturing ......................................................(3)
IT 211: Electric Circuits and Devices ...................................................................(3)
IT 212: Principles of Graphic Design and Layout ..............................................(3)
IT 213: Production Processes: Construction .......................................................(3)
IT 300: Technology, Society and the Individual ....................................................(2)

Technology Education Technical Electives (16 Hours Required)
Selected from the following:
IT 223: Applied Synthetics ...................................................................................(3)
IT 301: Microelectronic Circuits ..........................................................................(3)
IT 302: Applied Graphic Design and Layout ......................................................(3)
IT 312: Computer Aided Design/Drafting ..........................................................(3)
IT 314: Construction Materials, Processes .........................................................(3)
IT 316: Technology Education for Teaching & Learning ....................................(2)
IT 322: Fundamentals of Photography ..................................................................(3)
IT 337: Cooperative Education in Industrial Technology ..................................(1-8)
IT 341: Digital Integrated Circuits .......................................................................(3)
IT 383: Robotics and Automation .......................................................................(2)
IT 401: Electronic Communications Systems ..................................................(2)
IT 403: Product Research & Development .......................................................(3)
IT 404: Materials Testing .....................................................................................(3)
IT 422: Design Drafting .......................................................................................(3)
IT 466: Transportation Technology .....................................................................(2)
IT 422: Systems Design .....................................................................................(3)
IT 423: Computer Integrated Manufacturing ...................................................(3)
IT 432: Fundamentals of Color Photography ....................................................(3)
IT 442: Desktop Publishing ................................................................................(3)
IT 497: Directed Studies in Industrial Technology ...........................................(1-8)

Required Support Courses:
Math 103: College Algebra ....................................................................................(3)
and four credits of the following:
CSci 101: Introduction to Computers .................................................................(2)
IT 260: Computer Applications in Industrial Technology ................................(3)
Math 105: Trigonometry ........................................................................................(2)

Eight Hours from:
Phys 101: Introductory College Physics ..............................................................(4)
and one of the following:
Phys 102: Introductory College Physics ..............................................................(4)
Chem 104: Introductory Chemistry .....................................................................(4)
Chem 105: General Chemistry 1 .........................................................................(4)

TECHNOLOGY EDUCATION MINOR (Teaching Option)
Required 24 hours:
IT 201: Electromechanical Fundamentals ............................................................(3)
IT 202: Technical Drawing ....................................................................................(3)
IT 203: Production Processes: Manufacturing ......................................................(3)
IT 211: Electric Circuits and Devices ...................................................................(3)
IT 212: Principles of Graphic Design and Layout ..............................................(3)
IT 213: Production Processes: Construction .......................................................(3)
IT 312: Computer Aided Design/Drafting ..........................................................(3)
IT 400: Teaching Technology Education ...........................................................(3)

B.S. OCCUPATIONAL SAFETY & ENVIRONMENTAL HEALTH (OSEH)
1. University General Education Requirements:
   English Composition .........................................................................................(6)
III. OSEH Major:

**11. OSEH Major Admission Requirements**

A. Completion of 45 semester hours of course work.

B. Completion of the following courses with a minimum grade of C:
   - Chemistry 105 & 106 ...........................................(8)
   - Math 103 ......................................................(3)
   - CSci 160 ......................................................(4)

C. Completion of at least 15 hours in residence at the University of North Dakota with a minimum of 2.2 GPA

NOTE: After the above admission requirements are met, students must apply for admission to the OSESH major program.

III. OSEH Major:

**General Core (27 semester hours required)**

- Math 204 ....................................................Survey of Calculus ......................................................(3)
- Anat 204 ....................................................Anatomy for Paramedical Personnel ................................(3)
- Econ 210 ....................................................Intro to Business & Economic Statistics ................................(3)
- Psy 301 ....................................................Industrial & Organizational Psychology .........................(3)
- IT 312 ....................................................Computer Aided Design/Drafting ....................................(3)
- IT 315 ....................................................Topics in Occupational Safety and Environmental Health....(3)
- .02 Emergency Response ....................................(1)

**Plus One of the Following Three Options:**

**Industrial Safety Concentration (Option I)**

Required: 21 hours including:

- The following eight (8) hours:
  - IT 305 ....................................................Fire Safety .................................................................(2)
  - IT 315 ....................................................Topics in Occupational Safety and Environmental Health: Injuries .................................................................(1)

- IT 405 ....................................................Industrial Hygiene .......................................................(3)
- IT 440 ....................................................Industrial Safety ............................................................(2)

- Thirteen (13) hours selected from the following:
  - CiEn 444 ....................................................Contracts and Specifications .....................................(3)
  - IT 315 ....................................................Topics in Occupational Safety and Environmental Health: Asbestos .........................................................(2)
  - IT 335 ....................................................Hazardous Materials ....................................................(2)
  - IT 337 ....................................................Cooperative Education .................................................(1.6)
  - IT 400 ....................................................Teaching Technology Education ......................................(3)
  - LSAV 365 ....................................................Basic Audiovisual Equipment ....................................(3)

**Industrial Hygiene Concentration (Option II)**

Required: 21 hours including:

- The following thirteen (13) hours:
  - Chem 209 ....................................................Quantitative Analysis ............................................(4)
  - Chem 212 ....................................................Organic Chemistry ..............................................(5)
  - IT 315 ....................................................Topics in Occupational Safety and Environmental Health: Toxic Substances ........................................(1)
  - IT 405 ....................................................Industrial Hygiene .....................................................(3)
Graduation Requirements

Students must achieve the following to graduate with the Bachelor of Science in Occupational Safety and Environmental Health administered through the Department of Industrial Technology and the College for Business and Public Administration.

1. Meet the graduation requirements of the College of Business and Public Administration.
2. Have a 2.5 CPA in the major program of study.
3. Meet the standard or the exit examination of the student’s selected concentration(s).
4. Successful completion of the midprogram review portfolio and the written report.

Retention Standards

To remain a student in good standing, the student must attain the following:

1. A cumulative GPA of 2.2 and a minimum GPA of 2.5 in the major program of study.
2. Submit a portfolio of materials upon completion of 24 hours in the major for a midprogram 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 semester hours 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 not to be making satisfactory progress as a result of the midprogram review or not achieving a satisfactory review of the written report, will be placed on probation. After two semesters, the student may apply for readmission to the major program of study.

MINOR IN GRAPHIC COMMUNICATION TECHNOLOGY (20 credits)

1. The following 9 credits:
   - IT 102 Introductions to Graphic Communication (1)
   - IT 212 Principles of Graphic Design and Layout (3)
   - IT 300 Technology, Society, and the Individual (2)
   - IT 322 Fundamentals of Photography (3)

2. 11 credits selected from the following:
   - IT 202 Technical Drawing (3)
   - IT 302 Applied Graphic Design and Layout (3)
   - IT 312 Computer Aided Design/Layout (3)
MINOR IN MANUFACTURING TECHNOLOGY SYSTEMS (20 credits)

1. The following 9 credits:
   - IT 103. Introduction to Manufacturing .................................................................(1)
   - IT 202. Technical Drawing .......................................................................................(1)
   - IT 203. Production Processes: Manufacturing .........................................................(3)
   - IT 300. Technology, Society and the Individual .......................................................(2)

2. 11 credits selected from the following:
   - IT 104. Industrial Materials ...................................................................................(3)
   - IT 213. Production Processes: Construction ............................................................(3)
   - IT 330. Quality Assurance .......................................................................................(3)
   - IT 389. Robotics and Automation ...........................................................................(2)
   - IT 403. Production Research and Development ......................................................(3)
   - IT 404. Material Testing ..........................................................................................(3)
   - IT 420. Industrial Facility Design ............................................................................(2)
   - IT 423. Computer Integrated Manufacturing ...........................................................(3)
   - IT 497. Directed Studies in Industrial Technology ...................................................(1-3)

MINOR IN ENERGY/ELECTRONICS TECHNOLOGY SYSTEMS (20 credits)

1. The following 9 credits:
   - IT 101. Introduction to Energy and Power ..............................................................(1)
   - IT 201. Electromechanical Fundamentals ...............................................................(3)
   - IT 211. Electric Circuits and Devices ......................................................................(3)
   - IT 300. Technology, Society and the Individual .......................................................(2)

2. 11 credits selected from the following:
   - IT 301. Microelectronic Circuits .............................................................................(3)
   - IT 341. Digital Integrated Circuits ...........................................................................(3)
   - IT 401. Electronic Communication Systems ...........................................................(2)
   - IT 416. Transportation Technology .........................................................................(2)
   - IT 441. Computer Aided Circuit Analysis & Design ................................................(3)
   - IT 497. Directed Studies in Industrial Technology ...................................................(1-3)

Courses

101. Introduction to Energy & Power Systems. 1 credit. Energy resources and forms; emphasis on technological aspects of conversion, transmission, and utilization with ramifications of ecological, economic, and social concerns for conservation. F

102. Introduction to Graphic Communication. 1 credit. Introduction to systems used in graphic communication; includes man to man, man to machine, machine to man, and machine to machine. F

103. Introduction to Manufacturing. 1 credit. The study of input, processes, and output fundamental to manufacturing and construction, emphasizing the economical and orderly methods of fabrication within a system. F

104. Industrial Materials. 3 credits. The study of the characteristics, structure, properties and physical nature of organic and inorganic materials. For industrial conversion processing, to include wood, metallics, ceramics, polymeric, and composites. F

201. Electromechanical Fundamentals. 3 credits. Prerequisites: Math 103, Phys 101 & 102. The study of fundamental, mechanical, hydraulic and pneumatic, and electrical apparatus used in power systems. F

202. Technical Drawing. 3 credits. Prerequisite: Math 103. The study of technical drawing techniques to include various projections, pictorials, dimensioning, development and tolerancing used in business and industry. S

203. Production Processes: Manufacturing. 3 credits. Prerequisite: IT 103. Fundamental concepts of processing industrial materials, especially those utilized in manufacturing products, with emphasis on tools and techniques. S

206. Recreational Crafts. 3 credits. Basic techniques in a variety of crafts processes with emphasis on recreational, educational, and therapeutic values. Principles of organization and administration of recreational craft programs for schools, communities and other specialized programs. S

211. Electric Circuits and Devices. 3 credits. Prerequisites: IT 201 and Math 103 and 105. Concepts, principles, and operational characteristics of electric components and circuits. Hands-on operation and experiments of electric devices and equipment. S

212. Principles of Graphic Design and Layout. 3 credits. Basic concepts, processes, and techniques involved in image generation, image reproduction, bindery, and estimating. F
213. Production Processes: Construction. 3 credits. Prerequisites: IT 103 or 104 or consent of instructor. A study of material processing methods and techniques utilizing tools and machines leading to the production of constructed assemblies. F/S

223. Applied Synthetics. 3 credits. Prerequisite: Chem 104 or 105. A study of synthetic polymer materials emphasizing identification of characteristics and properties; and their application as related to industrial products. S

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, driver improvements and state/national laws. F/S

260. Computer Applications in Industrial Technology. 3 credits. Overview of software and computer applications used in industrial technology to include PC computers, peripheral devices, and network systems. Also covered are main-frame and mini computer applications. S

300. Technology, Society and the Individual. 2 credits. An introductory lecture-recitation course emphasizing technology effects on the individual -society-technology matrix of various cultures. F/S

301. Microelectronic Circuits. 3 credits. Prerequisite: IT 211. Study of electronic components and circuits (discrete and integrated) and their functional and operational characteristics. F

302. Applied Graphic Design and Layout. 3 credits. Prerequisite: IT 212 or consent of instructor. Photo reprographics concepts and techniques; emphasis on message preparation, photo conversion and image transfer through offset and screen processes. S

305. Fire Safety. 2 credits. Prerequisites: Chem 106. 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. F/S

310. Industrial Organization Planning and Control. 2 credits. An analysis of the systematic direction and control of the processes that transform inputs into finished goods and services. Emphasis is on the flow and application activities, forecasting, allocating resources, designing products and services, and assuring quality. F

312. Computer Aided Design/Drafting. 3 credits. Prerequisite: IT 202 or consent of instructor. The study of the application of computer graphics to computer aided design and drafting activities in industry. F/S

314. Construction Materials and Processes. 3 credits. Prerequisite: Upper division majors or consent of instructor. The study of construction materials and processes, assemblies, and sub-assemblies of modular components with emphasis on the environmental impact of construction. Introduction to structural analysis. S/F

315. Topics in Occupational Safety and Environmental Health. I-6 credits. Prerequisites: Math 204 and Chem 212, Anat 204, HPER 310, IT 440, and Chem 104 (depending on the topic). Studies of selected topics in Occupational Safety and Environmental Health. Topics include: Toxic Substances, Emergency Response, Inspections, Radiation Safety, and Asbestos. Credit will apply to the three concentrations within the Occupational Safety and Environmental Health major. SS

315.01. Topics in Occupational Safety and Environmental Health: Toxic Substances. 1 credit. Prerequisite: Chem 212. Students will gain information in environment health and occupational safety in the use of toxic substances. This topic will be approached by looking at classes of elements as found in the periodic chart. SS

315.02. Topics in Occupational Safety and Environmental Health: Emergency Response. 1 credit, Prerequisites: Anat 204, HPER 310. Emphasis is given to addressing problems associated with the proper and safe response to various types of emergencies, including medical emergencies in the workplace. Additional attention will be directed toward accidents or incidents involving fires and hazardous substances. Consideration is given to the regulatory requirements that might be faced by those responding to these types of emergencies. 315.03. Topics in Occupational Safety and Environmental Health: 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 that affect the workplace are part of the overview presented by this course. SS

315.04. Topics in Occupational Safety and Environmental Health: Radiation Safety. 1 credit. Prerequisite: Chem 106. Special emphasis is given to the problems associated with the proper and safe handling of Radioactive Materials in both sealed and unsealed forms. Consideration is given to the regulatory requirements that might face a licensee. SS

315.05. Topics in Occupational Safety and Environmental Health: 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. SS

316. Technology Education for Teaching and Learning. 2 credits. A study of industrial technology, its tools, materials and processes as they relate to curricular areas of the elementary school. Emphasis is upon the development of knowledge and skills that interface with creative expression, communication, human relations, mathematics, and science. Strategies for integrating technology into the elementary school curriculum are explored for the purpose of enhancing and enriching the teaching and learning process. F
322. Fundamentals of Photography. 3 credits. Fundamentals of Photography is a lecture/laboratory course designed to introduce students to the art and science of black and white photography. F, S

330. Quality Assurance. 3 credits. Prerequisite: Econ 210 or consent of instructor. Theoretical and laboratory study of industrial quality control methods, instrument and systems measurement techniques, and data handling procedures. F

335. Hazardous Materials. 2 credits. Attention will be given to the problems associated with the proper, safe handling of hazardous materials, understanding regulatory requirements, personal hazards faced by employees, personnel exposure limits, and protective measures to be employed. Laboratory demonstrations for protective measures of hazardous materials will show how these measures are implemented. S/2

337. Cooperative Education. 1-8 credits repeatable to 24. Prerequisites: Junior standing: a 2.5 overall GPA and departmental approval. A practical work experience with an approved industrial enterprise. Arranged by the student, department and employer. F, S, S

341. Digital Integrated Circuits. 3 credits, Prerequisite: IT 211 or consent of instructor. The study of basic concepts of digital circuits and devices; operational characteristics of digital integrated circuits. F/2

343. Motion and Time Study. 2 credits. Prerequisites: IT 203 and Econ 210. The systematic determination of space work methods and the appraisal, in terms of time, of the value of work involving human activity. Emphasis on the development of materials required to make practical use of these data. F/2

353. Computer Numerical Control. 2 credits. Prerequisites: IT 203, 312. Fundamentals of computer-aided manufacturing to include programming languages, process interface, hardware, numerical control systems, canned cycles, interpolation. Variable and computer assisted parts programming, using numerical controlled lathe and mill. F/2

383. Robotics and Automation. 2 credits, Prerequisites: IT 201 and 203. The study of mechanical and electrical configurations of industrial robots, their applications in industrial automation, including associated control systems and manufacturing technology. S

401. Electronic Communication Systems. 2 credits. Prerequisite: IT 301 or consent of instructor. Study and use of electronic methods of aural, visual, and data communication including modulation, transmission, reception, and reconstitution of information. S

400. Teaching Technology Education. 3 credits. An analysis of various methods employed in teaching technology education. Emphasis placed on development of critical attitudes toward precision-teaching through ordering knowledge based upon behavioral objectives. S

403. Product Research and Development. 3 credits. Prerequisite: IT 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

404. Materials Testing. 3 credits. Prerequisites: IT 201, 202, 203, 212, Chem 103 or equivalent. Methods by which properties (i.e., physical, mechanical, thermal, electrical, optical, acoustical, and chemical) of industrial materials are tested for determination of applications. F/2

405. Industrial Hygiene. 3 credits. Prerequisites: Anat 204, Chem 106. Hazards as they relate to human health will be addressed. The course will include the recognition, evaluation, and control of hazards in the industrial setting. F/2

412. Design/Drafting. 3 credits, Prerequisite: IT 312 or consent of the instructor. The application of design and drafting techniques for the design of tools, machines and products. Selected topics included are the design process, material selection, fabrication process and ergonomics. F/2

415. Waste Handling/Disposal. 2 credits. Prerequisites: IT 335; Chem 209. Regulatory and environmental protection issues will be addressed as they relate to current industrial operations. Emphasis will be placed on priority problems being properly identified and environmentally sound and cost-effective solutions planned. S/2

416. Transportation Technology. 2 credits, Prerequisite: IT 201 or consent of the instructor. Basic principles and techniques used in planning, designing, and operating transportation systems in transporting people, raw materials, and products as an economic activity. Emphasis is on the terrestrial, marine, atmospheric, and space environmental modes and the technical sub-systems of each. S/2

420. Industrial Facility Design. 2 credits. Prerequisites: Math 204 or 211, IT 312. Principles and applications of designing industrial facilities with emphasis on site location, environmental consideration, quantitative and quantitative modeling. The course utilizes computers in facility planning and quantitative analysis. S

422. Systems Design. 3 credits, Prerequisite: IT 312 or instructor consent. The study of technological systems design from problem conception through preproduction planning, including graphic representations and specifications. S/2

423. Computer-Integrated Manufacturing. 3 credits. Prerequisites: IT 203 and IT 312 m consent of instructor. The study of the techniques utilized to integrate the process of automated production environments. Students will examine the forms of computer-based automated systems used in the various areas of a manufacturing system and how systems can be integrated through data communications networks. F/2
432. Fundamentals of Color Photography. 3 credits, Prerequisite: LSAV 470 or IT 322 or consent of the instructor. Fundamentals of Color Photography is an introductory course to the techniques, images, and history of color photography. The course is designed to provide the student with strong conceptual base from the aesthetic and technical explorations conducted through lecture and laboratory activities. S/2

440. Industrial Safety. 2 credits. Prerequisite: Upper Division Students only. The major safety concerns and problems commonly associated with the industrial and occupational environment are addressed. Emphasis is placed on management of technology and people for optimum safety conditions and productivity. S

441. Computer-Aided Circuit Analysis and Design. 3 credits. Prerequisites: [T 301, An in-depth study of the concepts and technologies of computer-aided circuit analysis and design. Emphasis on the use of commercial computer-aided design tools used in industry for analysis and design of analog and digital circuits. S/2

442. Desktop Publishing. 3 credits. Prerequisites: IT 212, 302 or consent of instructor. The course is designed to provide a broad understanding of computer-assisted publishing. It consists of lecture, discussion, and practical laboratory activities in the areas of current developments in hardware and software, input/output equipment materials, and processes of electronic publishing. S

485. Field Experiences in Industrial Technology. 1-6 credits. Prerequisite: Junior standing or instructor consent. Provides students with the opportunity to work in an industrial or business enterprise to acquire employment competencies in an industrial/business setting. The nature of the field experience will be determined by advisement. F,S

493. Workshop. 1-6 credits. A workshop course on a specific topic, primarily for but not confined to Continuing Education, F,S,SS

497. Directed Studies in Industrial Technology. 1-8 credits. Prerequisite: Junior standing and instructor consent. Studies in topics pertinent to the students' needs in selected topics including (a) Curriculum Innovation, (b) Energy/Power, (c) Graphic Communication, (d) Production, and (e) Materials Science, F,S

International Studies
(A&S)

Mary Grisez Kweit, Director

The Related Fields Concentration in International Studies is designed to offer students an opportunity to gain global perspectives, to pursue greater understanding of our interconnected world, and to prepare to apply those insights in a variety of professions. The subject matter is vast and the professional and personal opportunities for utilizing it are rich and varied. Therefore, the program is designed to provide considerable latitude in matching the specific content of individual programs to the needs and goals of students. Thus, students will be required to work closely with their academic advisers to plan the best possible programs within the possibilities provided by the Related Fields Concentration.

College of Arts and Sciences

B.A. WITH MAJOR IN INTERNATIONAL STUDIES

Required 125 hours including:

1. General Graduation Requirements, see pages 32-40.

11. The Following Curriculum:

Total of 30 Hours Plus Language Requirement:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geog 161</td>
<td>World Regional Geography</td>
<td>3</td>
</tr>
<tr>
<td>PSci 220</td>
<td>International Politics</td>
<td>3</td>
</tr>
<tr>
<td>Anth 171</td>
<td>Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>History 102</td>
<td>Western Civilization since 1500</td>
<td>3</td>
</tr>
<tr>
<td>PSci 225</td>
<td>Comparative Politics</td>
<td>3</td>
</tr>
<tr>
<td>Religious Studies 203</td>
<td>World Religions</td>
<td>3</td>
</tr>
</tbody>
</table>
Languages

Three (3) Hours From the Following:
Hist 106..............................Middle Eastern Civilization .................................................... (3)
Hist 215..............................Latin America since 1825 ....................................................... (3)
Hist 362..............................Modern Chinese Civilization ............................................... (3)
Hist 364..............................Modern Japanese Civilization .............................................. (3)

Nine hours of upper division courses in an international concentrating or a modem language.

These nine hours should be chosen in consultation with the Director of International Academic Affairs to assure that the classes are related and form a cohesive unit. Examples of areas from which the courses could come are International Relations, Russian Studies, or Scandinavian Studies. Independent studies, readings, internships, and foreign exchange programs are other ways that this nine hour requirement may be fulfilled.

Language
Level Four Proficiency and additional three hours

International Studies Minor Requirements

1. Required Courses
   Geog 161.....................................World Regional Geography ........................................ (3)
   PSci 220 ....................................International Politics .................................................... (3)
   Anth 171 ..................................Cultural Anthropology .................................................. (3)
   History 102 ..............................Western Civilization Since 1500 ............................... (3)
   Religious Studies 203 ..................World Religions ....................................................... (3)

2. One Additional Course selected from the following:
   Hist 106..............................Middle Eastern Civilization .............................................. (3)
   Hist 215..............................Latin America since 1825 .............................................. (3)
   Hist 362..............................Modern Chinese Civilization .......................................... (3)
   Hist 364..............................Modern Japanese Civilization ........................................... (3)

3. 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 Advisor in International Studies.

4. Other courses maybe substituted only with the consent of the Advisor in International Studies.

5. Language required: Level III proficiency.

Languages: Department of Modern and Classical Languages & Literatures

(Klang)

K. Hall (Chair), Bakken, Benoit, Berne, Boswau, Bouzrara, DuBois, Dufner, Harrison, King, Kop prince, Lebugle, Nelson, and Tschacher

The Department of Modern and Classical Languages offers study in French, Italian, German, Greek, Latin, Norwegian, Russian, and Spanish. Chinese, although not listed here, is currently offered under Arts & Sciences 250 or Languages 333. Depending on student demand and faculty resources, instruction has been offered in Arabic and Japanese under Arts and Sciences 250. See English 361 and 362 for study of North Dakota Native American languages. Students may elect, French, German, Latin, Norwegian, or Spanish as their major field of study. Minors are offered in French, German, Greek, Latin, Norwegian, Scandinavian studies, Russian, and Spanish. Majors and minors for a bachelor’s degree in Languages maybe taken in either the College of Arts and Sciences or the Center for Teaching and Learning.
Course work is divided into Lower and Upper Divisions. The courses in the Lower Division (100-200) develop an increasing facility for understanding and using a second language and a progressively greater awareness of cultural contrasts between the United States and other countries. The curriculum in the Upper Division (300-400) continues to develop language skills as well as the literary, linguistic, and cultural foundations for a variety of careers, for graduate study, and for an appreciation of cultural achievements.

The major normally includes a minimum of twenty to twenty-two Upper Division credit hours in a single language, plus in some cases approved course work in related fields. A minor consists of a minimum of ten or twelve Upper Division credit hours in a single language. Since the schedule for courses in related fields can vary from semester to semester, students must consult their faculty advisor for those courses approved for each semester. Students are responsible for planning their own programs of study to fit their needs, interests, and objectives. They are also responsible for consulting with their faculty advisor each semester and for obtaining the advisor’s approval of the courses elected.

Students’ suggestions are solicited for topics and areas of study which can be included in the department’s special courses. The Honors Tutorial and Honors Work courses offer students the opportunity to work in areas of mutual interest to them and to members of the departmental faculty. These courses enable students to qualify for graduation with the distinction of Senior Honors in their major field.

The Department encourages study in other countries and is able to recommend academic credit for approved study by its students at foreign institutions. It also recommends students for various awards for superior academic performance, especially the Arneberg and the Larsen Foreign Travel Scholarships.

Language Placement

All students with a background in a second language for which they wish to receive credit or in which they wish to continue or establish proficiency must take a Language Placement Test. It is recommended that this be done during pre-registration or registration, and in no case later than the end of their first semester in residence. First semester students enrolled in a language who wish to take a Placement Test in the same language must take the Placement Test during the first two weeks of the semester. Students may receive advanced standing and from 4 to 16 hours credit toward graduation in each language.

Credit which a student has earned through College Level Examination Program (CLEP) tests may, in certain circumstances, be recognized by UND. See Admissions “Office for requirements.

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 pages 11-12.

Regularly enrolled students with knowledge gained through independent study or with prior language study at an unaccredited institution may apply to take Validating or Challenge Examinations to establish appropriate credit. The levels of proficiency and amounts of advanced standing are as follows:

<table>
<thead>
<tr>
<th>Level</th>
<th>Course Level Equivalent</th>
<th>Credit</th>
<th>May enroll in</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>101</td>
<td>4 hours</td>
<td>102 courses</td>
</tr>
<tr>
<td>II</td>
<td>102</td>
<td>8 hours</td>
<td>201 courses</td>
</tr>
<tr>
<td>III</td>
<td>201</td>
<td>12 hours</td>
<td>202 courses</td>
</tr>
<tr>
<td>IV</td>
<td>202</td>
<td>16 hours</td>
<td>Upper Division courses</td>
</tr>
</tbody>
</table>

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 hours, including

1. General Education Requirements, see pages 32-40.

**MINOR IN A LANGUAGE**

Required: A minimum of 10 or 12 Upper Division credit hours in a single foreign language. See the section for each language for specific required courses.

**College of Arts & Sciences**

or Center for Teaching and Learning

**B.A. OR B.S.ED. WITH A MAJOR IN LANGUAGE — Teacher Certification Preparation**

Required 125 hours, including:

1. General Education Requirements, see pages 32-40.

H. Completion of the Center for Teaching and f-earning program in Secondary Education, including for students seeking certification in French, German or Spanish at least two credits of CTL 390 supervised by Language Department faculty. See page 177.

HI. The Following Curriculum:

Courses and credit hours required for B.A. major in a language: students seeking certification in French, German or Spanish must include among their electives at least two credits of phonetics and two credits of advanced grammar, with grades no lower than B in each of these courses; a course in civilization of the country or countries in which the language is spoken is also strongly recommended or required for students seeking certification in French, German or Spanish. Eight hours of approved course work in related fields is required in German. Western Civilization 101, 102 and four hours in English beyond Composition 11 must be included under either the requirements in General Education or course work in related fields. See the section for each language for specific course requirements.

**MINOR IN A LANGUAGE**

Required: A minimum of 10 or 12 Upper Division credit hours in a single foreign language. See the section for each language for specific required courses.

**CLASSICAL LANGUAGES**

**Greek**

A minor in Greek shall consist of 8 credit hours of Greek at the 300 level or above, plus at least 2 additional hours selected from the following:

- Greek courses numbered 300 or above
- Classical Literature 161,363
- History 343
- Philosophy 305
- Other courses in related areas with permission of the department.

**Courses**

251. **Introduction to Greek.** 4 credits. Reading of selections based on Attic Greek authors and introduction to grammar and syntax. F

252. **Introduction to Greek.** 4 credits. Prerequisite: Greek 251. Continues study of Attic Greek grammar and syntax, with selected readings from ancient authors. Grade of “C” or better in Greek 251 recommended. S
351. Greek Prose and Poetry. 4 credits. Prerequisite: Greek 252 or equivalent. Selected readings from Greek prose authors and poets, such as Plato, Lysias, or Euripides. May be repeated, with permission of instructor, up to 8 credit hours. F

352. Greek Poetry: Homer. 4 credits. Prerequisite: Greek 252 or equivalent. Selected readings from the Iliad or the Odyssey. May be repeated, with permission of instructor. Up to 8 credit hours. S

355. The Greek New Testament. 4 credits. Prerequisite: Greek 252 or equivalent. Introduction to the New Testament via selected readings in Greek from the Gospels. Additional topics for study will include the composition of the New Testament and its historical and philosophical background. On demand.

491. Individual Greek Readings. 1-3 credits. Prerequisite: Greek 252 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 6 credit hours. On demand.

Latin

A major in Latin shall consist of 17 credit hours selected from Latin courses numbered 200 or above and 12 additional credit hours selected from among the following courses:

- Latin courses numbered 300 or above, beyond the 17 credit hours already taken
- Greek 251, 252, 351, 352, 355, 491
- Classical Literature 161, 362, 363, 364
- History 101, 301, 343, 344, 345
- Humanities 102
- Philosophy 305, 306
- Political Science 311

Other courses in related areas with permission of the department.

A minor in Latin shall consist of a minimum of 6 credit hours at the 300 level or above, plus at least 4 additional hours selected from the following:

- Latin courses numbered 300 or above
- Classical Literature 161, 362
- History 344

Other courses in related areas with permission of the department.

Courses

101. First-Year College Latin. 4 credits. Introduction to Latin grammar and syntax, with selected readings from ancient authors. F

102. First-Year College Latin. 4 credits. Prerequisite: Latin 101 with a grade of C or better. Continued study of Latin grammar and syntax, with selected readings from ancient authors. S

201. Second-Year College Latin. 4 credits. Prerequisite: Latin 102 or equivalent. Selections from the prose writers including Pliny the Younger, Gellius, Cicero, Sallust and from the poets Catullus, Martial, Phaedrus and Ovid. F

202. Second-Year College Latin. 4 credits. Prerequisite: Latin 201 or equivalent. Selections from the prose writers including Pliny the Younger, Gellius, Cicero, Sallust and from the poets Catullus, Martial, Phaedrus and Ovid. S

301. Latin Prose. 3 credits: repeatable to 9. Prerequisite: Latin 202 or equivalent. Readings from Apuleius, Cicero, Sallust, Seneca, Livy, Petronius or Tacitus. F

404. Latin Poetry. 3 credits: repeatable to 9. Prerequisite: Latin 202 or equivalent. Readings from Vergil, Horace, Catullus, Ovid, Juvenal, Martial, Plautus or Terence. S

471. Seminar in Latin Literature. 2 credits; repeatable to 6. Prerequisite: Latin 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.

492. Individual Latin Readings. 1-3 credits. Prerequisite: Latin 202 or equivalent. Topic to be determined by the interests of the student and instructor. May be taken only with the consent of the department. May be repeated up to a total of 6 credit hours. On demand.

Courses in Classical Literature

161. 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. S
362. Introduction to 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.

363. Introduction to Greek Literature. 3 credits. Readings in English translation. A survey of some of the major works of Greek literature, including, for example, Homer’s Iliad, Aeschylus’ Oresteia, Sophocles’ Oedipus Rex, and Plato’s Republic. 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.

**MODERN LANGUAGES**

**French**

A B.A. or B. S. Ed. with a major in French includes the following courses beyond Lower Division work, i.e. 200 level: 301, 302, 304, 305, 306, 307, 371, 372, 373, 413; a minimum of three credit hours selected from Upper Division courses (a total of 29 credits).

A B.A. or B. S. Ed. with a standard French minor consists of 301, 302, 304, 305, 306, and a minimum of three additional credit hours selected in Upper Division French courses (a total of 15 credits).

Students interested in business may obtain a minor in French by taking 301, 302, 305, 306, 340, and a minimum of two additional credit hours in Upper Division French courses (a total of 15 credits).

**Courses**

100. Practice in Reading and Translating French. A non-credit course, primarily for graduate students needing assistance in preparing for their Ph.D. reading requirement examination. On demand.


102. Beginning French. 4 credits. Prerequisite: French 101 with a grade of C or better. Continued study of fundamentals of French grammar, oral use of the language and reading of easy French. Attendance in the language laboratory required. S

103. Accelerated Beginning French. 8 credits. The equivalent of 101 and 102 in one semester. Students receiving credit for 101-102 may not receive credit for 103. On demand.

201. Second-Year French. 4 credits. Prerequisite: French 102, 103 or equivalent. Review of the structure of the language; readings in French, practice in oral and written expression. F

202. Second-Year French. 4 credits. Prerequisite: French 201 or equivalent. Review of the structure of the language; readings in French, practice in oral and written expression. S

301. Third-Year French. 3 credits. Prerequisite: French 202 or equivalent. Grammar review and introduction to literature. Emphasis on reading and writing skills. F

302. Third-Year French. 3 credits. Prerequisite: French 301 or equivalent. Grammar review and introduction to literature. Emphasis on reading and writing skills. S


305. French Conversation and Culture. 2 credits. Prerequisite: French 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: French 202 or consent of instructor or French 305. Contemporary world issues from a French perspective. S

307. A Social and Cultural History of Quebec. 3 credits. Prerequisites: French 202 or consent of instructor. This course focuses on the topics of geography, history, language, ideology, politics, and religion in their relationship to architecture, painting, popular crafts, song, film, and literature in Quebec. F

340. Business French. 3 credits. Prerequisite: French 301. French 302 recommended. 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. S

371. History of French Literature. 3 credits. Prerequisite: French 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: French 302 or equivalent. French literature from 1700 to the present day; representative works with lectures, outside readings and reports. S
German

A major in German for both the Bachelor of Arts (B. A.) and the Bachelor of Science in Education (B. S.Ed.) degrees includes a minimum of 22 semester credit hours of Upper Division (300-400) course work: 301, 302, 304, 305, 306, 410, 413, and no less than six credit hours from other Upper Division German courses. In addition, at least eight credit hours of course work in fields related to German approved by the faculty advisor in Languages are required. A student majoring in German also assembles an individual Portfolio of work in consultation with his/her faculty advisor.

A minor in German consists of at least eleven credit hours: 301, 302, 305, 306, and a minimum of three additional credit hours in Upper Division German courses.

Students interested in business may obtain a minor in German by completing 301, 305, 306, 340, and a minimum of two additional credit hours in Upper Division German courses.

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 studying in a German-speaking area in Europe, for which UND may grant academic credit.

Courses

100. Practice in Reading and Translating German. A mm-credit course, primarily for graduate students needing assistance in preparing for their Ph.D. reading requirement examination. On demand.

101. Beginning German. 4 credits. Fundamentals of German grammar, oral use of the language and reading of easy German. Attendance in the language laboratory required. F,S

102. Beginning German. 4 credits. Prerequisite: German 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. Attendance in the language laboratory required. F,S

103. Accelerated Beginning German. 6 credits. Active development of fundamental skills, essentials of grammar, and cultural readings. 7 contact hours per week, consisting of classroom meetings, language laboratory work, and individual or group conferences. For students with some background in German who do not qualify for advanced standing. Prerequisite: previous knowledge of German equivalent to at least one year’s study below college level. Students receiving credit for 101-102 may not receive credit in 103. On demand.

201. Second-Year German. 4 credits. Prerequisite: German 102, 103 or equivalent. Review of the structure of the language, practice in oral and written expression and reading in German. F,S

202. Second-Year German. 4 credits. Prerequisite: German 201 or equivalent. Review of the structure of the language, practice in oral and written expression and reading in German. F,S

301. Introduction to German Literature. 2 credits. Prerequisite: German 202 or equivalent. In addition to a brief survey of the history of German literature, representative selections from its origins to ca. 1800 are read and discussed. Required of all majors, F

302. Introduction to German Literature. 2 credits, Prerequisite: German 301 or equivalent, Representative selections of German literature from ca. 1800 to the present day are read and discussed. Required of all majors. S

304. German Phonetics. 3 credits. Prerequisite: German 202 or equivalent. Intensive pronunciation practice leading to proper German sound articulation and to a thorough knowledge of the principles of German pronunciation and intonation. Required of all majors. S

305. German Composition and Conversation. 2 credits, Prerequisite: German 202 or equivalent. Written composition and oral practice, with a review of grammar. Required of all majors. F

306. German Composition and Conversation. 2 credits. Prerequisite: German 305 or equivalent. Written composition and oral practice. with a review of grammar. Required of all majors. S
312. German Civilization (Kulturkunde), 3 credits. Prerequisite: German 202 or equivalent. A study of various aspects of German culture through the centuries. S/2

340. Business German, 3 credits. Prerequisite: German 305. German 306 recommended. 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 German business world. S/2

401. German Linguistics, 2 credits. Prerequisite: German 202 or equivalent. General topics and basic problems of German phonology, morphology and syntax in the light of modern linguistic theories and approaches. An introduction to “Deutsche Sprachwissenschaft.” On demand.

402. German Linguistics, 2 credits. Prerequisite: German 401 or equivalent. General topics and basic problems of German phonology, morphology and syntax in the light of modern linguistic theories and approaches. An introduction to “Deutsche Sprachwissenschaft.” On demand.

410. History of German Literature, 3 credits. Prerequisite: German 302 or equivalent. The development of German Literature from its beginning to the present. Required of all majors.

413. Advanced German Grammar Review, 2 credits. Prerequisite: German 306 or equivalent. Written composition and oral practice. With a review of those aspects of grammar which need most practice on the advanced level. Required of all majors. F

421, German Literary Periods, 3 credits. Prerequisite: German 302 or equivalent. May be repeated to a total of twelve hours. A different literary period is studied each semester, for example: Early German Literature to 1700, the Age of Goethe, German Romanticism and Realism, Modern German Literature. On demand.

423. German Literary Genres, 3 credits. Prerequisite: German 302 or equivalent. Maybe repeated to a total of twelve hours. A different literary genre is studied each semester: the drama, the novel, the short story and novelle, and lyric poetry. On demand.

490. Individual German Readings, 1-3 credits. May be repeated to a total of six hours. Prerequisite: German 302 or equivalent. Maybe taken only with the consent of the department. F,S

Italian

101. Beginning Italian, 4 credits. Fundamental skills in the active use of the language, Italian grammar, and reading of selections from Italian authors. On demand.

102. Beginning Italian, 4 credits. Prerequisite: Italian 101 with a grade of C or better. Continued study of fundamental skills in the active use of the language, Italian grammar, and reading of selections from Italian authors. On demand.

Norwegian

A major in Norwegian includes the following Upper Division courses: 301, 302, 401, 402; a minimum of 8 credit hours selected from 403,404 and 490; and at least 8 credit hours of approved course work in related fields.

A minor in Norwegian includes 301, 302, and 401 or 402, plus a minimum of one additional credit hour in Upper Division Norwegian courses.

Courses


102. Beginning Norwegian, 4 credits. Prerequisite: Norwegian 101 with a grade of C or better. Grammar, pronunciation, reading and translation, oral and written exercises. Attendance in the language laboratory required. S

201. Second-Year Norwegian, 4 credits. Prerequisite: Norwegian 102 or equivalent. Grammar, selected readings, translation and conversation. F

202. Second-Year Norwegian, 4 credits. Prerequisite: Norwegian 102 or equivalent. Grammar, selected reading, translation and conversation. S

301. Advanced Norwegian, 3 credits. Prerequisite: Norwegian 202 or equivalent. Reading of selected works by leading Norwegian authors, interpretation and discussion. F

302. Advanced Norwegian, 3 credits. Prerequisite: Norwegian 301 or equivalent. Reading of selected works by leading Norwegian authors, interpretation and discussion. S

401. Norwegian Literature, 3 credits. Prerequisite: Norwegian 302 or equivalent. Norwegian literature, with special attention given to recognized masterpieces, past and present. On demand.

402. Norwegian Literature, 3 credits. Prerequisite: Norwegian 401 or equivalent. Norwegian literature, with special attention given to recognized masterpieces, past and present. On demand.

403. Ibsen, 3 credits. Ibsen’s literary career, with intensive study of several of his most important dramas. Course offered in English for students in other fields. Norwegian minors and majors read in Norwegian. On demand.
404. Ibsen. 3 credits. Prerequisite: Norwegian 403 or equivalent. Ibsen’s literary career, with intensive study of several of his most important dramas. Course offered in English for students in other fields. Norwegian minors and majors read in Norwegian. On demand.

490. Individual Norwegian Readings. 1-3 credits. Maybe repeated to a total of six hours. Prerequisite: Norwegian 302 or equivalent. May be taken only with the consent of the department. F,S

**Russian**

The courses for the related fields concentration in Russian Studies are given on page 345.

A minor in Russian includes 301, 302, and 305 or 306, plus a minimum of two additional credit hours in Upper Division Russian courses.

**Courses**

101. Beginning Russian. 4 credits. Fundamentals of Russian grammar, oral use of the language and reading of easy Russian. Attendance in the language laboratory required. F

102. Beginning Russian. 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. Attendance in the language laboratory required. S

201. Second-Year Russian. 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. 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

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

305. Russian Reading and Composition. 2 credits. Prerequisite: Russian 301 and 302 or equivalent (may be elected simultaneously with Russian 301). Readings from a variety of sources. Review of selected grammatical topics. Emphasis on developing the ability to read Russian texts rapidly and with thorough comprehension. F

306. Russian Reading and Composition. 2 credits. Prerequisite: Russian 305 or equivalent (may be elected simultaneously with Russian 302). Readings from a variety of sources. Review of selected grammatical topics. Emphasis on developing the ability to read Russian texts rapidly and with thorough comprehension. S

490. 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: 303 or 304, 307, 308, 309, 310, 311, 408, 409, 410, 440, 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: 303, 304, 307, 308, 309, 310, 311, 408, 409, 440, and a minimum of six credit hours selected from other Upper Division courses (300/400 level).

A Spanish minor consists of 303, 307, and three courses from among 310, 311, 408, and 409, 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.

**Courses**

101. Beginning Spanish. 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. Language laboratory attendance required. F

102. Beginning Spanish. 4 credits. Prerequisite: Spanish 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. Language laboratory attendance required. S
103. Accelerated Beginning Spanish. 6 credits. Active development of fundamental skills, essentials of grammar, and cultural readings. 7 contact hours per week, consisting of classroom meetings, language laboratory work, and individual or group conferences. For students with some background in Spanish who do not qualify for advanced standing. Prerequisite: previous knowledge of Spanish equivalent to at least one year’s study below college level. Students receiving credit for 101-102 may not receive credit in 103. On demand.

201. Second-Year Spanish. 4 credits. Prerequisite: Spanish 102, or 103 or equivalent. Review of the structure of the Language, readings in Spanish, practice in oral and written expression. F

202. Second-Year Spanish. 4 credits. Prerequisite: Spanish 201 or equivalent. Review of the structure of the language, readings in Spanish, practice in oral and written expression. S

303. Spanish Grammar Review. 3 credits. Prerequisite: Spanish 202 or equivalent. An in-depth examination of the grammar of the Spanish language. Emphasis will be placed on those elements of Spanish which present the greatest difficulties for native speakers of English. F

304. Spanish Phonetics. 3 credits. Prerequisite: Spanish 202 or equivalent. A scientific approach to the pronunciation and enunciation of Spanish. On demand.

307. Literary Analysis. 3 credits. Prerequisite: Spanish 202 or equivalent. An introduction to the analysis of Hispanic literature, with particular emphasis on poetry, novel, and drama. F,S

308. Spanish Conversation. 3 credits. Prerequisite: Spanish 202 or equivalent. Practice in a variety of forms of oral Spanish. F

309. Spanish Composition. 3 credits. Prerequisite: Spanish 303. Practice in a variety of forms of written Spanish. S

310. Spanish Civilization and Culture. 3 credits. Prerequisite: Spanish 202 or equivalent. Readings, lectures and discussions in Spanish civilization and culture. On demand.

311. Spanish American Civilization and Culture. 3 credits. Prerequisite: Spanish 202 or equivalent. Readings, lectures and discussions in Spanish American civilization and culture. On demand.

408. History of Spanish Literature. 3 credits. Prerequisite: Spanish 307. A study of the development of the peninsular literary tradition from the Middle Ages to the present, with lectures, reading turl analysis of representative texts. F,S

409. History of Spanish American Literature. 3 credits. Prerequisite: Spanish 307, Literature of the Spanish American countries written in the Spanish language, from the Conquest to the contemporary period. With lectures and readings. F,S


414. Topics in Spanish Literature. 3 credits. Prerequisite: Spanish 408. Selected topics dealing with author, period, movement or genre of peninsular literature excluding the Golden Age. Repeatable with different topic. On demand.

416. Topics in Spanish American Literature. 3 credits. Prerequisite: Spanish 409. Topics, on an alternating basis, include: Pre-Columbian Literature and Culture, Boom and Postboom Narrative, Chronicles of the Conquest, Modernismo, 19th-Century Novel, Novel of the Mexican Revolution. Repeatable with different topic. On demand.

440. Senior Seminar. 3 credits. Prerequisite: Spanish 408 and 409 and permission of the instructor. Advanced work in Hispanic literature. Required of seniors, who will present a research paper from the course to the Spanish faculty as part of graduation requirement. S

461. Seminar in Hispanic Linguistics. 3 credits. Prerequisite: Spanish 303 or 304. Advance work in a variety of alternating topics related to Hispanic linguistics such as syntax, morphology, dialectology, and history of the Spanish language. Repeatable with different topic. On demand.

462. Seminar in Hispanic Literature. 3 credits. Prerequisite: Spanish 408 or 409 depending on topic. Advanced work on a specific aspect of the Hispanic literary tradition. Repeatable with different topic. On demand.

490. Individual Hispanic Readings 1 to 3 credits. Prerequisite: Spanish 307 or equivalent. May be repeated to a total of six hours. May be taken only with the consent of the department. F,S

SPECIAL COURSES

207. Introduction to Linguistics. 3 credits. An introduction to the nature of language, phonology, grammar, semantics, and historical, geographical, social and educational aspects of language. Some course as English 207.

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 in English of representative translations from their fields of speciality. 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, maybe repeated to a maximum of 12 hours, Prerequisites: Language 102 or equivalent. Special subjects to be announced. F,S
The purposes of the Department of Library Science and Audiovisual Instruction are:
(1) to prepare school library media specialists who can become increasingly effective in providing media services in schools and small libraries, (2) to provide a basic core of courses for those planning to pursue graduate study in library science or instructional media, and (3) to provide service courses in educational media.

To meet these purposes the Department offers the following majors and degrees:

1. A major in Library Science and Audiovisual Instruction through the College for Human Resources Development (B.S.LSAV).

2. A major in Library Science and Audiovisual Instruction (Secondary Education) through the Center for Teaching and Learning (B.S.ED.).

3. A combined major in Elementary Education and Library Science and Audiovisual Instruction through the Center for Teaching and Learning (B.S.ED.). For requirements see Center for Teaching and Learning listing, page 174.

The degree program with the major in Library Science and Audiovisual Instruction offered through the Center for Teaching and Learning has as a requirement a teacher certification sequence. Meeting this requirement qualifies the degree holder for the North Dakota Class A kindergarten-through-grade 12 Media Specialist Credential. Although the Bachelor of Science degree through the College for Human Resources Development with a major in Library Science and Audiovisual Instruction does not require the teacher certification sequence, it must ordinarily be included in a degree program if one wishes to qualify for employment in a public school system.

The minor in Library Science and Audiovisual Instruction is offered through the College for Human Resources Development, the Center for Teaching and Learning or the College of Arts and Sciences. The minor through the Center for Teaching and Learning is usually taken in conjunction with a major in some area of secondary education or in elementary education.

College for Human Resources Development

B.S. IN LIBRARY SCIENCE AND AUDIOVISUAL INSTRUCTION

Required: 125 hours, including:

I. General Education Requirements, see pages 32-40.

11. College for Human Resources Development Requirements, see page 102.

111. The Following 34-hour Curriculum:

- LSAV 271 Intro to Library Science and Audiovisual Instruction. (3)
- LSAV 305... Building Media Collections. (3)

*Admission has been suspended to the major and minor in Library Science and Audiovisual Instruction.
Library Science and Audiovisual Instruction

LSAV 315. Media to Enrich the School Curriculum. (3)
LSAV 365. Basic Audiovisual Equipment. (3)
LSAV 375. Reference Sources and Services. (4)
LSAV 425. Classification and Cataloging for Media Collections. (4)
LSAV 430. Organization and Management of the School Media Center. (3)
LSAV 435. Developing Media Center Programs. (3)
LSAV 460. Technological Applications in Libraries. (2)
LSAV 465. Design and Production of Software in Media. (3)

3 hours from the following:
LSAV 310. Introduction to Children’s Literature. (3)
LSAV 320. Young Adult Literature. (3)

It is suggested that a student fulfill a teacher certification sequence through the Center for Teaching and Learning and include an appropriate teaching major or minor from the list of degree programs on page 116.

Center for Teaching and Learning

B.S. ED. WITH A MAJOR IN LIBRARY SCIENCE AND AUDIOVISUAL INSTRUCTION

Required: 125 hours, including:

I. The completion of the Center for Teaching and Learning Program in Secondary Education. See page 177.

II. All requirements listed above under the B.S. in Library Science and Audiovisual Instruction (except HRD requirements)

Recommended (as electives) in Other Departments:
Comm 161. Fundamentals of Public Speaking. (3)
Engl 211. Introduction to Fiction. (2)
Engl 301, 302. Survey of English Literature. (6)
Engl 303, 304. Survey of American Literature. (6)
Geog 161. World Regional Geography. (3)
Hist 103. United States to 1877. (3)
Hist 104. United States since 1877. (3)
Mus 100. Introduction to the Understanding of Music. (3)
Psy 101. Introduction to Psychology. (3)
Soc 101. Introduction to Sociology. (3)
Soc 331. Rural Sociology. (3)
VA 110. Introduction to the Understanding of Art. (3)

MINOR IN LIBRARY SCIENCE AND AUDIOVISUAL INSTRUCTION

Required: 23 hours, including

LSAV 305. Building Media Collections. (3)
LSAV 365. Basic Audiovisual Equipment. (3)
LSAV 375. Reference Sources and Services. (3)
LSAV 425. Classification and Cataloging for Media Collections. (4)
LSAV 430. Organization and Management of the School Media Center. (3)
LSAV 465. Design and Production of Software in Media. (3)

3 hours from the following:
LSAV 310. Introduction to Children’s Literature. (3)
or
LSAV 320. Young Adult Literature. (3)

Courses

105. Library Orientation. 1 credit. An introduction to the Dewey Decimal and Library of Congress Classification Systems, the card catalog, periodical indexes, basic references and bibliographies. Aims to acquaint the student with the facilities and resources of libraries. F.S

271. Introduction to Library Science and Audiovisual Instruction. 3 credits. Introductory survey of the basic functions, principles, and concepts underlying libraries, instructional materials centers, and audiovisual instruction. Brief historical overview; fundamentals of library objectives, organization, techniques, and terminology; and career opportunities leading to the development of a foundation as a librarian/school media specialist. Open to nonmajors and minors. F
305. Building Media Collections. 3 credits. A study of principles and practices in building and maintaining collections for school media centers, with an emphasis on criteria for evaluating print and nonprint materials and the use of appropriate bibliographies. S

310. Introduction to Children’s Literature. 3 credits. A survey of children’s literature including the application of established literary criteria to imaginative writing and biography and methods of meeting reeds and interests of students through literature. Open to nonmajors and minors. F.S

315. Media to Enrich the School Curriculum. 3 credits. A study of print and non-print information materials designed to support the school curriculum and meet the individual needs and interests of children, including appropriate criteria for evaluation and sources for selection. Open to nonmajors and minors. F

320. 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. Open to nonmajors and minors. On demand.

365. Basic Audiovisual Equipment. 1-3 credits. Basic instruction in the operation and use of audiovisual equipment, including hardware, software, and educational television. Three credits can be earned in one semester or one credit can be earned in each area up to a total of three credits. Open to nonmajors and minors. F.S

375. Reference Sources and Services. 4 credits. A study of the principles and practices of evaluating reference sources, maintaining reference collections, and providing reference services in media centers. Open to nonmajors and minors. F

425. Classification and Cataloging for Media Collections. 4 credits. Prerequisites: LSAV 271 and 305, or consent of instructor. A practical study of the principles of cataloging and classification for school media centers and small libraries, including laboratory sessions for use application of the Dewey Decimal Classification system, Sears’ List of Subject Headings, and a simplification of the Anglo-American Cataloging Rules to selected examples of print and nonprint materials. S

430. Organization and Management of the School Media Center. 3 credits. Prerequisite: LSAV 305. A study of the principles and practices of school media center organization and management, including acquisitions, processing, circulation, record keeping, budgeting and finances, architecture and arrangement, scheduling, personnel, public relations, and program evaluation. S

435. Developing Media Center Programs. 3 credits. Prerequisites: LSAV 310 or 320, LSAV 315, and LSAV 430. A study of principles and practices of designing, organizing, administering and evaluating media center programs involving reading, listening and viewing activities to support the school curriculum and meet individual needs and interests of children and young people. S

460. Technological Applications in Libraries. 2 credits. Prerequisites: LSAV 315 and 365. An introduction to the fundamental concepts of information technology and its applications to librarianship, with particular emphasis on library networks, telecommunications, and microcomputer utilization. F

465. Design and Production of Software in Media. 3 credits. Prerequisite: LSAV 365. Focuses on developing a workable knowledge of making and utilizing various types of projected and nonprojected audiovisual materials. For advanced undergraduate and graduate students. F

470. Fundamentals of Photography. 3 credits. Fundamentals of Photography is a lecture/laboratory course designed to introduce students to the art and science of black and white photography. F.S

471. Fundamentals of Color Photography. 3 credits. Prerequisite: LSAV 470 or IT 322 or instructor consent. Fundamentals of Color Photography is an introductory course to the techniques, images, and history of color photography. The course is designed to provide the student with a strong conceptual base from the aesthetic and technical explorations conducted through lecture and laboratory activities. F

475. Media Center Seminar. 1-5 credits. Prerequisite: Permission from department chairperson. Professional readings and discussion of current issues problems and trends in media centers. Enrollment may be repeated to a maximum of 5 hours. On demand.

490. Directed Studies. 1-6 credits. Prerequisites: 12 semester hours in Library Science and Audiovisual Instruction or permission from department chairperson. In-depth study of topics related to current trends and developments in school media centers and the proficiency of school media specialists. F.S

Linguistics
(Ling)

S. Marlett (Director of SIL), Quakenbush, Rhodes, Tuggy, and Weber

At present, the University has no undergraduate degree programs in linguistics. It is, however, possible for students to have a concentration in languages and linguistics as English majors. (See also the Graduate catalog for the M.A. program in Linguistics and for graduate-level courses not listed here.)
Other courses which carry graduate credit are offered through the Department of English. English 417, 419, and 522 are recommended.

Linguistics courses are taught by the Summer Institute of Linguistics (SIL) during a nine-week summer session. Students wishing to take SIL courses should apply directly to SIL, preferably by April 15 (April 1 for non-U.S. citizens). Write to the SIL Admissions Office, 7500 W. Camp Wisdom, Dallas, TX 75236 (214/709-2400 ext. 2236) for an SIL catalog, application forms, and further information about the program. During the summer, further information is available from SIL (phone the English Department at 777-3321 ). At other times, information about SIL is available from the Office of University College and Summer Sessions (see especially the Summer Session Bulletin) and the Department of English; prospective students should obtain (from either of these offices) the handout entitled “The Summer Institute of Linguistics, University of North Dakota Session: A Guide for UND Students.”

Other departments also offer undergraduate courses relevant to linguistics: English 207, 309, 361, 362, 370, 417, 419, 442; German 401, 402; Language 304, 413 (French, German, Spanish); CDIS 323.

Courses

450. Articulator Phonetics. 2 credits. Introduction to the theory and practice of articulator phonetics. SIL only. SS
451. Phonology L 3 credits. Introduction to phonological analysis; intensive practice in applying theoretical principles to problem solving and to field techniques. SIL only. SS
452. Grammatical Analysis I. 4 credits. Fundamentals of analyzing the grammatical structures of languages; analytical skills developed through graded problems based on a wide variety of languages. SIL only. SS
460. Ethnographic Methods in Field Linguistics. 3 credits. Orientation on cultural anthropology and ethnographic research methods for the field linguist, with special attention to the interaction between language and culture. SIL only. SS
470. Introduction to Sociolinguistics. 1 credit. Introduction to language as a social phenomenon dependent on age, gender, social class, status, setting, and topic, with special attention to multilingual societies. SIL only. SS

Management

Mgmt

B. Ebarhardt (Chair), Chong, Dougan, Lawrence, Moser, Park, Porter, Vitton, and Yang

The Department of Management offers one comprehensive program in management. This program is designed to provide a background of professional education for careers in business, industry, and public service and to furnish a foundation for graduate study in business and other professional fields. More specifically, the purpose of the program is to prepare the student for the challenges of modem management by providing the individual with an overall understanding of the basic functions of management as well as appropriate skills and problem solving methods. The education program initiates the student into the complexities of organizational variables such as human resources and materials or physical factors, and provides the student with appropriate frameworks for examining various institutions and environments in which these units operate. In developing an understanding of the interrelationships between the various management functions and the environment, emphasis is placed “upon analytical problem solving, establishing strategies and policies, human relations, and general management principles. The curriculum also provides the student with a substantial choice of electives in business administration courses. The
student majoring in management is prepared to choose from a variety of career opportunities in private and public service institutions.

**B.B.A. WITH MAJOR IN MANAGEMENT**

Required 125 hours, including:

1. General Education Requirements, see pages 32-40.
2. The College of Business and Public Administration Requirements, see page 85.
3. The Following Curriculum: (Suggested Sequence)

<table>
<thead>
<tr>
<th>Freshman</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101, 102</td>
<td>Composition I, 11.</td>
<td>(3)</td>
</tr>
<tr>
<td>PSci 101</td>
<td>American Government I.</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 104</td>
<td>Finite Mathematics</td>
<td>(3)</td>
</tr>
<tr>
<td>Psy 101</td>
<td>Introduction to Psychology</td>
<td>(3)</td>
</tr>
<tr>
<td>Arts and Humanities</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
<td>(3)</td>
</tr>
<tr>
<td>Soc 101</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>Introduction to Cultural Anthropology</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 204*</td>
<td>Survey of Calculus</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Sophomore Year**

| Econ 201 | Principles of Macroeconomics | (3) |
| Econ 202 | Principles of Macroeconomics | (3) |
| Acct 200, 201* | Elements of Accounting | (3) |
| Econ 210* | Introduction to Business and Economic Statistics | (3) |
| or | Arts and Humanities | (6) |
| or | Business in the Legal Environment | (3) |
| BVED 217 | Fund. of Management Information Systems | (4) |
| or | Lab Science | (4) |

**Junior Year**

| Mgmt 300 | Principles of Management | (3) |
| Mgmt 301* | Production Management | (3) |
| Mrkt 301* | Principles of Marketing | (3) |
| BVED 320 | Business Communications | (3) |
| Fin 310* | Principles of Financial Management | (2) |
| Fin 310L | Problems in Financial Management | (1) |
| Mgmt 302* | Human Resource Management | (3) |
| Mgmt 309* | Quantitative Approaches to Business Decisions | (3) |
| Mgmt 310* | Organizational Behavior | (3) |

**Senior Year**

| Mgmt 400* | Organizational Theory and Analysis | (3) |
| Mgmt 475* | Strategic Management | (3) |

Plus four or five non-business electives.

Plus Major Electives Requirements: Minimum of 8 elective credits from the following:

6 credits

- Mgmt 395 | Special Topics | (3) |
- Mgmt 405 | Entrepreneurship and Small Business Management | (3) |
- Mgmt 407 | Wage and Salary Administration | (3) |
- Mgmt 408 | Issues in Human Resource Management | (3) |
- Mgmt 409 | Union Management Relations | (3) |
Management

Mgmt 411...........................Production Models and System Design.................................(3)
Mgmt 412...........................Issues in Production Management..............................................(3)
Mgmt 420...........................Multinational Management.........................................................(3)
Mgmt 480...........................Business and Society .................................................................(3)

2-4 credits
Acct 207...............................Managerial Accounting.........................................................(2)
Acct 218...............................Computer Applications in Business.............................................(2)
Acct 301...............................Intermediate Accounting.........................................................(2)
BVED 305.............................Microcomputer Applications for Business...............................(3)
BVED 308.............................Office Management.................................................................(2)
BVED 315.............................Introduction to Records Management.................................(3)
Econ 303...............................Money and Banking...............................................................(3)
Econ 308...............................Intermediate Microeconomic Theory.................................(3)
Econ 309...............................Intermediate Macroeconomic Theory...............................(3)
Econ 310...............................Intermediate Business and Economic Statistics.......................(3)
Econ 341...............................Labor Economics and Labor Relations...............................(3)
Fin 364...............................Capital Market Financing and Investment Strategies...........(3)
Mrkt 310...............................Buyer Behavior.................................................................(3)
Mrkt 315...............................Retail Management..............................................................(3)
Mrkt 320...............................Marketing Research 1: Design.............................................(3)
Mrkt 430...............................Small Business Projects.........................................................(3)

*Indicates course has prerequisite. Check course descriptions.

Courses

300. Principles of Management. 3 credits. Prerequisite: Junior classification. This course provides a survey of the traditional functions of management with primary emphasis on leading and organizing. 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. Production Management. 3 credits. Prerequisite: Econ 210 and Mgmt 300. A survey of the concepts, procedures, and programs associated with Human Resources Management in organizations. It includes an overview of the basic management functions as these are linked to the execution of personnel functions of employment, training, compensation, and development. F,S

305. Managerial Concepts. 3 credits. prerequisite: Junior level 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 various approaches to planning, decision making, organizing, motivation, work groups, authority, personnel staffing, leadership, change/conflict, communications, and controlling are explored in the context of supervisory personnel development. F,S

309. Quantitative Approaches to Management Decisions. 3 credits. Prerequisite: Econ 210. This course teaches application of quantitative methods for solution of many problems concerning the production of goods and services. Specific problem areas investigated are: demand forecasting, capital budgeting, resource allocation, production scheduling, performance standards, inventory control, product and service design, and quality assurance. F,S

310. Human Resource Management. 3 credits. Prerequisites: Econ 210 and Mgmt 300. A survey of the concepts, procedures, and programs associated with Human Resources Management in organizations. It includes an overview of the basic management functions as these are linked to the execution of personnel functions of employment, training, compensation, and development. F,S

312. Organizational Behavior. 3 credits. Prerequisites: Econ 210, Mgmt 300. 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

337. 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

395. Special Topics. 3 credits. 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. On demand.

400. Organizational Theory and Analysis. 3 credits. Prerequisite: Mgmt 310. The course is designed to acquaint students with some of the alternative ways in which organizations may be set up 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
403. Operations Management. 3 credits. Prerequisites: Mgmt 301, 309, and BVED 217. This course takes an input-output approach to management centering on product and process analysis; involving materials, facilities, processes, quality assurance and manpower management. On demand.

405. Entrepreneurship and Small Business Management. 3 credits. Prerequisites: Fin 310, Mgmt 300, Mrkt 301. This course involves students in starting businesses, in buying businesses, in selling businesses, in assessing the possibility of new ventures, and in solving problems of small businesses. A term project is required. F

407. Wage and Salary Administration. 3 credits. Prerequisite: Mgmt 302. 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. On demand.

408. Issues in Human Resource Management. 3 credits. Prerequisite: Mgmt 302. 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. On demand.

409. Union-Management Relations. 3 credits. Prerequisite: Mgmt 302. 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 shown processes in the negotiation setting and causes of industrial disputes. On demand.

411. Production Models and System Design. 3 credits. Prerequisite: Mgmt 403. This course is designed as the capstone in production management. It is a systems approach to production operations using probabilistic processes and simulation techniques in mode 1 analysis. On demand.

412. Issues in Production Management. 3 credits. Prerequisites: Mgmt 301 and 3 hours of quantitative courses from either Acct 322, Mgmt 309, or Mrkt 420. This course is designed to facilitate the study of issues confronting production managers in modern organizations. Required is the application of principles, theories and techniques of management to case problems, projects, and individual study and research. On demand.

420. Multinational Management. 3 credits. Prerequisite: Mgmt 300 and Fin 310. 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. On demand.

475. Strategic Management. 3 credits. Prerequisites: Mgmt 300, 301; Fin 310, Mrkt 301; and 105 credits. This is the capstone course in business. Students apply knowledge gained in accounting, economics, finance, management, and marketing to develop business policies. Case studies, games, and other exercises are used to develop executive skills. F,S

480. Business and Society. 3 credits. Prerequisite: Senior classification. The course is designed to provide an integrated, systems view of the interrelationships between business organizations and the society. Topics covered include analysis of managerial role within the post-industrial societal framework, basic structural elements of society that relate to management tasks, social responsibility functions of business including values, ethics, morals and beliefs underlying managerial decisions, and current issues and problems in this area. On demand.

490. Internship Management. 1 to 4 credits. Prerequisite: Management major, senior standing, and consent of instructor. Guided, practical experience in personnel, production, and administration with selected participating businesses and other organizations is the essence of this course. S/U grading only. F,S

494. Readings in Management, 1 to 4 credits. Prerequisite: Senior or graduate standing, and consent of chair of department. Selected readings in management. F,S

---

**Marketing (MRKT)**

S. Nelson (Chair), Elbert, Kim, Manakkalathil, and Swensen

The Department of Marketing offers a program in Marketing which is designed to prepare students for domestic and international managerial careers in sales, advertising, distribution, marketing research and product planning.
College of Business and Public Administration

B.B.A. WITH MAJOR IN MARKETING

Required 125 hours, including:

1. General Education Requirements, see pages 32-40.

H. The College of Business and Public Administration Requirements, see page 85 and including:

Acct 200, 201 .................................Elements of Accounting ...........................(6)
Econ 201 .................................Principles of Microeconomics ..............................(3)
Econ 202 .................................Principles of Macroeconomics ..............................(3)
Econ 210 .................................Introduction to Business and Economic Statistics ...........................(3)
BVED 217 .................................Fundamentals of Management Information Systems ...........................(4)
Acct 315 .................................Business in the Legal Environment ..............................(3)
Math 104, 204 .................................Finite Mathematics, Survey of Calculus ..............................(6)
Mgmt 300 .................................Principles of Management .................................(3)
Mgmt 301 .................................Production Management .................................(3)
Fin 310 .................................Principles of Financial Management ...........................(2)
Fin 301 .................................Problems in Financial Management .............................(1)
Mgmt 475 .................................Strategic Management .................................(3)
Mrkt 301 .................................Principles of Marketing .................................(3)
PSci 101 .................................American Government I .................................(3)
Comm 161 .................................Fundamentals of Public Speaking .............................(3)

One course selected from the following:

Psy 101 .................................Introduction to Psychology .................................(3)
Soc 101 .................................Introduction to Sociology .................................(3)
Anth 171 .................................Introduction to Cultural Anthropology .................................(3)

Major in Marketing

Mrkt 310 .................................Buyer Behavior .................................(3)
Mrkt 325 .................................International Marketing .................................(3)
Mrkt 320 .................................Marketing Research I: Design .................................(3)
Mrkt 420 .................................Marketing Research II: Application .................................(3)
Mrkt 450 .................................Marketing Management .................................(3)

Complete at least 12 credits from the following:

No more than a total of 3 credits from Mrkt 337, Mrkt 380, and Mrkt 396 may be used to satisfy this requirement.

Mrkt 311 .................................Personal Selling .................................(3)
Mrkt 312 .................................Advertising .................................(3)
Mrkt 315 .................................Retail Management .................................(3)
Mrkt 337 .................................Co-Operative Education in Marketing .................................(1-8)
Mrkt 380 .................................Internship in Marketing .................................(1-3)
Mrkt 396 .................................Directed Studies in Marketing .................................(1-3)
Mgmt 411 .................................Sales Management .................................(3)
Mrkt 412 .................................Promotional Strategy .................................(3)
Mrkt 425 .................................Current Perspectives in Global Marketing .................................(3)
Mrkt 430 .................................Small Business Projects .................................(3)
Mrkt 440 .................................Special Topics in Marketing .................................(3/6)

COURSES

301. Principle of Marketing. 3 credits. Required of all students in Business and Public Administration.
Prerequisite: Econ 201. An overview of the scope and nature of market exchange and the buyer’s pivotal role.
F,S

310. Buyer Behavior. 3 credits. Prerequisite: Mrkt 301. Theoretical and applied analysis of consumer and organizational buying behavior. F,S

311. Personal Selling. 3 credits. Prerequisite: Mrkt 301. The personal selling process including prospecting, qualifying, handling objections, and closing. F,S

312. Advertising. 3 credits. Prerequisite: Mrkt 301. Thorough examination of the basis for designing an advertising campaign. Special emphasis on buyer perceptions, theories of communication and learning, and their relation to message, media, and vehicle selection. F,S

315. Retail Management. 3 credits. Prerequisites: Mrkt 301, and Acct 201. Application of marketing and financial principles to the planning and execution of retail management. Includes analyses of relevant institutions and interest groups. F,S
292

University of North Dakota

320. Marketing Research I: Design. 3 credits. Prerequisites: Mrkt 301, and Econ 210. The research process from a marketing perspective. Addresses problem formulation, research design, methodology, and appropriate Statistical methods. F,S

325. International Marketing. 3 credits. Prerequisite: Mrkt 301. Fundamentals of conducting marketing operations across national boundaries; market potential estimation, entry strategies, program management and control. F,S

337. Cooperative Education in Marketing. 1-8 credits, repeatable only to maximum of 8 credits. Prerequisites: 9 hours of marketing, GPA of 2.75, and Consent of Instructor. Compensated, on-the-job experience in various areas of marketing. S/U grading only. F, S, SS

380. Internship in Marketing. 1-3 credits. Prerequisites: Mrkt 301, and Consent of Instructor. Compensated, practical experience with selected participating firms. S/U grading only. F, S, SS

396. Directed Studies in Marketing. 1-3 credits. Prerequisites: Mrkt 310, and Consent of instructor. Research in some aspect of marketing. Written reports and collateral readings. F, S, SS

412. Promotional Strategy. 3 credits. Prerequisite: Mrkt 312. Relationship of marketplace activities to promotional processes; integration of promotional tools into marketing strategy. F

420. Marketing Research II: Application. 3 credits. Prerequisite: Mrkt 320. Application of procedures appropriate for the analysis and interpretation of marketing data. F,S

425. Current Perspectives in Global Marketing, 3 credits. Prerequisite: Mrkt 301. An examination of emerging worldwide economic, political, and cultural trends and the resulting challenges to international marketing. Students will be introduced to major international organizations and regional trade blocs to explore their implications on global marketing and trade.

430. Small Business Projects. 3 credits. Prerequisite: Senior Standing. Offered under the auspices of the U.S. Small Business Administration. Student teams are assigned to work with selected small business clients. F, S

440. Special Topics in Marketing: 3 credits. Prerequisites: Mrkt 301, and Senior Standing. 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: Mrkt 310, Mrkt 320, and Senior Standing. Capstone course addressing the firm’s micro and macro environments from a strategic marketing decision making perspective. F,S

Mathematics
(Math)

D. Uherka (Chair), Collinga, Dearden, Dunnigan, Giladorf, Gregory, Harris, Kemper, Khavanin, Leduc, Metzger, Millsapagh, Prigge, Richards, Robinson, and Wells

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 he/she 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.
The Mathematics Department provides a test center for Actuarial Examinations and offers
several courses which enable the student to prepare for them.

Students may pursue either the B.S. or B.A. degree with a major in mathematics
through the College of Arts and Sciences or a B. S. Ed. degree through the Center for Teaching and Learning. Teacher certification is possible with these degrees 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 211 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
cancelled from the class by the instructor.

**College of Arts and Sciences**

**B.A. OR B.S. WITH MAJOR IN MATHEMATICS**

Required 125 hours, including:

I. General Education Requirements, see pages 32-40.

II. Non-Mathematics Requirements: Computer Science 110 and a writing course above those required
under 1. (Possible courses might be English 209, 203, 305 or BVED 320).

III. The Following Curriculum:

36 major hours including:

Math 211, 212, 213........................................Calculus I, II, III ..........................................................(l 2)
Math 342..............................................................Elementary Linear Algebra.............................................(3)
or
Math 422..............................................................Linear Algebra..........................................................(3)
Math 351..............................................................Elementary Differential Equations, ..............................(3)

Two full two-semester sequences from the list below.

At least one sequence must include two 400 level courses .........................................................(12)
Electives (math courses numbered 208 and above, excluding 277, 377, 477 ) ..................................(6)

Two Semester Sequences

Math 208 & 408..............................................Discrete Mathematics & Discrete Structures
Math 352 & 412..............................................Advanced Engineering Mathematics I and Ordinary
Differential Equations
Math 421 & 422..............................................Statistical Theory I & II
Math 431 & 432..............................................Advanced Calculus I & II
Math 441 & 442..............................................Abstract Algebra & Linear Algebra
Math 461 & 462..............................................Numerical Analysis 1 & II

Students wishing certification in secondary teaching must also complete the CTL program in
Secondary Education. See page 177.

Students planning to attend graduate school are urged to take a full year of Advanced Calculus, Math
431, 432.
MINOR IN MATHEMATICS

Required 20 hours, including:

Math 211, 212, 213............Calculus I, II, III .................................................................(12)

All electives must be chosen from courses numbered 208 and above, not including 277, 377, or 477.

MINOR IN STATISTICS (Plan A)

T. Harris (Advisor)

Requires 3 semesters of calculus (Math 211, 212, 213) as prerequisite.

Required: 9 hours, including:

*Math 421, 422.............................Statistical Theory I, II .........................................................(6)

3 hours from:

Biol 470....................................Biometry.................................................................(3)
CTL 513....................................Basic Computer Applications in Education....................(2)
CTL 514....................................Small System Computer Applications in Education ......(3)
CTL 516....................................Statistics II .................................................................(3)
CTL 517....................................Non-parametric Statistics .............................................(2)
*EE 411...............................Communications Engineering...........................................(3)
*Math 321.............................Applied Statistics ...........................................................(3)
*Math 415.............................Topics in Applied Math (when appropriate) ....................(3)
Math 416....................................Topics in Statistics ....................................................(1-3)
Psy 541....................................Advanced Univariate Statistics ....................................(3)
Psy 542...............................Test Construction and Multivariate Analysis ...................(3)
Psy 543....................................Experimental Design...................................................(3)
Soc 521...............................Advanced Analytical Methods......................................(3)

*Indicates calculus as a prerequisite.

MINOR IN STATISTICS (Plan B)

Requires Math 104, Finite Mathematics, and Math 204, Survey of Calculus, as prerequisites.

Required: 12 hours from:

Biol 470.................................Biometry.................................................................(3)
CTL 513....................................Basic Computer Applications in Education....................(2)
CTL 514....................................Small System Computer Applications in Education ......(3)
CTL 516....................................Statistics II .................................................................(3)
CTL 517....................................Non-parametric Statistics .............................................(2)
*EE 411...............................Communications Engineering...........................................(3)
*Math 321.............................Applied Statistics ...........................................................(3)
*Math 415.............................Topics in Applied Math (when appropriate) ....................(3)
Math 416....................................Topics in Statistics ....................................................(1-3)
Psy 541....................................Advanced Univariate Statistics ....................................(3)
Psy 542...............................Test Construction and Multivariate Analysis ...................(3)
Psy 543....................................Experimental Design...................................................(3)
Soc 521...............................Advanced Analytical Methods......................................(3)

*Indicates calculus as a prerequisite.
Center for Teaching and Learning

B.S.ED WITH MAJOR IN MATHEMATICS

Required 125 hours, including:

I. General Education Requirements see pages 32-40.

II. Non-Mathematics Requirements: CSci 110 and a writing course above those required under I. (Possible courses might be English 209,203.305 or BVED 320.)

III. Completion of the Center for Teaching and Learning program in Secondary Education. See page 175.

IV. The Following Curriculum:

36 major hours including:

Math 211,212, 213........................................Calculus I, II, 111 ...................................................(12)
Math 208..............................................Discrete Math.............................................................(3)
Math 321 ........................................Applied Statistical Methods..............................................(3)
Math 330............................................Set Theory and Logic ..............................................(3)
Math 342............................................Elementary Linear Algebra ..............................................(3)
or
Math 442........................................Linear Algebra .................................................................(3)
Math 409............................................Geometry .................................................................(3)
Math 441............................................Abstract Algebra......................................................(3)
Electives (300 level and above math course, excluding 377 and 477)..............................................(6)

Courses

NOTE: PTP* indicates an appropriate score in the Placement Testing Program (FTP) is required.

102. Intermediate Algebra. 3 credits. 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 conies, systems of equations, determinants, arithmetic and geometric sequences, the Binomial Theorem. F,S,SS

104. Finite Mathematics. 3 credits. Prerequisite: PTP* or Math 102. An elementary introduction to some of the mathematical techniques which have applications in the management, life, and social sciences. Topics covered include systems of linear equations and inequalities, matrices, linear programming, mathematics of finance, and elementary probability. F,S,SS

105. Trigonometry. 2 credits. Prerequisite: PTP* and one year of high school geometry. Angles, trigonometric functions and their inverses, solving triangles, trigonometric identities. F,S,SS

204. Survey of Calculus. 3 credits. Prerequisite: Math 103 or Math 104. A nonrigorous introduction to differential and integral calculus. Topics include limits, continuity, differentiation and integration techniques, and applications. F,S,SS

208. Discrete Mathematics. 3 credits. Prerequisite: Math 103. 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

211. Calculus I. 4 credits. Prerequisites: PTP* or Math 103 and 105. Limits, continuity, differentiation, Mean Value Theorem, integration. Fundamental Theorem of Calculus. F,S,SS

212. Calculus II. 4 credits. Prerequisite: Completion of Math 211 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

213. Calculus 111.4 credits. Prerequisite: Math 212. Multivariate and vector calculus including partial derivatives. Multiple integration, line and surface integrals. Green’s Theorem, Stoke’s Theorem, the Divergence Theorem. F,S,SS

277. Math for Elementary School Teachers. 3 credits. Prerequisite: 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

321. Applied Statistical Methods. 3 credits. Prerequisite: Math 212. Introduction to statistical model building including analysis of variance, regression and time series fundamentals. F,S

330. Set Theory and Logic. 3 credits. Prerequisite: Math 212 or consent of instructor. Axioms and operations on sets, mathematical logic, relations and functions, development of the natural and real number systems. F,S

337. Cooperative Education. Prerequisites: 15 completed credits in Math including Math 211,212,213, 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 credit may be applied against requirements for a Math major. S/S grading only. F,S,SS


353. Advanced Engineering Mathematics II. 3 credits. Prerequisite: Math 351. Introduction to complex variables, introduction to numerical analysis, vector calculus. F,S

377. Geometry for Elementary Teachers. 1-3 credits. For elementary education majors only. Experiment and inductive discovery in building geometric concepts at the elementary school level. On demand.

403. Theory of Probability. 3 credits. Prerequisite: Math 213. Sets, sample spaces, discrete probability, distribution functions. Density functions, characteristic functions, study of normal, Poisson, binomial and other distributions with applications. S

405. Selected Topics in Mathematics. 1-3 credits. Prerequisite: permission of the Mathematics Department. May be repeated to maximum of 6 credits. On demand.

408. Discrete Structures. 3 credits. Prerequisites: Math 208 and Math 212. This course introduces the techniques and types of reasoning needed in combinatorial problem-solving. The course includes topics from graph theory and combinatorics. S

409. Geometry. 3 credits. Prerequisite: Math 212. 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


415. Topics in Applied Mathematics. 1-3 credits. Prerequisite: Math 213 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: An elementary statistics course and either Math 204 or Math 211, 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 10 be considered during a semester will be limited to permit greater depth of coverage and sufficient practical illustrations. Maybe 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 213; 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, “t” and “F” tests, one and two ANOVA, nonparametric methods. F,S

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 212. Basic properties of numbers, including divisibility, primes, congruences, Diophantine equations and residue theory. F

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 213 and Math 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 red line. On demand.

460. Mathematical Modeling. 3 credits. Prerequisite Math 351 and either 342 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,S

461. Numerical Analysis I and II. 3 credits each. Prerequisite: Math 351, and either 342 or 442, and a scientific programming language. Prerequisite for 462 is Math 461. 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,S 465. **Operations Research.** 3 credits. Prerequisite: A linear algebra course. This course has as its major emphasis, linear programming and its applications. Topics include the simplex method, duality, sensitivity analysis, the transportation problem and network flow. S/2

471. **Introduction to Complex Variables.** 3 credits. Prerequisite: Math 213 and Math 330 or consent of instructor. 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

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.

491. **Reading Course in Mathematics.** 1-3 credits, repeatable to 6 credits. Consent of instructor required. Directed individual reading on selected topics not developed in other courses. F,S,SS

---

**Mechanical Engineering**

**ME**

D. Naismith (Chair), Bandyopadhyay, Bibel, Goddard, Grewal, Henriksen, Mathsen, Moan, Stanlake, Tolbert, and Vermeersch

Mechanical Engineering is a broad, flexible, highly individualistic profession. This program is directed toward the design, production and operation of energy systems and machines and toward the processing of materials into products. Graduates are well qualified for professional practice or for additional professional or graduate education.

**School of Engineering and Mines**

**B.S. IN MECHANICAL ENGINEERING**

Required 140 hours, including:

I. General Education Requirements, see pages 32-40

II. The Following Curriculum:

<table>
<thead>
<tr>
<th>Freshmen Year</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105</td>
<td>(4)</td>
<td></td>
</tr>
<tr>
<td>Engl 101</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Engl 209</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Engr 101</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>Engr 102</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>Math 211, 212</td>
<td>(4)</td>
<td>(4)</td>
</tr>
<tr>
<td>Phys 205</td>
<td>(4)</td>
<td></td>
</tr>
<tr>
<td>Arts and Humanities (See page 94)</td>
<td>(3)</td>
<td>(3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 300</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>CE 301</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>CE 305</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Econ 201</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>EE 206</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Math 213</td>
<td>(4)</td>
<td></td>
</tr>
<tr>
<td>Math 351</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>ME 201</td>
<td>(2)</td>
<td></td>
</tr>
</tbody>
</table>

---
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 202</td>
<td>Mechanical Engineering Fundamentals</td>
<td>(2)</td>
</tr>
<tr>
<td>Phys 206</td>
<td>General Physics</td>
<td>(4)</td>
</tr>
<tr>
<td>Phys 208</td>
<td>General Physics</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td>Chem 106</td>
<td>General Chemistry</td>
</tr>
<tr>
<td></td>
<td>Arts and Humanities (See page 94)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

**Junior Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 301</td>
<td>Materials Science</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 306</td>
<td>Fluid Mechanics</td>
<td></td>
</tr>
<tr>
<td>EM 460</td>
<td>Engineering Economy</td>
<td>(3)</td>
</tr>
<tr>
<td>* Mathematics Elective</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>ME 311</td>
<td>Manufacturing Processes 1</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 322</td>
<td>Mechanical Design I</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 341, 342</td>
<td>Thermodynamics</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 380</td>
<td>Inspection Trip</td>
<td>(1)</td>
</tr>
<tr>
<td>ME 401</td>
<td>Dynamic Systems Analysis</td>
<td>(2)</td>
</tr>
<tr>
<td>ME 413</td>
<td>Engineering Materials</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 421</td>
<td>Mechanical Design II</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Senior Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 318</td>
<td>Manufacturing Processes II</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 474</td>
<td>Fundamentals of Heat &amp; Mass Transfer</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 480</td>
<td>Mechanical Engineering Seminar</td>
<td>(2)</td>
</tr>
<tr>
<td>ME 483</td>
<td>Mechanical Measurements Lab</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 486</td>
<td>Mechanical Engineering Practice</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 487, 488</td>
<td>Engineering Design</td>
<td>(2)</td>
</tr>
<tr>
<td>Phil 370</td>
<td>M Q &amp; P: Ethics in Engineering</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Technical Electives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Science (See page 94)</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**TECHNICAL ELECTIVES:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 416</td>
<td>Advanced Manufacturing Processes</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 423</td>
<td>Computer Aided Design</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 424</td>
<td>Experimental Stress and Analysis I</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 426</td>
<td>Vibrations &amp; Acoustics I</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 427</td>
<td>Vibrations Laboratory</td>
<td>(1)</td>
</tr>
<tr>
<td>ME 428</td>
<td>Lubrication</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 430</td>
<td>Principles of Similitude</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 431</td>
<td>Design Optimization</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 441</td>
<td>Analytical Thermodynamics</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 445</td>
<td>Energy Technology</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 446</td>
<td>Turbomachinery</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 449</td>
<td>Internal Combustion Engines</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 451</td>
<td>Heating &amp; Air Conditioning</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 454</td>
<td>Refrigeration</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 457</td>
<td>Solar Engineering</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 476</td>
<td>Intermediate Fluid Mechanics</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 490</td>
<td>Special Laboratory Problems</td>
<td>(I-3)</td>
</tr>
<tr>
<td>ME 513</td>
<td>Advanced Engineering Materials</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 522</td>
<td>Advanced Experimental Stress Analysis</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 523</td>
<td>Advanced Machine Design</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 524</td>
<td>Three Dimensional Photoelasticity</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 526</td>
<td>Advanced Vibrations</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 529</td>
<td>Finite Element Analysis</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 534</td>
<td>Acoustics &amp; Noise Control</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 541</td>
<td>Advanced Thermodynamics</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 545</td>
<td>Fluidized Bed Combustion Engineering</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 546</td>
<td>Energy Systems Design</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 562</td>
<td>Elements of Nuclear Engineering</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 571</td>
<td>Advanced Fluid Mechanics</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 574</td>
<td>Advanced Heat Transfer</td>
<td>(3)</td>
</tr>
<tr>
<td>ME 590</td>
<td>Special Topics</td>
<td>(1-6)</td>
</tr>
</tbody>
</table>

*Mathematics Elective: check with advisor for courses.
Courses


202. Mechanical Engineering Fundamentals. 2 credits. Prerequisite: ME 201. Introduction to principles of energy conservation, manufacturing processes, codes and standards, computer applications, performance testing and technology and society. S

290. Special 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.

301. Materials Science. 3 credits. Prerequisites: Chem 105*, Phys 206*. The theory of the structure of matter, the prediction and evaluation of engineering properties of materials. F,S

306. Fluid Mechanics. 3 credits. Prerequisites: Physics 205*, Math 213*. 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

311. Manufacturing Processes I. 3 credits. Prerequisites: ME 301 and CE 301. Corequisite: EM 460. Descriptive and analytical study of manufacturing methods and economics as they pertain to casting, welding and forming processes. Includes laboratory. S

318. Manufacturing Processes II. 3 credits. Prerequisites: ME 311, ME 413. Descriptive and analytical study of manufacturing methods and economics as they pertain to machining, metrology and automation. Includes laboratory. F

322. Mechanical Design I. 3 credits. Prerequisite: Engr 102*, Engr 201**, CE 305*. Analytical and graphical study of motions, velocities, accelerations and forces for design of machine elements such as linkages, cams and gears. F

337. Cooperative Education. 1-8 credits repeatable to 24. Prerequisite: Admission 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. F,S,SS

341. Thermodynamics. 3 credits. Prerequisites: Physics 205*, Math 212*. Fundamental concepts of thermal energy relationships, processes and cycles. F,S,SS

342. Thermodynamics. 3 credits. Prerequisite: ME 341, Real vapors, gas-vapor mixtures, power and refrigeration cycles. F,S,SS

380. Inspection Trip. 1 credit. Prerequisite: Junior standing. Expenses to students, approximately $150.00. Inspection trip to regional industrial plants; preliminary study of plants and a report on the trip. S/U grade only. On demand.

401. Dynamic Systems Analysis. 2 credits. Prerequisites: Math 351, CE 305*. Study of single-degree-of-freedom systems, multidegree-of-freedom systems, continuous systems, feedback control, system stability, control actions, block diagrams, computer simulation. S

413. Engineering Materials. 3 credits. Prerequisite: ME 301. Atomic structure, bonding, equilibrium diagrams, physical and mechanical properties of metals and metallographic examination of metals. Includes laboratory. S

416. Advanced Manufacturing Processes. 3 credits. Prerequisites: ME 311, 318. Individual projects involving the manufacturing economics and flow charts for selected products and basic technical principles of manufacturing processes. Includes laboratory. On demand.

421. Mechanical Design II. 3 credits. Prerequisite: CE 301*, ME 322. Co-require: ME 401. Analysis and design of common machine elements to guard against fatigue failure; shafts, bearings,” stock drives and bolted joints. Includes laboratory. S

423. Computer Aided Design. 3 credits. Prerequisites: Engr 201*, ME 322, ME 421. Computer aided design topics including interactive graphics, engineering drafting, solids modeling, analysis and design of machine components, numerical methods, simulations, CAD hardware and software. On demand.

426. Vibrations and Acoustics I. 3 credits. Prerequisites: Math 351, CE 305*. Basic vibration and acoustical theory. Includes the formulation and solution of dynamic equations for single and multi-degree-of-freedom systems as well as basic principles of noise transmission and suppression. On demand.

431. Design Optimization. 3 credits. Prerequisites: Engr 201*, Math 351. Principles of design strategy, mathematical modeling, systems analysis and process optimization are presented and applied to the solution of steady state engineering design problems. On demand.

441. Analytical Thermodynamics. 3 credits. Prerequisites: ME 342 or ChE 403. Co-require: EM 460. Equations of state, calculation of thermodynamic properties and mathematical methods of iterative solutions applied to the computer modeling of thermodynamic systems and system optimization. On demand.

445. Energy Technology. 3 credits. Prerequisite: ME 342. Study of energy sources, energy conversion systems and related economics. On demand.

446. Turbomachinery. 3 credits. Prerequisite: ME 342 and ME 306. Principles common to fans, compressors, pumps and turbines, relationship of dimensional analysis, fluid-rotor energies and thermodynamics to turbomachinery. On demand.

451. Heating and Air Conditioning. 3 credits. Prerequisite: ME 474 or concurrent with ME 474. Psychrometrics, heating and cooling loads and analysis of air conditioning systems. On demand.

454. Refrigeration. 3 credits. Prerequisite: ME 342. Mechanical and absorption refrigeration cycles, low temperature refrigerations and properties of refrigerants. On demand.

462. Introduction to Nuclear Engineering. 3 credits. Prerequisites: Math 351, Phys 208, or permission of instructor. Nuclear fission, reactor physics, reactor engineering, radiation protection, nuclear power environmental impact, and nuclear power economics. On demand.

474. Fundamentals of Heat & Mass Transfer. 3 credits. Prerequisites: Math 351, ME 306 and ME 342. Convection, conduction, radiation, dimensional analysis and design of heat transfer equipment. F


480. Mechanical Engineering Seminar. 2 credits. Prerequisite: Senior standing. Reports and discussions on current developments in mechanical engineering. F

483. Mechanical Measurements Laboratory. 3 credits. Prerequisites: ME 306, ME 342, ME 401, EE 206. Experiments and written reports on the operation and performance of instruments and basic mechanical engineering equipment. F

486. Mechanical Engineering Practice. 3 credits. Prerequisites: ME 483 and ME 474. Continuation of ME 483 with emphasis shifted to instrumentation, operation, and analysis of mechanical equipment and processes. S

487. Engineering Design. 2 credits. Prerequisites: EM 460, ME 342, ME 421. The first course of a 2 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

488. Engineering Design. 3 credits. Prerequisites: ME 318, ME 322, ME 474, ME 480, ME 483, and ME 487. Systematic study and practice essential to the optimal design of a complete machine or system, utilizing economic and social constraints together with current mechanical and thermal design techniques. The course is a continuation of ME 487 taken the preceding semester. S

490. 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.

499. 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

*Course must be completed with a “C” grade or better.

Medical Technology

R. Sopher (Chair), A. W. Bruce (Program Director), J. Bruce, Coleman, Larson, and Torgerson

Medical technologists or clinical laboratory scientists are essential members of the health care team. A medical technologist uses the latest biomedical instruments, often interfaced with computers, to perform and generate accurate, reliable laboratory tests. Results of the tests determine the presence of disease, aid in treatment and monitor therapy. This is a dynamic profession that changes as new medical knowledge is discovered.

Careers in medical technology are many and varied. Employment opportunities exist in hospitals, private laboratories, physician offices, clinics, government agencies, industry, research, armed forces and other health related facilities. A current shortage of technologists exists and the demand for new graduates is expected to rise in the next decade.

The University of North Dakota has offered a degree in medical technology since 1949. The Medical Technology 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 certification examination. In addition to certification some states have specific requirements for licensure of clinical laboratory personnel which vary from state to state.
Medical technologists attain their professional skills through a baccalaureate education with an emphasis in the sciences. The degree includes two years of premedical technology education followed by two years of professional coursework. Application for advancement to the professional education component must be made during the second semester of the sophomore year. Acceptance into the professional program is on a competitive basis with consideration given to science grades, general college preparation, and personal adjustment to the medical technology field. A minimum average GPA of 2.8 is required for consideration. Once accepted, all students in the professional program must attain a letter grade of at least “C” in their major courses in order to continue in the program. No student will be allowed to complete the senior professional year unless he/she has received at least a grade of “C” in each of the major coursework classes. Exceptions for acceptance and continuance may be made by petition to the Program Director.

The professional education component includes lecture and laboratory courses that prepare the student to work in the profession. Coursework focuses on the clinical application and interpretation of testing, test management and utilization, laboratory operations, professionalism and quality assurance. In addition, students spend three months in the student laboratory and six to eight months in a hospital setting operating equipment, performing and managing testing activities, evaluating quality control and working with the health care team.

The amount of time spent in the hospital setting is determined by the clinical program the student selects. Hospitals currently affiliated with the UND Medical Technology Program are United Hospital, Grand Forks; St. Alexius Medical Center, Bismarck; and Hennepin County Medical Center, Minneapolis, Minnesota. Some students opt to apply for other NAACLS approved programs of Medical Technology. Students in these programs complete a twelve month course of study at the hospital site after the junior year. Approved programs affiliated with UND include St. Joseph’s Hospital and Trinity Medical Center in Minot, ND and St. Paul Ramsey in St. Paul, Minnesota.

During the senior professional year students register for courses in the summer, fall and spring semesters. Students in the program must be aware that there are special requirements prior to contact with patients and to testing patient specimens. Students are required to have a physical and to be immunized with Hepatitis B vaccine. If a student elects not to be immunized they must sign a liability waiver. The student will also be responsible for travel, housing, food costs, and a student laboratory fee in addition to the payment of regular tuition, during the senior professional year.

Medical Laboratory Technician (MLT) graduates from a NAACLS or equivalent accredited MLT program are eligible for the transfer of up to 19 semester credits to the B.S. degree program. Transfer credits allow the waiver of several science courses in the preprofessional and professional curriculum. Each 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. Also the students may be eligible for a shortened professional program based on the previous coursework, years of experience working in a clinical laboratory and competency assessment.

A Master of Science degree with a major in Medical Technology is also offered. The Master of Science Program is designed to prepare students for careers as administrative laboratory directors, clinical laboratory consultants, technical supervisors, or laboratory educators. The Master of Science degree is described in the graduate bulletin.

The Medical Technology 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.
B.S. IN MEDICAL TECHNOLOGY

Required 125 hours, including

I. General Education Requirements see pages 32-40.

11. Curriculum:

Freshman Year

FIRST SEMESTER
- Engl 101: Composition I (3)
- Biol 101: Introduction to Biology (4)
- Chem 105: General Chemistry (4)
- Anatomy for Paramedical Personnel (3)
- Arts and Humanities Elective (4)

SECOND SEMESTER
- Arts and Humanities Electives (4)
- Engl 102: Composition II/Technical Writing (3)
- Chem 106: Qualitative Analysis (4)
- Introduction to Biology (4)

Student should at this time request University College to transfer their records to the School of Medicine, Department of Pathology/Division of Medical Technology.

Sophomore Year

FIRST SEMESTER
- Anat 204: Anatomy for Paramedical Personnel (3)
- Arts and Electives (4)
- Chem 209: Quantitative Analysis (4)
- Path 226: Introduction to Medical Technology (2)
- Social Science Elective (3)

SECOND SEMESTER
- Chem 212: Organic Chemistry (5)
- MBio 302: General Microbiology (4)
- Phy 301: Human Physiology (4)
- Social Science Elective (3)

Application for advancement to the Junior Year must be made during the second semester of the Sophomore Year.

professional Year 01 (Junior)

FIRST SEMESTER
- MBio 328: Introduction to Immunology (2)
- Path 393: Clinical Immunology Laboratory (2)
- Path 325: Hematology (3)
- Path 325L: Hematology Laboratory (2)
- Biol 364*: Parasitology (4)
- CSci 101: Introduction to Computers (2)
- CSci 10IL: Introduction to Computers Laboratory (1)

SECOND SEMESTER
- Path 330: Quality Management (2)
- BiCh 301, 303: Biochemistry (6)
- MBio 402: Clinical Microbiology (4)
- Social Science Elective (3)

A total of 96 credit hours must be completed by the end of the Junior Year. Students receiving a “D” or “F” in a required or elective science course in the Junior Year will not be allowed to continue in the Medical Technology program unless a waiver is obtained.

Professional Year 02 (Senior)

SUMMER SESSION
- Path 480: Blood Bank I (1)
- Path 480: Clinical Chemistry I (1)
- Path 480: Practicum in Clinical Lab 1 (1)
### Meteorological Studies (Metr)

**J. Stith (Chair), Alkezweeny, Burrows, Grainger, Osborne, Poellot, and Rinehart**

The Department of Atmospheric Sciences offers a comprehensive education in the Atmospheric Sciences leading to the degree of Bachelor of Science in Meteorological Studies.
Studies. The degree is awarded in the Center for Aerospace Sciences. A minimum of a 2.5 GPA is required for admittance into the program and for graduation.

**Facilities**

The Department of Atmospheric Sciences provides several unique research and teaching facilities in support of the Meteorological Studies program. These include the Regional Weather Information Center, which supports the Department’s operational weather analysis, forecasting, and broadcasting activities, and several laboratories for use in cloud physics, air chemistry, and radar meteorology teaching and research. In addition to academic activities, the Department’s two primary research facilities, a 5-cm Doppler weather radar and an instrumented Cessna Citation 11 research jet aircraft, have been deployed in numerous national and international research programs. Students are provided opportunities to participate in these research activities at the undergraduate level. Current research areas are atmospheric chemistry, air pollution, acid rain, radar meteorology, agricultural meteorology, cloud physics, aviation meteorology, and weather modification.

**Center for Aerospace Sciences**

**B.S. IN METEOROLOGICAL STUDIES**

Requires 125 hours including:

I. General Education Requirements, see pages 32-40.

II. Center for Aerospace Sciences requirements, see page 79.

III. The Following curriculum:

### Freshman Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Description</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101, 209</td>
<td>Composition I, Technical &amp; Bus. Writing*</td>
<td>(3)</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 211, 212</td>
<td>Calculus I, II</td>
<td>(3)</td>
<td>(3)</td>
</tr>
<tr>
<td>Phys 205</td>
<td>General Physics</td>
<td>(4)</td>
<td>(4)</td>
</tr>
<tr>
<td>Metr 150</td>
<td>Meteorology</td>
<td>(4)</td>
<td></td>
</tr>
<tr>
<td>Engl 102</td>
<td>Acceptable alternate course</td>
<td>(2)</td>
<td></td>
</tr>
</tbody>
</table>

### Sophomore Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Description</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 213</td>
<td>Calculus III</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Phys 206, 208</td>
<td>General Physics</td>
<td>(4)</td>
<td>(4)</td>
</tr>
<tr>
<td>Chem 105</td>
<td>General Chemistry</td>
<td>(4)</td>
<td>(4)</td>
</tr>
<tr>
<td>Metr 210</td>
<td>Synoptic Meteorology</td>
<td>(4)</td>
<td></td>
</tr>
<tr>
<td>Metr 240</td>
<td>Meteorology Instrumentation</td>
<td>(4)</td>
<td></td>
</tr>
</tbody>
</table>

### Junior Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Description</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSci 201</td>
<td>Fortran</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Math 351</td>
<td>Elementary Differential Equations</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Metr 340</td>
<td>Introduction to Radar Meteorology</td>
<td>(4)</td>
<td></td>
</tr>
<tr>
<td>Metr 350</td>
<td>Atmospheric Thermodynamics</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Metr 353</td>
<td>Physical Meteorology</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Metr 304</td>
<td>Dynamic Meteorology</td>
<td>(4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Technical Electives</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meteorology Electives</td>
<td>(3)</td>
<td></td>
</tr>
</tbody>
</table>
**Meteorological Studies**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metr 410</td>
<td>Weather Analysis and Forecasting</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>Metr 450</td>
<td>Introduction to Cloud Physics</td>
<td></td>
<td>(4)</td>
</tr>
<tr>
<td>Math 461</td>
<td>Numerical Analysis I</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Metr 497</td>
<td>Senior Project</td>
<td></td>
<td>(2)</td>
</tr>
<tr>
<td>Metr 503</td>
<td>Technical Electives</td>
<td></td>
<td>(6)</td>
</tr>
<tr>
<td>Metr 505</td>
<td>Meteorology Electives</td>
<td></td>
<td>(5)</td>
</tr>
<tr>
<td>Metr 499</td>
<td>Free Electives</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(6)</td>
</tr>
</tbody>
</table>

**METEOROLOGICAL STUDIES MINOR**

Required 20 hours, including:

- Metr 150: Introduction to Meteorology (4)
- Metr 210: Synoptic Meteorology (4)
- Metr 310: Weather Map Interpretation (3)

All other meteorology courses will satisfy the minor excluding the following:

- Metr 251: Advanced Weather Modification
- Metr 301: High Altitude Meteorology
- Metr 337: Cooperative Education
- Metr 498: Special Studies in Meteorology
- Metr 499: Internship

**Courses**

150. Meteorology. 4 credits. Elements of weather with emphasis on the processes that affect the global atmospheric circulation. Includes laboratory. F,S

210. Synoptic Meteorology. 4 credits. Prerequisite: Metr 150 and Math 103. Kinematic flow analysis of barotropic and baroclinic systems, air mass characteristics and the development of frontal systems. Includes laboratory. F,S

231. Aviation Meteorology. 3 credits. Prerequisite: Metr 150. A study of weather hazards, meteorological flight planning, aviation weather equipment and human factors in weather flying safety. F,S

240. Meteorological Instrumentation. 4 credits. Prerequisites: Metr 150 and Math 103. A study of the theory, design, and accuracy of instrumentation for the measurement of temperature, pressure, humidity, wind, and radiation. In addition, topics such as radar, and the use of aircraft and balloons as instrument platforms are also discussed. Includes laboratory. S

250. Introduction to Weather Modification. 3 credits. Prerequisite Metr 150. Provides a comprehensive introduction to 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. F

251. Advanced Weather Modification. 3 credits. Prerequisites: Metr 250 or Avit 330. Provides students exposure to the practical aspects of weather modification operations. Instruction is given in the following areas: program design and evaluation, care and use of seeding materials and equipment, identification of seeding opportunities, and airborne delivery of seeding materials. Emphasis is given to safety, both on the ground and in the air. Flight training in seeding techniques is provided to students with commercial, instrument and multi-engined pilot ratings. S

301. High Altitude Meteorology. 4 credits. Prerequisite: Metr 231. Corequisites: Avit 429 and 429L. A treatment of high altitude weather features is presented. Qualitative description of the causes of these features is provided. Aeronautical Studies Option C: Air Transport Emphasis. F,S,SS

310. Weather Map Interpretation. 3 credits. Prerequisite: Metr 210. Introduces the student to techniques used in analyzing surface and upper-air charts and using this information in constructing weather forecasts. F,S

337. Cooperative Education. 1-8 credits, maybe repeated to a total of 12 credits. Prerequisites: Metr 210, and overall GPA of at least 2.5, and approval of the Coordinator of Meteorology Cooperative Education. The student will receive credit for on-the-job compensated work experience in various areas of meteorology available within the government, university or private sectors. F,S,SS

340. Introduction to Radar Meteorology. 4 credits. Prerequisites: Phys 206 and Metr 210. Introduction to principles and theory of microwave radar and its use as a meteorological observation or research tool. Includes Laboratory. F

350. Atmospheric Thermodynamics. 3 credits. Prerequisites Metr 210, Math 212. An introduction into 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. S
Microbiology and Immunology (MBio)

J. Kelleher (Chair), Duerre, Reinitz, Spanier, Wailer, and Young

Courses

202. Introductory Medical Microbiology Lecture. 3 credits. Prerequisite: Chem 107. Three hours of lecture per week. An introductory medical microbiology course primarily for nursing students, but open to allied health students with permission of the instructor. The course provides a background in all aspects of microbial agents and diseases. F

202L. Introductory Medical Microbiology Laboratory. 2 credits. 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. F

302. General Microbiology L-educ. 2 credits. Prerequisite: Biol 101 or permission of instructor. Two hours lecture per week. An introduction to general microbiology with emphasis on the morphology,
classification, and physiology of bacteria, molds, and viruses. The significance of microorganisms in food
processing, waste disposal, and in maintaining our environment is discussed. S

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. S

328. **Introduction to Immunology.** 2 credits. Prerequisites: BCh 301 or equivalent, Five week course in
immunology beginning the first Monday in August. Eight hours lecture per week. An introduction to the
fundamentals in immunology including **immunoochemistry,** humoral and cellular response. hypersensitivity,
immunodeficiency, immunogenetics, tolerance and immunodiagnosis. F

402. **Clinical Microbiology Lecture.** 2 credits. Prerequisite: MBio 302 or equivalent. Survey of bacterial
and fungal infections of humans. S

402L. **Clinical Microbiology Laboratory.** 2 credits. Prerequisite: MBio 302 or 402 or 508 or equivalent. Corequisite: MBio 402. Methods in the isolation and identification of disease causing
microorganisms. S

491. 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,S,SS

---

**Military Science (MSci)**

**W. Kloster (Chair), Allen, Richter, Task, and Weld**

The Army Reserve Officer Training Corps (ROTC) offers a program of instruction
designed to mold young men and women into responsible, self-disciplined 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, administration, problem solving and decision
making. Selection for active Army duty and for commissioning as a regular 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 I (sophomore) year. Other students incur no obligation
until their MS III (junior) year. Successful completion of MS I and MS H 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 basic camp. Questions concerning placement
eligibility should be directed to the Military Science Department. Financial assistance is
available in the form of two, three, and four year ROTC scholarships. These scholarships pay
tuition, laboratory fees and a flat rate for textbooks and equipment and a modest monthly
cost of living allowance. All ROTC scholarship students and each nonscholarship junior and
senior are paid a cost of living allowance. The advance course may be taken for credit only
by nonobligated students at considerable expense for lab fees, uniforms, transportation, etc.
The Military Science Department is housed in the University Armory which contains a
library, student lounge, and rifle range for the use of enrolled students.

Professional Military Education-Requirements:

In addition to successfully completing the ROTC curriculum and earning a bacca-
laureate degree a cadet must complete at least one undergraduate course from each of five
designated fields of study to meet the requirements for commissioning. Usually, meeting the general university requirements and specific major area requirements will satisfy most of the Professional Military Educational requirements. Specifically, cadets must take a course in written communication, military history, human behavior, computer literacy, math reasoning, management*, and national security affairs*.

* Optional

Courses

101. Introduction to Military Science I. 2 credits. An introductory course including: analysis of the organization and functions of the Army, the role and organization of Army ROTC, marksmanship and leadership. F

102. Introduction to Military Science II. 2 credits. A course introducing emergency medical treatment of military casualties and prevention of heat and cold injuries. Course includes leadership laboratory. S

201. Military Science II. 2 credits. A course designed to acquaint the student with the various types of charts and maps available, and introduce them to the basic analysis and interpretation of this media of communication. F

202. Military Science II. 2 credits. Corequisite: Leadership Laboratory. A course designed to give practical experience in: receiving/issuing of operation orders and fragmentary orders, briefings, battle planning, logical thinking, and leadership/followership. This will be accomplished through daily exercise of these facets during war gaming activities based upon historical readings. F,S

215. Conflict Simulation. 1 credit. A course analyzing military strategy and tactics through the use of war gaming activities based upon historical renderings. F,S

290. ROTC Basic Course. 4 credits. A course designed to qualify students not participating in the Military Science I and II programs for entry into the ROTC Advanced Course. Course includes those subjects presented in MSci 101, 102, 201, and 202.

301. Military Science III. 3 credits. Prerequisite: ROTC Basic Course or advanced placement credit. A course analyzing combat organization, combat orders, and small unit tactical operations. Course includes military teaching principles. Course includes leadership laboratory and field exercise. F

302. Military Science III. 3 credits. Prerequisite: same as MSci 301. A course designed to prepare the student/cadet for participation in the ROTC Advanced Camp. Course includes patrolling, small unit tactics, and branch (e.g., infantry, aviation, etc.) orientation. Course includes leadership laboratory and field exercise. S

401. Military Science IV. 2 credits. Prerequisite: Military Science III, Instruction in the functions of a military staff, military writing and military justice. Course includes leadership laboratories and field exercise. S

402. Military Science IV. 2 credits. Prerequisite: Military Science III. Instruction in professionalism and ethics, logistics and personnel systems. Course includes leadership laboratories and field exercise. S

495. Special Topics. 1-3 credits. Special Topics for the Department of Military Science. F,S

Music

Music

Blake, Climer, Einarson, Fry, Jacobson, Koozin, Lewis, Mannion, Rheude, Rodde, Sedgwick, Solose, and Towne

Music is offered at the University of North Dakota in the belief that it contributes to the aesthetic development of humankind. Fully accredited by the National Association of Schools of Music, the Department of Music through its curricula and performance opportunities serves a broad constituency of students in their preparatory, life-long, pre-professional, and inservice learning endeavors.

Music courses that are specifically designed for general education include: Music 100, 108, 109, 220, 226, 227. These courses, along with performing ensembles, can fulfill the Arts and Humanities portion of the University’s General Education Requirements. Individual lessons for credit are offered to music majors and minors, although talented non-majors may audition for lessons (Music 105) and are accepted in proportion to faculty loads.
Prior to admission to any of the music degree programs, students’ performance skills will be evaluated, and a meeting with the appropriate faculty member(s) will be scheduled. Prospective students are also encouraged to contribute any other materials (compositions, papers, recordings, etc.) for consideration. The purpose of this advisory process is to ensure that students select the degree program most appropriate to their goals and abilities.

The pre-professional 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 100, 111, 113, and for individual lessons and the major ensemble within their area of concentration. Placement tests administered during the first week of classes will determine whether a student may be excused from Music 100, which does not count towards the major, but remedies any initial deficiencies revealed by the examination in the general knowledge of music literature. Music 111 and 113 are the normal beginnings of Music Theory and Aural skills, but deficiencies revealed by the examination may require remedial work fulfilled by Music 108. Upper-division courses are pursued in accordance with the specific degree program selected by the student (Bachelor of Music in the College of Fine Arts, Bachelor of Arts in the College of Arts and Sciences, and Bachelor of Science in the Center for Teaching and Learning.

The Bachelor of Music degree program in the College of Fine Arts offers majors in Performance and in Music Education. 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 accepted for this program must demonstrate exceptional potential for performance excellence. The Performance student is expected to pass a Qualifying Examination on the major instrument or voice by the end of the second year, to present a shared recital during the third year, and to present a full recital during the fourth year.

The Music Education major, also in the College of Fine Arts, 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 certification in instrumental, choral, and general music, grades K-12.

The Bachelor of Arts degree program in music, offered through the College of Arts and Sciences, 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.

Ensemble participation is a component of each of the degree programs offered within the Department. Normally, students in the Bachelor of Music program participate in a large ensemble each semester of residence except for the semester of student teaching. Although the number of ensemble credits for each degree is listed below, specific guidelines for fulfilling the ensemble requirement for each of the degree programs can be found in the Department of Music Undergraduate Handbook, available in the Department Office.

Through the Center for Teaching and Learning students may pursue a Bachelor of Science degree in a combination of Elementary Music and Elementary Education. Although not accredited through NASM, students graduating from this program are certified to teach regular elementary school subjects in grades K-6 as well as general music for those grades.
Regardless of the degree program selected, all music majors are evaluated regularly through applied music jury examinations. In addition, each degree program has a specific piano study and piano proficiency requirement. Bachelor of Music students must complete all levels of the Piano Proficiency Sequence prior to graduation or prior to registration for student teaching in the case of music education students. Bachelor of Arts degree students must pass the first level Piano Proficiency. At the end of the fourth semester of music study, students are subject to a mid-program review and, prior to graduation, students must complete a portfolio review as part of the Department assessment procedure.

Individual Lessons and Ensembles may be repeated for credit without limitation. A maximum of 12 hours of credit in ensembles, however, may apply toward graduation.

A Department of Music Student Handbook is available to all students as a supplement to this catalog. That volume includes the most recent updates of policies and procedures of the Department in much greater detail than can be listed here.

College of Fine Arts

BACHELOR OF MUSIC WITH A MAJOR IN PERFORMANCE

Required 132 hours:

I. General Education Requirements, see pages 32-40.

II. College of Fine Arts Requirements, see page 98.................................................................(6)

111. The Following Curriculum:

Mus 100 Introduction to the Understanding of Music.................................................................(3)
(May be waived by examination)

Core Courses

Mus 111, 112, 211, 212 .......... Theory I, II, III, IV.............................................................(12)
Mus 113, 114, 213, 214, ............. Ear Training & Sight Singing I, II, III, IV...........................(4)
Mus 227. .................................. Popular and Classical Musics of the World......................(3)
Mus 330, 331, 332. ................. Music History Survey I, II, III..............................................(9)
Mus 340. .................................. Basic Conducting...............................................................(2)

Performance Courses

Major Instrument .........................................................................................................................(24)
Secondary Instrument...............................................................................................................(4)
Ensembles, Large and Small.....................................................................................................(12)
Mus 450. .................................. Applied Music Pedagogy....................................................(2)

VOCAL MAJORS

Other Supportive Courses

History and Literature .............................................................................................................(3)
Theory and Composition .........................................................................................................(6)
Music Electives (Other than performance)...............................................................................(3)

Foreign Language Requirement ...............................................................................................(8)
French 101, 102 or German 101, 102 or Italian 101, 102

Electives in disciplines other than the major

INSTRUMENTAL MAJORS

Other Supportive Courses

History and Literature .............................................................................................................(3)
Theory and Composition .........................................................................................................(6)
Music Electives (other than performance)...............................................................................(3)
Music 423 (required for Keyboard Performance majors).........................................................(3)

Electives in disciplines other than the major.
# BACHELOR OF MUSIC WITH A MAJOR IN MUSIC EDUCATION

## (Instrumental or Choral Emphasis)

Required 132 hours:

1. General Education Requirements, see pages 32-40.

11. College of Fine Arts Requirements, see page 98 .................................................................(6)

111. The Following Curriculum:

### Core Courses

- Mus 100, Introduction to the Understanding of Music .................................................................(3)
  (May be waived by examination)

- Mus 111, 112, 211, 212, Theory I, II, III, IV .................................................................(12)

- Mus 113, 114, 213, 214, Ear Training & Sight Singing I, II, III, IV .................................(4)

- Mus 227, Popular and Classical Musics of the World .......................................................(3)

- Mus 330, 331, 332, Music History Survey I, II, III .........................................................(9)

- Mus 340, Basic Conducting .................................................................(2)

### INSTRUMENTAL EMPHASIS

**Other studies**

- Mus 411, Instrumental and Choral Arranging .................................................................(2)

- Mus 414, Analysis of Musical Form ..................................................................................(2)

- Mus 429, Instrumental Literature ......................................................................................(2)

**Performance**

- Major Instrument .................................................................(7)

- Major Instrumental Ensemble .................................................................(7)

- Piano as a secondary instrument (can include Mus 131 Piano Class I and
  Mus 132 Piano Class II) .................................................................(4)

- Mus 341, 342, Choral, Instrumental Conducting ..............................................................(4)

- Mus 497, Recital ........................................................................(1)

**Music Education**

- Mus 131, 132, Class Lessons ..................................................................................(5)

- Mus 432, Instrumental Methods ......................................................................................(3)

### VOCAL/CHORAL EMPHASIS

**Other studies**

- Mus 411, Instrumental and Choral Arranging .................................................................(2)

- Mus 414, Analysis of Musical Form ..................................................................................(2)

- Mus 428, Choral Literature ......................................................................................(2)

**Performance**

- Major Instrument .................................................................(7)

- Major Choral Ensemble .................................................................(7)

- Voice Or piano as a secondary instrument (can include Mus 131 Piano Class I and
  Mus 132 Piano Class II) .................................................................(4)

- Mus 341, 342, Choral, Instrumental Conducting ..............................................................(4)

- Mus 497, Recital ........................................................................(1)

**Music Education**

- Mus 131, 132, Class Lessons ..................................................................................(4)

- Mus 201, Diction for Singers ..................................................................................(1)

- Mus 439, Choral Methods ......................................................................................(3)

**Music Technology**

- Mus 318, Introduction to MIDI Technology  
  (Credits apply toward CTL 390) ........................................................................(2)

### PROFESSIONAL EDUCATION*

*See Department of Music Advisor for professional education course sequence*
College of Arts and Sciences

BACHELOR OF ARTS WITH A MAJOR IN MUSIC

Required 125 hours:

I. General Education Requirements, see pages 32-40.

II. The Following Curriculum:

Mus 100.............................................Introduction to the Understanding of Music
(May be waived by examination) .............................................(3)

Core Courses

Mus 111, 112, 211, 212......................................Theory I, II, III, IV .........................................................(12)
Mus 113, 114, 213, 214....................................Ear Training & Sight Singing I, II, III, IV .................(4)
Mus 227...............................................Popular and Classical Musics of the World .........................(3)
Mus 330, 331, 332......................................Music History Survey I, II, III ...........................................(9)
Mus 340.............................................Basic Conducting ...........................................................(2)

Other Supportive Courses

Performance (one instrument or voice) .............................................(4)
Core Ensemble ...........................................................................(4)
Electives in Theory/Comp., History/Lit., or Applied. .....................(5)
Mus 494.............................................Senior Project ...............................................................(2)

Requisites in other departments:

Foreign Language ..................................................................(16)
Level IV proficiency in a foreign language (preferably French, German, or Italian).
Eighteen credits of the required 125 must be in disciplines other than the major
(in addition to University General Graduation and language requirements).

MINOR IN MUSIC

Required 21 hours:

Mus 100.............................................Introduction to the Understanding of Music
(May be waived by examination) .............................................(3)

Core Courses

Mus 111, 112......................................Theory I, II .................................................................(6)
Mus 113, 114....................................Ear Training and Sight Singing I, II ...........................................(2)
Mus 330, 331, or 332......................................Music History Survey I, II, III ...................................(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
211, 212, 227, 330, 331, 332, 340)

Center for Teaching and Learning

B.S. ED. WITH COMBINED MAJOR IN ELEMENTARY AND SECONDARY MUSIC EDUCATION

Required 132 hours:

I. General Education Requirements, see pages 32-40.

II. CTL General Graduation Requirements see pages 114-120.

111. The Following Curriculum:

Mus 100.............................................Introduction to the Understanding of Music
(May be waived by examination) .............................................(3)

Core Courses

Mus 111, 112, 211, 212......................................Theory I, II, III, IV .........................................................(12)
Mus 113, 114, 213, 214....................................Ear Training & Sight Singing I, II, III, IV .........................(4)
Mus 227...............................................Popular and Classical Musics of the World .........................(3)
Mus 330, 331, 332......................................Music History Survey I, II, III ...........................................(9)
Mus 340.............................................Basic Conducting ...........................................................(2)
Music Technology
Mus 318 Introduction to MIDI Technology
(Credit applies toward CTL 390) .........................................................(2)

PROFESSIONAL EDUCATION*

*See Department of Music Advisor for professional education course sequence.

Center for Teaching and Learning

B.S. ED. WITH COMBINED MAJOR IN ELEMENTARY EDUCATION AND MUSIC.

Required 127-134 hours:

I. General Education Requirements, see pages 32-40.

II. The Center for Teaching and Learning Program for Elementary Education, see pages 114-120.

111. The Following Curriculum:

Mus 100............................................Introduction to the Understanding of Music
(May be waived by examination) .........................................................(3)

Core Courses

Mus 111, 112, 211, 212, 211, 212, 213, 214................Theory I, II, III, IV .........................................................(12)
Mus 113, 114, 213, 214, 213, 214, 214................Ear Training & Sight Singing I, II, III, IV .........................(4)
Mus 330, 331, 332, 330, 331, 332, 332..................Music History Survey I, II, III, IV .................................(9)
Mus 340, 340, 340, 340, 340, 340, 340..................Basic Conducting, .........................................................(2)

Performance

Major Instrument .................................................................(4)
Ensembles ......................................................................(4)
Voice lessons .................................................................(1)
Music 341, 341, 341, 341, 341, 341, 341, 341........Choral Conducting .........................................................(2)

Music Education

Mus 131 or 132, 131 or 132, 131 or 132, 131 or 132..................Voice or Piano Class .........................................................(1)
CTL 420E, 420E, 420E, 420E, 420E, 420E, 420E..........Methods & Materials in Elementary Music ................(3)
Electives in Music ............................................................(3)

MINOR IN MUSIC

Required 23 hours:

Mus 100, 100, 100, 100, 100, 100, 100, 100..................Introduction to the Understanding of Music
(May be waived by examination) .........................................................(3)

Core Courses in Music

Mus 113, 114, 113, 114, 113, 114, 113, 114..................Ear Training and Sight Singing I, II .........................(2)
Mus 340. Basic Conducting. (2)
Mus 330 or 331 or 332. Music History Survey I, II, III. (3)

Additional Courses in Music (10)
Applied Music. (4-5)
Ensembles. (2-3)
CTL 420. Elementary Music Methods and Materials. (3)

Courses

100. Introduction to the Understanding of Music. 3 credits. Music appreciation for students without an extensive background in music. Open to non-majors for humanities credit. F/S

108. Fundamentals of Music. 3 credits. The fundamental musical skills, from reading notes, through scales, chords, basic harmony, and musical terminology. No degree credit for music majors. Non-majors receive humanities GER credit. F/S

109. Creative Music. 3 credits. Understanding of musical elements and their organization through involvement with creative processes in music; individual and group experiments with sound utilizing a variety of sound sources including environmental sounds. Open to non-majors for humanities credit. F/S

201. Diction for Singers. 1 credit. Prerequisite: 2 semesters of private voice lessons. Rules for and practical applications of pronunciation of one of the major languages used in song literature: French, German, or Italian. May be repeated for credit up to 3 hours. S/2

301. Special Topics. 1 to 3 credits. Consent of instructor required. Specially arranged seminars or courses on variable topics not covered by regular departmental offerings. May he repeated for credit up to 6 hours. F/S


490. Individual Research in Band Literature and Method Books. 1 credit. For summer camps and workshops only. Independent study in some area of band literature and instrumental literature. On demand.

494. Senior Project. 2 credits. Prerequisite: Senior standing. Presentation of a recital, research paper, original composition, or similar project that meets the approval of the department. F/S

498. Special Projects. 1 to 3 credits. Individual study in an approved area of interest to the student. May be repeated for credit up to 8 hours. F/S

Music Theory and Composition

111, 112. Theory I, II. 6 credits. 111 is prerequisite for 112. Direct involvement with creative processes in music through individual and group experiments with sound. Music notation and terminology; rhythmic, melodic, and harmonic patterns. F/S

113, 114. Ear Training and Sight Singing I, II. 2 credits. 113 is prerequisite for 114. 111 is a co-requisite for 113 and 112 is a co-requisite for 114. Training in reading at sight and in aural recognition involving dictation, keyboard and singing skills. F/S

211. Theory III. 3 credits. Prerequisites: Music 112, 114. Compositions selected from various periods are used to gain experiences with rhythmical, melodic, harmonic, and contrapuntal aspects of music. Keyboard applications and original writing. F

212. Theory IV. 3 credits. Prerequisites: 213, 211. Continuation of Theory I1 with primary emphasis on the 20th Century musical thought and techniques. S

213, 214. Ear Training and Sight Singing III, IV. 2 credits. 114 is prerequisite for 213 which is prerequisite for 214. Continuation of the development of sight reading and aural recognition skills including music dictation. F/S

411. Instrumental and Choral Arranging. 2 credits. Prerequisite: Music 212. 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

414. Analysis of Musical Form. 2 credits. Analysis of the principal forms of musical composition. S/2


416. Composition. 2 credits. Prerequisite: Music 212. Original composition in smaller forms for vocal and instrumental solos and ensembles. S


418. Electronic Music Techniques. 2 credits. Prerequisite: Music 212 or permission of instructor. Synthesizer techniques and tape manipulation through analysis, experiment, and individual projects. F/S

Music History and Literature

220. 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.
226. **Rock Music and Popular Culture.** 3 credits. Rock and other popular musics are examined in relation to historical and social world trends since the mid-twentieth century. The course focuses on how contemporary issues including civil rights, the peace movement, global political change, and new technology have paralleled developments in rock music. S

227. **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. F

276. **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.

330. **Music History Survey I.** 3 credits. Prerequisite: Music 100 or instructor’s permission. A survey of western music history Ancient Times through the Middle Ages and Renaissance. S

331. **Music History Survey II.** 3 credits. Prerequisite: Music 100 or permission of the instructor. A survey of western music history of the Common Practice Period, including Baroque, Classical, and Early Romantic music. F

332. **Music History Survey III.** 3 credits. Prerequisite: Music 100 or permission of the instructor. A historical survey of western art music from late Romantic innovations to the present day. S

341. **Early Keyboard Literature.** 3 credits. Prerequisite: Consent of the instructor. Historical study, analysis, and performance of keyboard instruments and literature from their beginnings until the invention of the piano. F,S

423. **Piano Literature.** 3 credits. Prerequisite: Music 395, Piano, or consent of the instructor. Study and analysis of keyboard music from the Baroque period to the present, with attention to the development of forms, techniques, and styles. F

425. **Song Literature.** 2 credits. Prerequisite: Music 295, Voice. Representative song literature of Italy, France, Germany, England, Russia, Norway, Sweden, and America. S/2

426. **Stringed Instrument Literature.** 2 credits. Major works from the solo and ensemble literature for stringed instruments from 1650 to present. On demand.

427. **Seminor in Music History.** 3 credits. Prerequisite: 3 hours of music history and literature. On demand.

428. **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/2

429. **Instrumental Literature.** 2 credits. Wind instrument literature from the Renaissance to the present with particular attention given to the representative compositions in both large and small forms. F/2

**Music Education**

131. **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,S

132. **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,S


318. **Introduction to MIDI Technology.** 2 credits. Prerequisite: Music 212, 214. Introduction to the use of computers and digital synthesizers in composition, performance and music education. F/2

430. **Advanced Methods for the Teaching of Woodwind, Brass, and Percussion Instruments.** 1 credit. For summer camps and workshops only. Techniques and methods used in the teaching of various woodwind, brass, and percussion instruments. On demand.

431. **Stage Band Techniques.** 2 credits. Prerequisite: Music 340. Organization of and materials appropriate for the stage band, methods of teaching the rhythmic and tonal problems inherent in its style. On demand.

432. **Instrumental Methods.** 3 credits. F/2

433. **Orchestra Directors’ Course.** 1 credit. Organizational and administrative problems of the orchestra director such as curriculum, recruiting, scheduling, programming, promotion of the string program, and literature. On demand.

437. **Music Education Special Topics.** 1 to 3 credits. F,S

439. **Choral Methods.** 3 credits. F/S

**Music Performance**

a. **Conducting**

340. **Basic Conducting.** 2 credits. Prerequisite: Music 112, 114. Development of basic conducting techniques, baton technique, and use of the left hand. Reading of choral and instrumental scores. F
341. Choral Conducting. 2 credits. Prerequisites: Music 340 and successfully passing the Piano Proficiency Test. Conducting problems and rehearsal techniques in relation to choral literature in various styles based on score, class performance, and recordings. S/2

342. Instrumental Conducting. 2 credits. Prerequisite: Music 340. Instrumental conducting, rehearsal techniques, and score reading through the use of instrumental literature of various styles and periods. S/2

443. Advanced Conducting and Interpretation of Band Literature. 1 credit. For summer camps and workshops only. On demand.

b. Pedagogy

438, Music in the Junior High School. 1 to 4 credits, On demand

450. Applied Music Pedagogy. 2 credits. Prerequisite: 5 semester hours of Applied Music in the instrument (or voice) concerned or consent of the instructor. Readings, instruction, 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/2, Voice F/2, Strings S/2

c. Music Ensembles

A maximum of twelve hours of credit in ensembles may apply towards graduation

260. Concert Choir. I credit. F,S

261. University Chamber Chorale. I credit. F,S

262. UND Community Chorus. I credit. On demand.

263. Varsity Bards. I credit. F,S

264. Women's Chorus. I credit. F,S


269. Opera Project. 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. I credit. F,S

271. University Band. I credit. F,S

272. Marching Band. I credit. F,S

273. Instrumental Jazz Ensemble. I credit. F,S

274. Symphony Orchestra. I credit. F,S

275. University Chamber Orchestra. I credit. On demand

276. Collegium Musicum. 1 to 4 credits. On demand.

279. Chamber Music Groups. I 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 (Individual Lessons*)

105. Individual Lessons for Non-Majors. I credit. F,S

195. Individual lessons. I credit. F,S

196. Individual lessons. 2 credits. For Bachelor of Music in Performance students only. F,S

295. Individual lessons. I credit. F,S

296. Individual lessons. 2 credits. For Bachelor of Music in Performance students only. F,S

395. Individual lessons. 1 credit. F,S

396. Individual lessons. 4 credits. For Bachelor of Music in Performance students only. F,S

495. Individual lessons. 1 credit. F,S

496. Individual lessons. 4 credits. For Bachelor of Music in Performance students only. F,S


*In registering for private lessons in voice, piano, organ, or any band or orchestra instrument, “Voice” or the name of the instrument serves as the title of the course. An audition with appropriate Music Faculty is a prerequisite for all students’ enrollment in Individual Lessons. For the final examination, the student will perform before a faculty committee (jury). No regular student may take an Applied Music course without credit or on other than a letter grade basis.
Natural Sciences
(A&S)
D. Cole, Advisor
College of Arts and Sciences

B.S. WITH MAJOR IN NATURAL SCIENCE
Required 125 hours, including:
I. General Education Requirements, see pages 32-40
II. The Following Curriculum:
   40 major hours, including:
      From Biology, Chemistry, Geography *, Geology and Physics select at least 16 hours from one, and at least 12 hours from each of two other fields. A minimum of 10 credits must be in upper level courses.
Required in other departments:
   Level IV proficiency in a foreign language.
   Mathematics through 212, or equivalent proficiency.
*The following Geography courses may be used to apply toward this concentration: Geography 121, 134, 334, and 421.
The curriculum is primarily for Pre-Medical and Pre-Dental students.

Nursing
(Nurs)
L. Merrill (Dean), Anderson, Benson, Berg, Bjerke, Burd, Christian, Dardis, Downey, Gilje, Gullicks, Hanson, Heitman, Helgeson, Henly, Heuer, Hunter, Hurley, Iszler, Juhl, Klose, Langemo, Larson, Macejkovic, Melland, Milburn, Monnig, Norman, Olson, Radel, Saxowsky, Schauer, Szigeti, B. Thompson, M. Thompson, Tyree, Vermeersch, Volden, and Wilhite

College of Nursing

B.S. IN NURSING
Required 129 hours, including:
I. General Education Requirements (Including 12 credits of Arts and Humanities and approximately six credits of other electives. Recommended that students try to complete a portion of these prior to admission to nursing), see pages 32-40.
II. College of Nursing Degree Requirements, see pages 109-113.
III. The Following Curriculum:

Freshman Year (Prenursing)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101</td>
<td>3</td>
</tr>
<tr>
<td>Chem 104 or 105</td>
<td>4</td>
</tr>
<tr>
<td>Chem 107</td>
<td>4</td>
</tr>
<tr>
<td>Psy 101</td>
<td>3</td>
</tr>
</tbody>
</table>

Anat 204..................................................Anatomy for Paramedical Personnel. .............................................(3)
Anat 204L............................................Anatomy Laboratory..............................................................................(2)
*Soc 101 ..................................................Introduction to Sociology. .........................................................(3)
*Soc 102 ..................................................Social problems ............................................................................(3)
Anth 171 .............................................Cultural Anthropology...........................................................................(3)
**Phy 301 ..................................................Mechanics of Human Physiology ..................................................(4)
Engl 102 ..................................................Composition 11 ....................................................................(3)
Engl 209..................................................Technical and Business Writing ...............................................(3)

*** Electives/Arts & Humanities

Sophomore Year

**Phy 301 ..................................................Mechanics of Human Physiology .............................................(4)
**MBio 202. .............................................Introduction to Medical Microbiology. .................................(5)
Nurs 233.............................................Nursing and Professionalism.........................................................(1)
Nurs 280.............................................Introduction to Clinical Nursing ......................................................(3)
Nurs 286.............................................Health Assessment Techniques ..................................................(3)
PhTx 304..............................................Human Pharmacology .................................................................(3)
Psy 251 ..................................................Developmental Psychology .........................................................(4)
FCS 240, .............................................Fundamentals of Nutrition .........................................................(3)
Nurs 230, .............................................Personal and Group Dynamics .....................................................(2)
Nurs 288, .............................................Introduction to Adult Health Nursing ..............................................(4)

*** Electives/Arts & Humanities

Junior Year

Psy 370, .............................................Abnormal Psychology .................................................................(3)
Nurs 328.............................................Adult Health Nursing .................................................................(4)
Nurs 382.............................................Adult Health Clinical .................................................................(4)
Nurs 320, .............................................Therapeutic Nutrition in Nursing ...............................................(1)
Nurs 383, .............................................Childbearing Nursing I ...............................................................(2)
Nurs 384, .............................................Child Health Nursing I ..............................................................(2)
Nurs 385, .............................................Childbearing Nursing II ............................................................(2)
Nurs 386, .............................................Child Health Nursing II ............................................................(2)
Soc 326, .............................................Family in the Community .............................................................(3)
or Econ 210.............................................Introduction to Statistics .............................................................(3)
Nurs 350, .............................................Nursing Research .................................................................(3)

*** Electives/Arts & Humanities

Senior Year

Nurs 478, .............................................Leadership and Management .......................................................(3)
Nurs 448.............................................Community Health Nursing .......................................................(3)
Nurs 484.............................................Community Health Nursing Clinical .........................................(3)
Nurs 481.............................................Multisystem Complex Adult Health ........................................(4)
Nurs 498.............................................Nursing Practicum Theory .....................................................(2)
Nurs 488, .............................................Nursing Practicum .................................................................(1-4)
Nurs 440, .............................................Trends in Nursing .................................................................(2)
Nurs 483.............................................Mental Health Nursing .............................................................(4)

Students are encouraged to consider Cooperative Education, Independent Study and Honors; students should obtain supplemental information from the College of Nursing Director of Student and Alumni Affairs or faculty adviser.

* Required Courses for Admission to College of Nursing
** Recommended prior to fall admission to Nursing; or required first semester of sophomore year. Required for Spring admission to Nursing.
*** A total of 12 hours of Humanities required by graduation to meet General Graduation Requirements. Sufficient elective credits needed by graduation to reach 129 total credits (usually 6 credits).
Courses

Unless otherwise indicated, nursing courses are open only to those admitted to the College of Nursing 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 evening, night, or weekend clinicals to provide the most varied and reworking experience for the students. Some experiences may be at places distant from Grand Forks.

230. **Personal and Group Dynamics. 2 credits.** Focus is on awareness and use of self as a holistic person and as a professional, on communication and interviewing skills, and on the role of group processes in promoting personal and professional growth. Seminar. F,S Open to non-majors.

233. **Nursing and Professionalism. 1 credit.** Characteristics of a profession, a professional, and professional nursing practice as well as the evolution of nursing as a profession are explored. Seminar. F,S Open to non-majors.

280. **Introduction to Clinical Nursing,** 3 credits. Pre- or Co-requisites: Nurs 286, 233. Phy 301. Focus is on the theories, concepts, behaviors, and intervention skills basic to professional nursing practice. Use of the nursing process is emphasized in the care of adults, particularly in the middle and older developmental stages. Lecture/discussion/clinical. F,S

286. **Health Assessment Techniques,** 3 credits. Pre- or Co-requisites: Phy 301 or consent of instructor. Within the nursing process, the emphasis is on holistic assessment of the health status of adults. Lecture/discussion/clinical. F,S

288. **Introduction to Adult Health Nursing,** 4 credits. Prerequisites: Nurs 233, Nurs 280, Nurs 286; Pre- or Co-requisites: PhTx 304, HEc 240. Focus is on theory and practice of nursing care of adults with primarily chronic health alterations. Lecture/discussion/clinical. F,S

320. **Therapeutic Nutrition in Nursing,** 1 credit. Prerequisites: HEc 240 and Nurs 280. Focus is on nutrition interventions related to the holistic care of adults while incorporating the nursing process. Nutrition concepts in promoting, maintaining and restoring optimal health are applied. Lecture/discussion. F,S

328. **Adult Health Nursing,** 4 credits Prerequisite: Nursing 288, 230; Co-requisite: Nurs 320. Focus is on selected theories and principles of adult nursing practice, education, and research with particular emphasis on the acute biological aspects. Lecture/discussion/special assignments. F,S

337. **Nursing Cooperative Education Work Experience in Nursing,** Prerequisites: Completion of all sophomore year courses and a 2.5 overall GPA. A reality experience in nursing integrating clinical work experience and evaluation. Designed to enhance the student’s prior course work in nursing. Qualified nursing students are employed by selected health care agencies on either summer or parallel plan. Hours arranged within the guideline of 10 hours per credit. F,S,S

350. **Nursing Research,** 3 credits. Pre- or Co-requisite: Statistics. Introduction to nursing research with a focus on the interrelationship among nursing practice, theory and research. Lecture/Discussion. F,S

361. **New Concepts in Nursing Practice I,** 2 credits. Prerequisite: RN or consent of instructor. Topics, including the College of Nursing Philosophy, selected to prepare RN/BSN nursing students for their role as professional nurses are examined. Special issues in nursing practice are analyzed as they relate to the role of the professional nurse in the ever-changing health care system. F,S Open to pre-nursing RNs.

362. **New Concepts in Nursing Practice II,** 4 credits. Prerequisite: RN or consent of instructor. Pre- or Co-requisite: Nursing 361. Advanced concepts, theories, and research related to maternal/child and family health, adult health, and mental health are explored by RN/BSN option students. Nursing roles are examined in relation to promotion, maintenance, and restoration of health. Special issues in nursing practice are analyzed. S Open to pre-nursing RNs.

382. **Adult Health Clinical,** 4 credits. Pre- or Co-requisites: Nurs 383, Nurs 286; Pre- or Co-requisites: PhTx 304, HEc 240. Focus is on theory and practice of nursing care of adults with primarily chronic health alterations. Laboratory/clinical. F,S

383. **Childbearing Nursing I,** 2 credits. Pre- or Co-requisites: Nurs 383. Focus is on nursing care for health maintenance and health promotion during childbirth. Lecture/clinical. F,S

384. **Child Health Nursing I,** 2 credits. Pre- or Co-requisite: Nurs 384. Focus is on nursing care for health maintenance and health promotion during childhood. Lecture/clinical. F,S

385. **Childbearing Nursing II,** 2 credits. Prerequisite: Nurs 383. Focus is on nursing care in illness and health restoration during childbirth. Lecture/clinical. F,S

386. **Child Health Nursing II,** 2 credits. Prerequisite: Nurs 384. Focus is on nursing care during illness and health restoration during childhood. Lecture/clinical. F,S

387. **Family in the Community,** 3 credits. Pre- or Co-requisites: Nurs 385 and 386. Focus is on family-centered, community based services for expectant families and families caring for children with special needs. Emphasis is on standards of prenatal care, risk assessment, parenting, children with chronic illness and/or disability, and multidisciplinary services. Lecture/clinical/discussion. F,S

390. **Transcultural Nursing,** 2 credits. Prerequisites: Junior level standing or permission of the instructor. Introduces theories, principles and research related to transcultural nursing and health care. Students develop
awareness of the biological, psychological, and sociological aspects of clients of selected cultures, and identify their specific health care values and practices. F.S

“398. 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. Maybe repeated up to 9 credits. Open to juniors and seniors in the College of Nursing.

399. Honors Tutorial. 3-6 credits. Supervised independent study in Nursing for students ended in the 4-year Honors program.

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.

418. Physical Changes in Aging. No prerequisites. 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. S

440. Trends. 2 credits. Prerequisite: Nursing 387. Trends, controversies and other issues in nursing and health care delivery are explored. Seminar. F.S

448. Community Health Nursing. 3 credits. Pre or Co-requisite: Nurs 387 and 350. Focus is on the health of the community. An emphasis is placed on the assessment, analyzing, planning, intervention, and evaluation of nursing and health care in promoting, maintaining, and restoring optimal health of communities.

Lecture/Discussion.

478. Leadership and Management. 1 to 3 credits. Prerequisites: Nurs 350 and 387. Focus is on the management and leadership roles of the professional nurse in the delivery of comprehensive health care. Seminar. F.S

481. Multisystem Complex Adult Health. 4 credits. Prereq- or Co-requisites: Nurs 478 and 484. Focus is on the management of nursing care of adults with multisystem health problems. Lecture/Discussion/Clinical. F.S

483. Mental Health Nursing. 4 credits. Prerequisites: Nursing 478 and Psy 370. Focus is on promotion, maintenance, and restoration of mental health throughout the life cycle while practicing as a caring, collaborative, professional nurse. Lecture/Seminar/Clinical. F.S

484. Community Health Nursing — Clinical. 3 credits. Prerequisite or Corequisite: Nursing 448. Focus is on the health of communities, families and individuals. Emphasis is placed on providing comprehensive health care through the use of various community health rules. laboratory/Clinical. F.S

488. Nursing Practicum. 1 to 4 credits. Pre- or Co-requisite: Nurs 498. Emphasis is on the role transition process involved in establishing oneself in a position within an agency as well as integrating the many aspects of the role of a professional nurse. Clinical. F.S

498. Nursing Practicum Theory. 2 credits. Prerequisite: Nurs 481. Role transition, the socialization process, and research and theory related to the legal, ethical, and evaluation issues are emphasized in preparation for assuming beginning or enhanced positions within the nursing profession. Lecture/Discussion. F.S

499. 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

Occupational Therapy

S. McIntyre (Chair), Byram, Marken, Perrin, and Zimmerman

The Occupational Therapy program is accredited by the Committee on Allied Health Education and Accreditation of the American Medical Association in conjunction with the Accreditation Committee of the American Occupational Therapy Association. Graduates of the program will be able to sit for the national certification examination for the occupational therapist administered by the American Occupational Therapy Certification Board. After successful completion of this exam, the individual will be an Occupational Therapist, Registered (OTR). Many states require licensure in order to practice; however, state licenses are usually based on the results of the AOTCB Certification Exam.

The following four and one-half year program will lead to a Bachelor of Science in Occupational Therapy. The student spends the first year in the University College, then enrolls in the College for Human Resources Development to complete the pre-professional program. In the spring of the Sophomore year, when the student is completing the required courses as listed in the first two years, 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. Acceptance is on a competitive basis with consideration given to pre-professional performance in the sciences, general graduation requirements, volunteer work and personal qualifications. A student must have at least a C in each of the Sciences, English Composition, and all Occupational Therapy courses. A grade point average of 2.7 is required for admission to, retention in the professional program and eligibility for Level 11 field work placement and graduation. A student must satisfactorily complete all courses each semester to be eligible to enroll for the next semester. The Occupational Therapy Department reserves the right to place on professional probation or cancel the registration of any student in Occupational Therapy whose performance in relation to patient treatment is unsatisfactory.

Program accommodations for qualified handicapped persons will be reviewed upon notification to the department of a prospective student’s needs and limitations.

College for Human Resources Development

B.S. IN OCCUPATIONAL THERAPY

Required 131 hours including:

1. General Education Requirements, see pages 32-40.

2. College for Human Resources Development Requirements, see page 102-103.

3. The Following Curriculum:

   Pre-Professional Requirements

   Engl 101, 102 or 209 ....................Composition 1, 11 or Tech. & Bus. Writing .........................(6)
   Arts and Humanities ............................(12)

   Biol 101 ....................................Introduction to Biology .........................................................(4)

   Chem 104 or 105 .............................Introductory Chemistry or General Chemistry 1 ..........(4)

   Comm 161 ..................................Fundamentals of Public Speaking ..............................(3)

   Soc 101 ....................................Introduction to Sociology .....................................................(3)

   Psy 101 ....................................Introduction to Psychology ..................................................(3)

   Psy 241 ....................................Introduction to Statistics ......................................................(4)

   Psy 251 ....................................Developmental Psychology ..................................................(4)

   Psy 370 ....................................Abnormal Psychology .........................................................(3)

   Anat 204 ..................................Anatomy for Paramedical Personnel ...............................(3)

   Phy 301 ....................................Mechanics of Human Physiology .....................................(4)

   OT 200 ....................................Introduction to Occupational Therapy .............................(2)

   OT 205 ....................................Medical Terminology .................................................................(1)

   Professional Occupational Therapy Curriculum

   OT 303. OT with Infants & Pre-School Children. .................................................................(4)

   OT 304 ....................................Psychosocial Aspects of OT with Children, Adolescents & Young Adults ..................................................................................................................(4)

   OT 305 ....................................Group Experience .................................................................(1)

   OT 307 ....................................OT with School Children & Young Adults .............................(4)

   OT 308 ....................................Leadership Skills in OT 1 ....................................................(1)

   OT 309, 310 .................................Medical Sciences I, Medical Sciences 11 ......................(5)

   OT 312 ....................................Muscle Function in Health and Disease .................................(4)

   OT 322 ....................................Anatomy for OT .................................................................(5)

   OT 337 ....................................Cooperative Education in OT (Elective) ............................(1-12)

   OT 386 ....................................Practicum: Children/Adolescents .........................................(1)

   OT 401 ....................................Adaptive Technology for OT ..........................................(2)

   OT 402 ....................................Orientation to Research in OT ...........................................(2)

   OT 403 ....................................Physical Aspects of OT with the Maturing Adult ...........(2)

   OT 404 ....................................Psychosocial Aspects of OT with the Maturing Adult .......(4)

   OT 405 ....................................Organization and Administration of OT ...........................(5)

   OT 482 ....................................Practicum: Psychosocial .........................................................(2)

   OT 482S ....................................Seminar: Practicum Integration 1 ....................................(1)

   OT 483 ....................................Practicum: Physical Dysfunction ...........................................(2)

   OT 483S ....................................Seminar: Practicum Integration 11 ....................................(1)
OT 484. Community Aspects of OT 1) 2 credits. Prerequisites: Anatomy 204, Psychology 251, and Department Major. History, scope, objectives, and functions of Occupational Therapy. F,S

OT 485. Elective Field Work in Psychosocial Dysfunction. 2(6) credits. Prerequisite: Registered in the professional occupational therapy program. Normal and abnormal human development, comprehension and development through pre-school years. Emphasis on reflexes, sensory systems, sensory integration, illness and trauma, assessment procedures, treatment techniques and therapeutic media. Laboratory included. F

OT 486. Elective Field Work in OT 2(6) credits. Prerequisite: Registered in the professional occupational therapy program. Corequisites: OT 303, 305, 309, 322. Psychosocial dysfunction in children, adolescents, and young adults, with emphasis on OT evaluation, planning, and treatment. Laboratory included. S

OT 487. Elective Field Work in Physical Dysfunction. 2(6) credits. Prerequisite: Registered in the professional occupational therapy program. Normal and abnormal human development, conception through young adulthood. Effects of physical illness and trauma. Assessment and treatment procedures. Therapeutic techniques and media. Laboratory included. S

OT 491. Independent Study in OT (Elective). 1(6) credits. Prerequisite: Registered in the professional occupational therapy program. Orientation to patterns of muscle action with neuromuscular involvement. Laboratory included. F

OT 492. Community Experience. 1(4) credits. Prerequisite: Registered in professional Occupational Therapy program. Promote verbal and nonverbal communication. Laboratory included. S-U grading only. F

OT 493. Workshop. 1(6) credits. Prerequisite: Registered in professional Occupational Therapy program. The effect upon the human being of interruptions in, aberrations of, and trauma to the developing human organism throughout the life span. 309-F, 310-S

OT 495. Integration of occupational Therapy Theory. 1(1) credits. Prerequisite: Registered in professional OT program. Review of musculature acting on the extremities and trunk. Orientation to patterns of muscle action with neuromuscular involvement. Theory and techniques of muscle testing. Laboratory included. S

OT 496. Medical Terminology. 1 credit. Knowledge of medical terminology. F,S

OT 497. Occupational Therapy with Infants & Pre-School Children. 4 credits. Prerequisites: Registered in professional Occupational Therapy program, OT 303, 305, 309, 322. Psychosocial dysfunction in children, adolescents, and young adults, with emphasis on OT evaluation, planning, and treatment. Laboratory included. S

OT 498. Occupational Therapy with School Children & Young Adults. 4 credits. Prerequisites: Registered in professional Occupational Therapy program, OT 303, 305, 309, 322. Human development, school years through young adulthood. Effects of physical illness and trauma. Assessment and treatment procedures. Therapeutic techniques and media. Laboratory included. S

OT 499. Group Experience. 1 credit. Prerequisite: Registered in professional Occupational Therapy program. Promote verbal and nonverbal communication. Laboratory included. S-U grading only. F

OT 500. Occupational Therapy with School Children & Young Adults. 4 credits. Prerequisites: Registered in professional Occupational Therapy program, OT 303, 305, 309, 322. Experiential learning in a group setting. This provides OT students with the opportunity to function as facilitators for their role in therapeutic groups in psychiatric settings. Laboratory included. S

OT 501. Orientation to Research in Occupational Therapy. 2 credits. Prerequisite: Registered in professional Occupational Therapy program, OT 303,305,309,322. Experiential learning in a group setting. This provides OT students with the opportunity to function as facilitators for their role in therapeutic groups in psychiatric settings. Laboratory included. S

OT 502. Orientation to Research in Occupational Therapy. 2 credits. Prerequisite: Registered in Professional Occupational Therapy Program. Corequisites: OT 303, 305, and 309. Orientation to philosophical origins and theoretical framework of theories used in occupational therapy practice. F

OT 503. Physical Aspects of OT with the Maturing Adult. 5 credits. Prerequisite: Registered in professional Occupational Therapy program. Physical dysfunction in the maturing adult with the emphasis on Occupational Therapy evaluation, planning, and implementation of treatment. Laboratory included. F,S

OT 504. Psychosocial Aspects of OT with the Maturing Adult. 4 credits. Prerequisite: Registered in professional occupational Therapy program, OT 304, 305, 308. Psychosocial dysfunction in the maturing adult with the emphasis on OT evaluation, planning, and implementation of treatment. Laboratory included. F, S
Peace Studies

Peace Studies is an interdisciplinary program with a large faculty drawn from departments and colleges such as law, medicine, philosophy and religion, history, education, economics, English, psychology, sociology, political science, communications, languages, and the natural and physical sciences. The program’s goal is to encourage critical scholarly thinking and action by students and faculty on the relatively unexamined issues of peace, war, social justice, and human rights. In addition, the program offers students opportunities for educational and professional enrichment on issues related to peace and social justice, grassroots organizing, public and international service, and conflict resolution and negotiation.
Peace Studies is a new field. In many respects it is similar to other liberal arts disciplines with regard to career opportunities. It is an excellent preparation for graduate study in a range of legal, governmental, social service, educational, and theological fields. There are also career fields open for those with a baccalaureate degree, especially in the social services as they apply to relief agencies, international agencies, human rights organizations, and arms control agencies. Opportunities also exist in government and in business enterprises with strong international dimensions.

The major includes the required courses listed below, courses that fulfill General Education Requirements, and elective courses. In consultation with an advisory committee composed of three members selected from the Peace Studies faculty, the student can tailor a program to suit his/her interests by choosing among GER courses as well as electives for the major. Relevant courses in conflict resolution, international relations, area studies, moral issues, science or local action may be organized around a theme. Students are encouraged to complete four years of language study and an advanced writing course.

The major includes an internship of 6 to 16 hours which may be served locally, nationally, or internationally. The internship may be undertaken with groups or professionals such as the following: an international governmental agency; a volunteer or church-related agency; a practitioner of negotiation and conflict resolution; an agency concerned with global food production, nutrition, and health; a relief agency; an arms control organization; or a business with an international focus. The internship is to be planned with the advisory committee and generally occurs during the junior year or following summer.

**College of Arts and Sciences**

**B.A. WITH A MAJOR IN PEACE STUDIES**

Required 125 hours including:

I. General Education Requirements; see pages 32-40.

II. The Following Curriculum:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.S. 101</td>
<td>Introduction to Peace Studies</td>
<td>3</td>
</tr>
<tr>
<td>P.S. 201</td>
<td>Moral Thought in the Nuclear Age</td>
<td>3</td>
</tr>
<tr>
<td>P.S. 350</td>
<td>Peace Studies Seminar: Interdisciplinary Perspectives</td>
<td>3</td>
</tr>
<tr>
<td>P.S. 360</td>
<td>Conflict Management</td>
<td>3</td>
</tr>
<tr>
<td>P.S. 370</td>
<td>Nuclear Weapons</td>
<td>3</td>
</tr>
<tr>
<td>P.S. 486</td>
<td>Internship</td>
<td>6</td>
</tr>
<tr>
<td>P.S. 490</td>
<td>Senior Seminar</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives, additional seminars (P.S. 350), Independent Study (P.S. 39 S), or additional internship credits (P.S. 486) as approved by committee described above.

Language requirement: Level IV proficiency in a language other than English.

**Courses**

10]. Introduction to Peace Studies. 3 credits. An introduction to the major content of the Peace Studies Program: problems of peace and war in a nuclear age, alternative means of conflict resolution, a history of nonviolence as a moral and political philosophy, and a variety of social justice issues. F,S

201. Moral Thought in the Nuclear Age. 3 credits. A course in decision making in a nuclear age. The course seeks to discover a modern sense of moral duty by acknowledging the realities of the nuclear age and asking what now we ought to do about them. S

350. Peace Studies Seminar: Interdisciplinary Perspectives. 3 credits. Repeatable. An interdisciplinary seminar taught by two or more faculty members from different disciplines. Topics are variable. Emphasis will be variably historical, issue centered, or text centered. Students will be expected to participate in discussion, do a significant piece of writing, and contribute to a class projector group presentation. F,S

360. Conflict Management. 3 credits. A survey of the nature, causes, and dynamics of conflict and of the ways that conflicts can be managed. F

370. Nuclear Weapons. 3 credits. A study of the history and development of nuclear weapons, their physical characteristics and capabilities and the related political and strategic planning which supports them. S
Pharmacology and Toxicology

PhTx

D. Hein (Chair), Blake, Buckley, Clarens, Epstein, Kang, and Martsolf

The Department of Pharmacology and Toxicology offers an undergraduate minor in pharmacology and toxicology. The objective of the program is to provide an opportunity for undergraduate students to receive a generalized and non-professional understanding of this discipline.

Pharmacology and Toxicology is a health/life science discipline of relevance to many undergraduate students. Educational benefits of the program include an appreciation for the biological consequences of a chemical environment, including the actions of prescribed drugs, self-medication (over-the-counter) drugs, and psychoactive drugs frequently abused by the general public. It also includes the biological effects of food additives, agricultural, environmental, and industrial chemicals. Students will gain a scientific basis for environmental issues, risk-benefit decisions, and the concepts of dose-response, threshold dose, and maximally-tolerated dose. The program will provide students with a general understanding of how drugs work, how they are developed and approved, and the differences between generic and brand name drugs. Students will learn how drugs alter normal human physiology and will be better informed and educated health care consumers.

Science students majoring in chemistry and biology who complete the program will appreciate increased relevance for their disciplines and will have an opportunity to enhance their application for further graduate or professional education in the health sciences. Students with majors in education, social work, counseling, sociology, and other disciplines can enhance their abilities to interact with people who may have drug-related problems. Students with interests in engineering, business, agriculture, environmental law, and industrial technology will have an increased understanding of the effects of occupational chemicals on the environment and the worker.

Individual pharmacology and toxicology courses are required for various other health science programs such as Nursing and Athletic Training. Individual courses are also required for the Chemical Use/Abuse Awareness minor in Social Work.

The Department offers a number of graduate and professional courses in Pharmacology and Toxicology. Details of these courses and the graduate program in Pharmacology and Toxicology can be found in the Graduate School and School of Medicine catalogs.

MINOR IN PHARMACOLOGY AND TOXICOLOGY

Required 20 hours, including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BiCh 301</td>
<td>Biochemistry Lecture</td>
<td>3</td>
</tr>
<tr>
<td>BiCh 303</td>
<td>Biochemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>Phy 301</td>
<td>Mechanics of Human Physiology</td>
<td>4</td>
</tr>
<tr>
<td>PhTx 304</td>
<td>Human Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>PhTx 402</td>
<td>Principles of Pharmacology and Toxicology</td>
<td>2</td>
</tr>
<tr>
<td>PhTx 410</td>
<td>Drugs Subject to Abuse</td>
<td>2</td>
</tr>
</tbody>
</table>
304. **Human Pharmacology.** 3 credits. Prerequisites: Physiology 301 and Chem 107 or equivalent. A survey of the more important drugs used in medicine, including basic principles, clinical uses and possible adverse effects. S

402. **Principles of Pharmacology and Toxicology.** 2 credits. An introductory pharmacology and toxicology course with an emphasis on basic principles. Drugs will include those most frequently encountered by the general public. The course does not require a science prerequisite and is appropriate for students in social work, athletic training, sociology, education, counseling, etc. who will encounter drug-related problems. F/2

410. **Drugs Subject to Abuse.** 2 credits. Biochemical, pharmacological, behavioral and therapeutical aspects of substance abuse. Prerequisite: Advanced undergraduate standing. F/2

420. **Introduction to Applied Clinical Pharmacology.** 4 credits. Prerequisites: PhTx 304 or equivalent and consent of instructor. A course designed to expose students to practical clinical pharmacology in a hospital setting. Students investigate patient-specific pharmacology topics through discussions, lectures, patient care rounds, conferences, selected readings, meetings, interviews, and special topics assigned by the instructor. On demand.

490. **Readings in Pharmacology and Toxicology.** 1-4 credits. Prerequisites: Advanced undergraduate standing and consent of instructor. Topics and credits to be arranged with the instructor. On demand

493. **Research in Pharmacology and Toxicology.** 1-4 credits, repeatable to 4 credits. The conduct of laboratory research under faculty supervision. Advanced undergraduate standing and consent of instructor required. F,S,SS

---

**Philosophy and Religion**

(Phil and Rel)

L. Lindholm (Chair), Frein, Lowe, Messenger, Poochigian, Potter, and Sanborn

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 course work in Philosophy and Religion. Most courses in the Department fulfill General Education 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 (20 hours) in Philosophy and Religion can also give depth and breadth to any major program. Neither Philosophy nor Religion requires a large technical vocabulary even in upper level courses. Juniors and seniors are urged to register for courses at the 300-400 level even though they have not taken courses at the 100-200 level.

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 hours, including:

1. General Education Requirements, see pages 32-40.

U. Philosophy Concentration requirements.

33 major hours, including:

<table>
<thead>
<tr>
<th>Required 21 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phil 101 : Introduction to Philosophy : (3)</td>
</tr>
<tr>
<td>Phil 102 : Introduction to Logic Scientific Method : (3)</td>
</tr>
<tr>
<td>Phil 103 : Kant and the Nineteenth Century : (3)</td>
</tr>
</tbody>
</table>

3 hours from:

Religion Curriculum

6 hours from:

| Phil 300 : Classical Greek and Hellenistic Philosophy : (3) |
| Phil 301 : Medieval Philosophy : (3) |
| Phil 302 : Renaissance and Enlightenment : (3) |
| Phil 303 : Kant and the Nineteenth Century : (3) |

A minimum of 18 hours of upper level work in Philosophy.

6 hours from an open-ended list of diversity/multicultural courses, which will include, but not be limited to, the following: (for other possibilities, check with advisors in the department).

| CTL 430C : Multicultural Education : (3) |
| Engl 365 : Black American Writers : (3) |
| Geog 151 : Cultural Geography : (3) |
| Hist 345 : The Ancient Near East : (3) |
| IS 352 : Native American Philosophic Thought : (3) |
| IS 283 : Oriental Philosophy : (3) |
| Read 201 : World Religions : (3) |

Some of these courses simultaneously fulfill other Philosophy/Religion requirements.

Language requirement:

Reading proficiency in the philosophical literature of any foreign language. Majors in philosophy should be aware that proficiency in symbolic logic is expected in most graduate schools and in some substitutes for proficiency in a foreign language.

MINOR IN PHILOSOPHY AND RELIGION: PHILOSOPHY CONCENTRATION

Required 21 hours in Philosophy:

6 hours from:

| Phil 283 : Oriental Philosophy : (3) |
| Phil 300 : Classical Greek and Hellenistic Philosophy : (3) |
| Phil 301 : Medieval Philosophy : (3) |
| Phil 302 : Renaissance and Enlightenment : (3) |
| Phil 303 : Philosophy Since the Enlightenment : (3) |
The additional 15 hours should normally include work complementary to the student’s major or to some developed personal interest. Students may consult department advisers to develop a special concentration in the minor with an emphasis on philosophy of science, ethics in the professions, aesthetics in art and literature, etc.

B.A. WITH MAJOR IN PHILOSOPHY AND RELIGION: RELIGION CONCENTRATION

Required 125 hours, including:

I. General Education Requirements, see pages 32-40.

II. Religion Concentration Requirements:

30 hours, including:

Rel 101.............................................Introduction to Religion (West) .....................................................(3)
Phil 300.........................................Classical Greek and Hellenistic Philosophy. .................................(3)

3 hours from

Rel 102.............................................Introduction to Religion (East) .....................................................(3)
Rel 109.............................................Introduction to the Old Testament ...........................................(3)
Rel 250.............................................East and West in Religions, .........................................................(3)

Religion Electives (15 must be at 300-400 level) ..............................................................................(21)

6 hours from an open-ended list of diversity/multicultural courses, which will include, but not be limited to, the following: (for other possibilities, check with advisors in the department).

A&S 225.............................................Introduction to the Study of Women .............................................(3)
A&S 250.........................................African American Religious History ..............................................(3)
CTL 430C.......................................Human Relations: Multicultural Education ..............................(3)
Engl 365.......................................Black American Writers ...............................................................(3)
Geog 151....................................Cultural Geography ........................................................................(3)
Hist 345.......................................The Ancient Near East .................................................................(3)
IS 352..........................................Native American Philosophic Thought ......................................(3)
Phil 283........................................Oriental Philosophy ...............................................................(3)
Rel 203.............................................World Religions .................................................................(3)

Some of these courses simultaneously fulfill other Philosophy/Religion requirements.

Level IV proficiency in a foreign language (i.e., 4 semesters).

MINOR IN PHILOSOPHY AND RELIGION: RELIGION CONCENTRATION

Required 20 hours in Religion, including:

Rel 109.............................................Introduction to the Old Testament .............................................(3)
Rel 203.............................................World Religion ......................................................................(3)
Rel Electives (8 hours must be at 301-400 level). ............................................................................(14)

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 humanities (most notably philosophy); in most cases the graduate will pursue a doctoral degree to teach at the college level.

Students majoring in other fields who find themselves seriously interested in the theoretical aspects of their disciplines — e.g., ethical implications of practice, the functions of knowledge in the field, the legitimacy of methods — may want to consider a special concentration, minor, or second major in philosophy to explore that interest. The emphasis of such studies could be philosophy of science and technology, ethics in the professions (engineering, medicine), or aesthetics in literature or fine arts, to name a few examples.

101. Introduction to Philosophy. 3 credits. An introductory survey of the discipline of philosophy. Students will join the thoughtful search, in which philosophers have engaged through reading and discussion
since ancient days, into the problems of reality (metaphysics), of truth and meaning, (logic and philosophy of language), of moral standards (ethics), of knowledge (epistemology), of beauty (aesthetics), and other fundamental questions. F,S

150. *Introduction to Logic & Scientific Method.* 3 credits. An introduction to the principles of reasoning; formal and informal, deductive and inductive. Language is a vehicle for, and an obstacle to sound thinking. “Four essentials of deductive reasoning.” The rule of hypotheses and inductive reasoning in scientific investigation. F,S

210. *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

283. *Oriental Philosophy.* 3 credits. The main philosophical systems of India, China, and Japan will be examined. F/S

300. Classical *Greek and Hellenistic Philosophy.* 3 credits. The ancient Greeks and Romans laid the foundations for even the most contemporary philosophy, and their ideas have had a continuing influence on all Western thought from their time to our own. This course attempts to examine those ideas and the reasons for their persistent relevance. F/S

301. Medieval Philosophy. 3 credits. Philosophy in Western Europe from the end of the Roman Empire to the early 15th Century as reflected in the writings of such thinkers as Boethius, Augustine, Abelard, Aquinas and Ockham. S/S

302. *Renaissance* and Enlightenment. 3 credits. Philosophy from the time of Patarch (c. 1350) to that of the American Revolution as seen in the writings of such philosophers as Bruno, Bacon, Descartes, Spinoza and Hume. This is the period that sees the origins of modern thought. The implications of the work of the philosophers had an important role in shaping contemporary society, including the arts, literature, science, politics, and economics. F/S

303. *Kant and the Nineteenth Century.* 3 credits. Philosophy from the “Age of reason” through the Industrial Revolution as reflected in the writings of Kant and other philosophers such as Hegel, Mill, Marx, and Nietzsche. S/S

304. Twentieth Century *Philosophy.* 3 credits. Contemporary developments in philosophy since the beginning of the 20th century. S/S

309. American *Philosophy.* 3 credits. A survey of major figures and movements in American philosophy. F/S

310. *Ethics: Right and Wrung? Good and Evil?* 3 credits. A study of traditional problems in ethical theory including the foundations of ethical philosophy, the nature of the good, ethical relativity. 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/S

320. 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/S

330. *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/S

350. Symbolic Logic 3 credits. The modern deductive logic of propositions and functions (including relations); logistic systems. Students majoring in mathematics or computer science will be especially welcome in this course. S/S

356. Aesthetics What is Beauty? 3 credits. Theories of aesthetic experience and value; art and the creative process; the philosophic basis of criticism; art and society. Students of any major who are interested in the fine arts and/or literature are encouraged to take this course. S/S

370. *Ethics in Engineering and Science.* 3 credits. Prerequisite: Junior/senior standing. This course centers on the ethical issues of particular concern to both citizens and professionals involved in engineering and related technical/scientific fields. We review ethical history and ethical theory in all class discussions. The major focus of the course, however, is on ethical dilemmas, case studies, and codes relevant to contemporary engineering and scientific practice. Issues surveyed include: ethical responsibility of theorists and of applied scientists, risk and negligence in technological enterprises, the limits of knowledge/safety/quality, an update of the two cultures debate. F/S

372. Ethics in Health Care. 3 credits. Some ethical problems and ethical guidelines are of particular concern to citizens and to professionals interested in health care fields. Examples are informed consent, abortion, euthanasia, organ transplant policies, professional standards versus patient rights, assisted suicide, ethics of testing/screening, health care policy and reform. Class members will explore such issues through case studies in a context of relevant ethical history and theory. Junior/senior standing encouraged. No pre-requisites. F/S

373. Ethics in *Business and Public Administration.* 3 credits. Extremely important ethical controversies surround two of the central features of modern civilization: business and public administration. We will investigate the basic values promoted or inhibited by people and institutions in these areas. We will also use case studies, within a context of ethical theory and history, to explore more defined problems such as unsafe products, employee rights, the relation between business life and personal life, and many more. F/S
Courses in Religion

Religion at the University is not studied with the assumption that one faith is true and the others are false. Rather, all religions are seen as creative, living systems of belief and practices that enable men and women around the globe to make sense of their lives. By studying, and to a limited degree projecting ourselves into, these belief systems, we are better able to appreciate the outlooks and values of other cultures and gain new insight into what gives meaning and worth to our lives. At the University religion is studied as the Supreme Court recommended in a 1963 opinion: “It might be said that one’s education is not complete without the study of comparative religion or the history of religion and its relationship to the advancement of civilization.”

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 post-graduate studies in law, medicine, and the ministry.

101. Introduction to Religion (West). 3 credits. A survey of the classical stories, rituals, and symbols of religious culture in Western civilization from ancient times to the present. F

102. Introduction to Religion (East). 3 credits. A survey of the classical stories, rituals and symbols of religious culture with an emphasis on the traditions of the Orient from ancient times to the present. S


109. Introduction to the Old Testament. 3 credits. A study of Israel’s awareness of itself as a faith-community from the Exodus to the post-Exilic period, investigation of the problems of multiple authorship, literary forms and archaeological evidence. F

110. Contemporary Religious Writers. 3 credits. An introduction to some of the most influential thinkers in the field of religious thought before and after World War II, such as Bonhoeffer, Buber, Tillich and Teilhard. On demand.


203. World Religions. 3 credits. A general survey of major world religions including Hinduism, Buddhism, Confucianism, Taoism, Islam, Judaism and Christianity. Stress on the major tenets of these religions. S

227. Catholic Christianity. 3 credits. A survey of Christian life and thought in its Catholic form. Emphasis is placed on the history and theology of sacramental and canonical expression in Greek Orthodox, Roman and Anglo Catholic traditions. S
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>237</td>
<td>Protestant Christianity</td>
<td>3</td>
<td>A survey of the spirit and forms of Protestant Christianity. Emphasis is placed on Protestant principles set down by Luther, Calvin, and other Reformation leaders as they touch on faith, scripture, church authority, the priesthood of all believers, and worship. F/2</td>
</tr>
<tr>
<td>247</td>
<td>Introduction to Judaism</td>
<td>3</td>
<td>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. F/3</td>
</tr>
<tr>
<td>250</td>
<td>East and West in Religions</td>
<td>3</td>
<td>A critical and comparative study of people’s religious orientation between Eastern and Western traditions. F</td>
</tr>
<tr>
<td>250</td>
<td>East and West in Religions.</td>
<td>3</td>
<td>A critical and comparative study of people’s religious orientation between Eastern and Western traditions. F</td>
</tr>
<tr>
<td>300</td>
<td>Jesus in Gospel and History</td>
<td>3</td>
<td>A study of one of the most significant personalities in religious history. Texts both biblical and non-biblical which have defined and described Jesus will be examined. F</td>
</tr>
<tr>
<td>301</td>
<td>Life and Religion of Paul</td>
<td>3</td>
<td>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. S</td>
</tr>
<tr>
<td>305</td>
<td>Mysticism</td>
<td>3</td>
<td>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. F</td>
</tr>
<tr>
<td>315</td>
<td>Religion and Philosophy in China and Tibet</td>
<td>3</td>
<td>A survey of the major religions and philosophical systems of China and Tibet, from the bronze age through the Marxist-Leninist-Mao Zedong thought of the People’s Republic of China. S/3</td>
</tr>
<tr>
<td>320</td>
<td>Religion and Philosophy in India</td>
<td>3</td>
<td>A survey of the incredible range of beliefs and practices developed by the great religions and philosophical teachers of India. F/3</td>
</tr>
<tr>
<td>342</td>
<td>Religious Ethics</td>
<td>3</td>
<td>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. On demand.</td>
</tr>
<tr>
<td>345</td>
<td>Death and Dying</td>
<td>2</td>
<td>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. F</td>
</tr>
<tr>
<td>390</td>
<td>Buddhism</td>
<td>3</td>
<td>A historical and critical survey of different Buddhist schools in India, China, Tibet, and Japan. S/3</td>
</tr>
<tr>
<td>395</td>
<td>Selected Topics</td>
<td>1-3</td>
<td>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, F/S</td>
</tr>
<tr>
<td>410</td>
<td>Asian Religions in the United States</td>
<td>3</td>
<td>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. S/3</td>
</tr>
<tr>
<td>425</td>
<td>Psychology of Religion</td>
<td>3</td>
<td>The psychological significance of various types of religious experience, personal and social. An examination of classical psychological statements about religion including James, Alipurt, Kierkegaard, Freud, and Jung. S/2</td>
</tr>
<tr>
<td>470</td>
<td>Seminar on Religion</td>
<td>3</td>
<td>Prerequisites: Junior or Senior standing and some upper level work in Religion or consent of the instructor. A consideration of selected topics or religious classics of mutual interest to departmental staff and advanced students in Religion. On demand.</td>
</tr>
<tr>
<td>480</td>
<td>Independent Studies in Religion</td>
<td>1-3</td>
<td>Prerequisite: consent of the instructor. Supervised reading and study on an individual basis. F/S</td>
</tr>
</tbody>
</table>

Physical Science

(PhSi)

P. Cook (Advisor)

Center for Teaching and Learning

B.S. ED. WITH MAJOR IN PHYSICAL SCIENCE

1. General Education Requirements, see pages 32-40.

11. The Center for Teaching and Learning Program in Secondary Education, see page 177.
III. The Following Curriculum:

65 major hours, including:

Chem 105, 106..............................General Chemistry I and II and Qualitative Analysis.............(8)
Chem 201......................................Quantitative Analysis..................................................................(4)
Chem 305, 306................................Organic Chemistry........................................................................(10)
Phys 205, 206, 208.......................General Physics........................................................................(12)
Phys 307.......................................Mechanics ..............................................................................(3)
Phys 428.......................................Modern Physics Laboratory .........................................................(2)
Biol 101, 101L.........................Introduction to Biology ..............................................................(4)
Geol 101, 102..............................General Geology-Physical and Historical.....................................(8)
Math 211, 212, 213.......................Calculus I, II, III ........................................................................(12)

College of Arts and Sciences

B.S. WITH MAJOR IN PHYSICAL SCIENCE

Requirements the same as above under B.S.ED. degree, except that instead of the CTL requirements (II), Level IV proficiency in a foreign language is required.

Physical Therapy

P T

T. Mohr (Chair), Johnson, Keck, Mabsy, P. Mohr, and Simunds

The Department of Physical Therapy offers the clinically oriented, rural emphasis, entry level Master of Physical Therapy (M.P.T.). The professional educational component of the M.P.T. requires three academic years and one summer session beyond the pre-physical therapy preparation.

Physical Therapy is an allied health profession open to both men and women. Physical therapists are involved in the evaluation and treatment of many types of disabilities. They are employed by hospitals, rehabilitation centers, nursing homes, school systems, community health agencies, and in private practice.

The first two years of the following curriculum are considered to be pre-Physical Therapy. The professional educational component of the M.P.T. will require three academic years and one summer session following completion of the 63-71 credits pre-physical therapy entrance requirements. The curriculum requires that the student take 3 to 8 semester credits in elective coursework, and 63 credits of required courses. The Department advises students to consider elective courses in the areas of psychology, management, principles of education or special education, or the specific Rehabilitation Services Concentration in the Department of Social Work. Before a student can make application into the professional program, ALL the coursework listed for the pre-Physical Therapy portion must be completed or underway. Specifically, Physiology 301 and Anatomy 204 must be completed prior to selection. Once that coursework is near completion, the student must make application for the professional program through the Department of Physical Therapy. Wyoming residents and WICHE-eligible students must apply by invitation of UND-PT through the WICHE certification process. Selected out-of-state students may be eligible for Physical Therapy Individual Independent Contracts (PTIIC); inquiry should be addressed to the Admissions Coordinator at UND-PT. UND-PT does not accept applications for the professional program from any other out-of-state candidates unless they have
completed all of the pre-P.T. coursework at UND. North Dakota residents are strongly encouraged to spend at least one year in pre-P.T. at UND. Applications must be made to the Department no later than March 1 of the year the student wishes to enter the professional program.

Acceptance into Physical Therapy is on a competitive basis, with the major determinant being the basic science grade point average. The basic science grade point average is defined as: biology (8 semester hours), chemistry (8 semester hours), anatomy (3 semester hours), physics (8 semester hours), psychology (7 semester hours - including Intro and Developmental), and physiology (4 semester hours). Reference letters, a personal interview, and other personal qualifications are also considered prior to final acceptance into the professional program. Acceptance by the Office of Admissions of the University of North Dakota does not constitute acceptance into the professional program in Physical Therapy.

Once accepted, all students in the professional program must attain a letter grade of at least “C” in their major courses in order to continue in the program. No student will be allowed to complete the full-time clinical affiliation during Semester I of the second year unless he/she has received at least a grade of “C” in each of the major coursework classes.

Students who have been accepted into the professional program in P.T. and who have successfully completed professional education years 01 and 02 and the summer session between those years will be automatically advanced into Graduate School for professional year 03 upon completion of the GRE, completion of a UND Graduate School application form, submission of all undergraduate transcripts to the Graduate School, and submission of a letter of endorsement from the Chair of Physical Therapy. This advancement in status of the physical therapy student assures the students that they will not be placed in double jeopardy.

Advancement to Candidacy for the M.P.T. degree is a formal procedure and can be granted only after a student in Approved Status has met certain academic requirements. To be advanced to candidacy, the following requirements must be met in approximately the following sequence:

1. Completion of the equivalent of one semester of full-time work (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 from the Department of Physical Therapy, will be appointed by the Dean upon written recommendation of the Chairperson of the Physical Therapy Department. Until the Advisor has been appointed, the Chairperson of the Department will serve as the temporary Advisor.
4. Approval of a Program of Study for the degree on a form available from the Graduate School. The program, which should be developed in consultation with the Advisor, shall carry the approval of the student, the Advisor, and the Chairperson of the Department, and shall be submitted to the Dean of the Graduate School for approval. Inclusion of a minor in the program of study will necessitate obtaining the signed approval of the Chairperson of the minor department.
5. Approval of a topic for the Independent Study by having the Advisor sign the “Outline of Independent Study” form and submitting the Outline and three copies to the Graduate Office become part of the record.

The student and the Advisor will be notified in writing by the Graduate School of the advancement to Candidacy. Students should complete all requirements for advancement to Candidacy prior to the semester in which they plan to graduate.
Students must apply for award of the M.P.T. degree at the beginning of the semester or summer session in which the degree will be awarded (failure to graduate necessitates reapplication). Application must be made at the Graduate School Office on the form provided by the deadline noted in the Academic Calendar. In order for students to be placed on the graduation list (i.e., to have their “Application for Degree” accepted by the Graduate School) and to be eligible to receive the Master of Physical Therapy Degree, they must be in Approved status or have been advanced to Candidacy for the degree no later than the beginning of the semester or summer session in which they expect to graduate.

After the student makes application for the degree, the Graduate Office checks the record to ensure the student has been advanced to Candidacy for the M.P.T. and is in good standing. The eligibility of the student to proceed with the graduation process will be certified and the Final Report form will be sent to the Advisor approximately six weeks before graduation.

Students in the professional program should be aware that there are special requirements for clinical uniforms and professional liability insurance that 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 regular tuition, during the full-time clinical affiliation semesters; the majority of these affiliation sites are at geographic locations other than the City of Grand Forks.

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.

**School of Medicine**

**MASTER OF PHYSICAL THERAPY (Degree awarded by the Graduate School)**

I. General Graduation Requirements, see pages 32-40.

II. The Following Curriculum:

**Pn-Physical Therapy**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101, 102</td>
<td>Composition 1, II</td>
<td>6</td>
</tr>
<tr>
<td>Biol 101, 102</td>
<td>Introduction to Biology</td>
<td>12</td>
</tr>
<tr>
<td>Chem 105, 106</td>
<td>General Chemistry 1,11 (Qual. Analysis)</td>
<td>8</td>
</tr>
<tr>
<td>Soc 101</td>
<td>Introduction to Sociology (or approved substitute)</td>
<td>3</td>
</tr>
<tr>
<td>Psy 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Phys 101, 102</td>
<td>Introduction 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>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>Psy 251</td>
<td>Developmental Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PT 101</td>
<td>Orientation to Physical Therapy</td>
<td>1</td>
</tr>
<tr>
<td>Electives (required)</td>
<td></td>
<td>3-8</td>
</tr>
</tbody>
</table>

**Professional Program — Physical Therapy**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT 309, 310</td>
<td>Medical Sciences I, II</td>
<td>6</td>
</tr>
<tr>
<td>PT 311</td>
<td>Orientation and Ethics</td>
<td>1</td>
</tr>
<tr>
<td>PT 312</td>
<td>Public Health and Medical Legal Aspects</td>
<td>1</td>
</tr>
<tr>
<td>PT 313</td>
<td>Bandaging, Aseptic and Isolation Technique</td>
<td>1</td>
</tr>
<tr>
<td>PT 318</td>
<td>Techniques I: Theory and Techniques Massage</td>
<td>2</td>
</tr>
<tr>
<td>PT 319</td>
<td>Techniques II: Theory and Techniques: Thermo-Photo-Hydrotherapy</td>
<td>4</td>
</tr>
<tr>
<td>PT 320</td>
<td>Research I: Research Methods</td>
<td>2</td>
</tr>
<tr>
<td>PT 322</td>
<td>Anatomy for Physical Therapy</td>
<td>5</td>
</tr>
<tr>
<td>Psy 370</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PT 411</td>
<td>Rehabilitation Procedures</td>
<td>3</td>
</tr>
<tr>
<td>PT 412</td>
<td>Muscle Function in Health and Disease</td>
<td>4</td>
</tr>
</tbody>
</table>
PT 413. Theory and Technique of Therapeutic Exercise I: Mobility, Strength, Endurance. (3)
PT 415. Theory and Technique of Therapeutic Exercise II: Muscle Control and Coordination. (3)
PT 417. Theory and Technique of Therapeutic Exercise III: Tests and Measurements-Specialized Exercise. (3)
PT 419. Techniques 111: Theory and Technique of Electrotherapy and Electrodiagnosis. (2)

*PT 421. Administration - Physical Therapy. (1)
*PT 423. Neuroscience for Physical Therapy. (3)
PT 425. Clinic I: Clinical Practice. (14)
PT 490. Special Topics. (1-4)
PT 491. Independent Study in Physical Therapy. (1-4)
PT 493. Psychological Aspects of Disability. (2)
PT 494. Research 111: Clinical Paper. (1)

CTI 515. Statistics I (or substitute). (3)
PT 525. Techniques IV: Clinical Evaluation. (3)
*PT 526. Techniques V: Joint Mobilization/Soft Tissue Treatment. (2)
PT 530. Health Law for Health Care Providers. (2)
PT 531. Bioethics. (2)
PT 532. Current Topics in PT Administration. (2)
PT 533. Quality Assurance in Health Care Delivery. (2)
PT 534. Industrial Rehabilitation/Occupational Medicine. (2)
PT 535. Gerontology Seminar. (2)
PT 537. Strategies for Early Intervention. (2)
PT 538. Advanced Pediatrics Assessment and Treatment Techniques. (2)
PT 549. Advanced Applied Anatomy/Clinical Kinesiology. (2)
PT 552. Clinic H: Clinical Practice. (14)
*PT 561. Seminar: Physical Therapy. (1-4)
PT 562. Readings: Physical Therapy. (1-3)
PT 570. Patient Education Techniques - Physical Therapy. (2)
PT 572. Teaching Experience in Physical Therapy. (1-4)
PT 582. Instrumentation for Physical Therapy. (2)

*PT 590. Directed Studies/Clinical Concepts. (1-12)
PT 996. Continuing Education Workshops in Physical Therapy. (1-8)


Core courses in M.P.T. Graduate Component: Minimum of 32 credits.

The required courses will sequence in the following pattern:

Professional Year 01 — Fall Semester (16 cr.)
PT 319. Medical Sciences I. (3)
PT 311. Orientation and Ethics. (1)
PT 314. Bandaging, Aseptic and Isolation Techniques. (2)
PT 358. Techniques I: Theory and Technique of Massage. (2)
PT 322. Anatomy for Physical Therapy. (5)
PT 423. Neuroscience for Physical Therapy. (3)

Professional Year 01 — Spring Semester (17 cr.)
PT 310. Medical Sciences II. (3)
PT 312. Public Health and Medical Legal Aspects. (1)
PT 319. Techniques II: Theory and Technique of Thermophototherapy. (4)
PT 320. Research I: Research Methods. (2)
PT 412. Muscle Function in Health and Disease. (4)
PT 415. Theory and Technique of Therapeutic Exercise II: Muscle Control and Coordination. (3)

Professional Year 01-02 — Summer Session (8 cr.)
PT 413. Theory and Technique of Therapeutic Exercise I: Mobility, Strength, Endurance. (3)
PT 417. Theory and Technique of Therapeutic Exercise 111: Tests and Measurements — Specialized Exercise. (3)
University of North Dakota

PT 419.................................Techniques II: Theory and Technique of
Electrotherapy and Electrodiagnosis ...........................................(2)

Professional Year 02— Fall Semester (16 cr.)
PT 482.................................Clinic I: Clinical Practice..................................................( 14)
PT 494.................................Research I: Clinical Paper.................................................( 1)

Professional Year 02— Spring Semester (14-17 cr.)
* Student must complete GRE and Application to UND Graduate School during this semester.
PT 411.................................Rehabilitation Procedures...................................................(S)
PT 421.................................Administration Physical Therapy ..................................( 1)
PT 493.................................Psychological Aspects of Disability ...............................(2)
PT 525.................................Techniques IV: Clinical Evaluation................................(3)
PT 526.................................Techniques V: Joint Mobilization/Soft Tissue Treatment......(2)
PSY 370.................................Abnormal Psychology .........................................................(3)
PT 494.................................Research II: Clinical Conference & Paper............................( 1)
Electives ..................................................(2)

Professional Year 03— Fall Semester (13-16 cr.)
CTL 515.................................Statistics ....................................................................(3)
PT 501.................................Seminar: Physical Therapy ..............................................(1)
* PT 590.................................Directed Studies/Clinical Concepts ..................................(1-12)
Electives ................................................(9-12)

Professional Year 03— Spring Semester (16 cr.)
PT 552.................................Clinic H: Clinical Practice...................................................(7- 14)
PT 590.................................Directed Studies/Clinical Concepts ....................................( 1-12)
PT 997.................................Research III.................................................................( 2)

Courses


309,310. Medical Sciences 1, H. 3 credits, 3 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.

311. Orientation and Ethics. 1 credit. Prerequisite: Registered in Professional Physical Therapy Curriculum. Orientation to the clinic with emphasis on preparation of the patient for therapy. Professional ethics and professional literature will also be discussed. Laboratory.

312. Public Health and Medical Legal Aspects. 1 credit. Prerequisite: Registered in Professional Physical Therapy Curriculum. Discussion of the role of the Physical Therapist in the public health field, with attention to various state and federal health programs. Issues of licensure, documentation, legal liability are addressed.

314. Bandaging, Aseptic and Isolation Techniques. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. The theory and practice of medical, aseptic and isolation techniques and principles of bandaging, taping, and splinting are discussed and practiced. Laboratory.

318. Techniques I: Theory and Technique of Massage. 2 credits. Prerequisite: Registered in professional Physical Therapy Curriculum. Theory and technique of the application of remedial massage in Physical Therapy. Laboratory.

319. Techniques II: Theory and Technique of Thermo-Photo-Hydrotreatment. 4 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.

320. Research 1: Research Methods. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Lectures and practice in the proper use of research design, source material, elementary statistics, and scientific manuscript preparation.

322. Anatomy for Physical Therapy. 5 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Detailed lectures and demonstrations on neuroanatomy and in anatomy of the extremities. Laboratory

411. Rehabilitation Procedures. 3 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Theoretical and practical application of principles used in activities of daily living as they relate to the patient and his disability. Laboratory.

412. Muscle Function in Health and Disease. 4 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Review of musculature acting on the extremities and trunk. Orientation to
patterns of muscle action with neuromuscular involvement. Theory and techniques of muscle testing and joint mobilization. Laboratory.

413. **Theory and Technique of Therapeutic Exercise I: Mobility-Strength-Endurance.** 3 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Lecture and laboratory work in therapeutic exercise to increase and maintain mobility, strength, and endurance in the human body. Laboratory.

415. **Theory and Technique of Therapeutic Exercise II: Control and Coordination.** 3 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Lecture and laboratory work in therapeutic exercise to establish and maintain muscular control and coordination, including muscle re-education, facilitation, relaxation. Laboratory.

417. **Theory and Technique of Therapeutic Exercise III: Tests and Measurements.** 3 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Specific physical therapy tests, measurements, and evaluation techniques related to the musculoskeletal and neurological systems. Laboratory. SS

419. **Techniques III: Theory and Technique of 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. SS

421. **Administration — Physical Therapy.** 1 credit. Prerequisite: Registered in Professional Physical Therapy Curriculum. Lectures and discussion of administration procedures as they apply to the Physical Therapy Department.

423. **Neuroscience for Physical Therapy.** 3 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Structure and function of the human nervous system including clinical application relevant to physical therapy practice.

482. **Clinic I: Clinical Practice.** 14 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Full-time clinical practice in selected hospital affiliations (18 weeks), in and out of City of Grand Forks.

490. **Special Topics I-IV.** 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.

491. **Independent Study in Physical Therapy.** 1-4 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Research and independent study in a specialized area of Physical Therapy.

493. **Psychological Aspects of Disability.** 2 credits. Prerequisite: Psy 101, Psy 251, Psy 370, and/or equivalents, and consent of instructor. Readings and discussion course. Study of psychological coping mechanisms, reactions and motivational factors pertinent to the disabled. Review of adjustment problems unique to specific disabilities and/or disease processes, including the terminally ill. S

494. **Research II: Clinical Paper.** 1 credit repeatable to 2. Prerequisite: Registered in Professional Physical Therapy Curriculum. Preparation of case study and/or paper on a clinical topic. F,S

525. **Techniques IV: Clinical Evaluation.** 3 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Specific clinical evaluation techniques including neurological testing, soft tissue assessment, joint mobility, and related written documentation of results.


530. **Health Law for Health Care Providers.** 2 credits. Discussion and readings course relevant to the “ordering” capability of law as it relates to health care. This course addresses the issues of quality of health care, risk management, health planning, access and “networking,” tort questions, and contemporary issues (bioethics, AIDS, press relations, drug screening) as they relate to health law. Emphasis is placed on the “continuum of care” concept, particularly in rural areas such as North Dakota.

531. Bioethics. 2 credits. Discussion and readings course relevant to the topic of bioethics and its effect on health care law. Topics addressed include procreation, surrogate parenting, death and dying (right to die), “do not resuscitate” and advanced directives, and “wrongful life” issues.

532. **Current Topics in P.T. Administration.** 2 credits. Discussion and readings course relevant to administrative problems in physical therapy. Focus on independent research exploring topics of current problem areas in P.T. administration with seminar-type discussion.

533. **Quality Assurance in Health Care Delivery.** 2 credits. Lecture/discussion and seminar format used to explore the concepts of Total Quality Management and Continuous Quality Improvement as it impacts on the health care delivery system. Special emphasis on the “learning organization.”

534. **Industrial Rehabilitation/Occupational Medicine.** 2 credits. The integration of medical, industrial, and legal points of view in the prevention and management of work related injuries.

535. **Gerontology Seminar.** 2 credits. Examine the factors and forces that affect life quality in the late 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.
537. Strategies for Early Intervention. 2 credits. Prerequisite: PT 415. 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.

538. Advanced Pediatrics Assessment and Treatment Techniques. 3 credits. Prerequisite: PT 415. This course is designed to provide physical therapy students with opportunities to explore and implement standardized and criterion-referenced evaluation instruments to identify need areas for treatment. In addition, students will design treatment programs for children with disabilities by integrating current therapeutic techniques with efficacy studies.

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. Clinic II: Clinical Practice. 7-14 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Full-time clinical practice affiliation in selected Physical Therapy provider centers, in and out of City of Grand Forks. Two nine-week segments, one of which will be related to student area of Directed Studies, the other either research or additional clinical.

561. Seminar: Physical Therapy. 1-4 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 student and faculty. May repeat to 4 credits maximum.


570. Patient Education Techniques — Physical Therapy. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. A review of the teaching/learning process with emphasis on techniques targeted to enhance patient involvement in their rehabilitation and physical therapeutic processes. Thirty hours of lecture, discussion, and project per semester.


582. Instrumentation for Physical Therapy. 2 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. The application of existing electrical and mechanical instrumentation theories and techniques to research and clinical practice in physical therapy.

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 the student's 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. Serve as the basis for PT 997: Independent Study Report.

599. Continuing Education Workshops in Physical Therapy. 1-8 credits. Prerequisite: Registered in Professional Physical Therapy Curriculum. Credit in Physical Therapy may be granted for workshops, conferences, institutes, or other types of short-term activities, provided they have been approved for credit by the Chairperson of Physical Therapy. Written report of the activity is required. A one-week workshop shall carry no more than one semester hour of credit.

996. Continuing Enrollment/Physical Education. Credit arranged. Prerequisite: Registered in Professional Physical Therapy Curriculum. Students in Physical Therapy who have previously completed all necessary credits for their approved program of study, but who have not completed PT 997: Research II: Independent Study Report in Physical Therapy, must register for PT 996 each additional semester or summer session they are utilizing UND-PT faculty time. All students must be enrolled in either PT 996 or other credits the semester of Graduation.

997. Research 111: Independent Study Report. Credit arranged. Prerequisite: Registered in Professional Physical Therapy Curriculum. The Independent Study Report in Physical Therapy is designed to require the student to independently generate a written report relevant to his/her Directed Studies/Clinical Concepts area of interest. The topic must be approved by the student’s major advisor/preceptor. Approval is effected by completion of the form entitled, “Outline of Independent Study” and submitting the outline to his/her advisor/preceptor for approval. The Independent Study is designed to require the student independently to investigate a topic related to Physical Therapy and to the interest of the student. The study need not be an original contribution to knowledge but may be a presentation, analysis, and discussion of information and ideas already in literature. The requirement is to ensure that a student can investigate a topic and organize a scholarly report on the investigation. The report should display correct usage, style, and format and should be of a formal nature. The outline should be on tile in the Graduate School no later than the end of Fall Semester, Year 03.
Physics
(Phys)

B. Rao (Chair), Chen, Cole, Dewar, Howell, Lykken, Muraskin, Schwalm, and Wagner

The Department of Physics offers a major and minor in Physics in the College of Arts and Sciences, a major in Physics in the Center for Teaching and Learning, and a major in Engineering Physics in the School of Engineering and Mines. The Arts and Sciences major is designed to prepare the students for graduate work in physics or to enable them to participate in physics research as a member of a research team. A student who plans to do graduate work in physics should acquire a reading knowledge of at least one of the foreign languages in which much of the current literature in physics is written, namely, German, Russian and French.

The major in physics offered in the Center for Teaching and Learning will provide a student with the training in physics essential for a secondary school teaching career.

The major in Engineering Physics in the School of Engineering and Mines will provide interdisciplinary training in applied physics and engineering design with emphasis on instrumentation.

The Department of Physics offers graduate programs leading to the degree of Master of Science and Doctor of Philosophy. In order to pursue graduate work in physics, the student must have the baccalaureate degree with a major in physics or in engineering physics. For more detailed information, see the Graduate School Bulletin.

College of Arts and Sciences

B.S. WITH MAJOR IN PHYSICS

Required 125 hours, including:

I. General Education Requirements, see pages 32-40.

II. The Following Curriculum:

36 major hours, including:

Phys 205,206, 208...............General Physics.................................................................(12)
Phys 317.................................Mechanics. .................................................................(3)
Phys 318.................................Mechanics.................................................................(3)
Phys 324.................................Thermal Physics...........................................................(3)
Phys 325.................................Optics.................................................................(3)
Phys 325L.................................Optics Laboratory.......................................................(1)
Phys 327.................................Electricity and Magnetism.................................................(3)
Phys 328.................................Electricity and Magnetism.................................................(3)
Phys 428.................................Modern Physics Laboratory..............................................(2)
Phys 431.................................Introductory Quantum Physics........................................(3)

Required in other departments:

Math 211,212, 213...............Calculus I, 11,111...............................................................(12)
Math 351.................................Elem. Differential Equations........................................(3)

Other mathematics courses as determined in consultation with an adviser in the Physics department.

Chem 105, 106..........................General Chemistry I and 11 and Qualitative Analysis..........(8)

or

Chem 161, 162..........................Quantitative & Qualitative Analysis Labs......................(3)
MINOR IN PHYSICS
Required 20 hours in Physics. The specific courses should be in consultation with the department.

Center of Teaching and Learning

B.S.E.D. WITH MAJOR IN PHYSICS
Required 125 hours, including:

1. General Education Requirements, see pages 32-40.

H. The Center for Teaching and Learning Program in Secondary Education, see page 177.

111. The Following Program:

Phys 205,206, 208..............................................General Physics ..............................................................(l 2)
Phys 317...............................................................Mechanics .................................................................(3)
Phys 327..................................................Electricity and Magnetism .........................................................(3)
Phys 324...........................................Thermal Physics ...............................................................................(3)
Phys 325 .....................................................Optics ..................................................................................(3)
Phys 325L ..................................................Optics Laboratory. ....................................................................(l)
Phys 428....................................................Modern Physics Laboratory ....................................................(2)
Phys 490 ......................................................Special Problems ..........................................................(1-3)

Required in other departments:
Chem 105, 106 .....................................................General Chemistry I and II and Qualitative Analysis..............(8)
Chem 212 .........................................................Organic Chemistry .........................................................(5)
CSci 10L ..............................................................Introduction to Computers..............................................(2)
CSci 10LL ..........................................................Introduction to Computers Lab .........................................(l)
Math 211,212, 213.................................................Calculus I, II, III ..................................................................(12)
Biol 101, 102, 102L ..............................................Introduction to Biology and Laboratory ..............................(8)

School of Engineering and Mines

B.S. IN ENGINEERING PHYSICS
Curriculum outline found on page 221.

Courses

101, 102. Introductory College physics. 8 credits. Prerequisite for 102 is 101. Three hours of lecture-
recitation and two hours laboratory per week. Students in the Upper Level are not admitted to this course for
credit except in cases where specific departmental curricula require it. General physics for those who do not
plan to take advanced courses in science. F,S

171. Natural Science-Physics. 4 credits. Three
hours lecture-recitation and two hours laboratory per week. Prerequisites: None. A study of light, the solar system, stars and galaxies leads the student to learn how
science develops an understanding of nature. F,S

200. Physics for Poets. 3 credits. Prerequisites: None. Knowledge of elementary algebra is
recommended. An introduction to the fundamental concepts of physics, especially those discovered and
developed in the twentieth century. The course is designed for students who have a limited or non-existent
mathematical background, and it attempts to show the picture of the universe which physics offers. On demand

203, 204. General Physics. 8 credits. Prerequisite for Physics 204 is Physics 203. F,S Four hours
lecture-recitation and two hours laboratory per week. Prerequisite: College algebra or equivalent.
 Recommended course for pre-medical students. A student may not receive credit for Physics 203,204 and also
Physics 101,102. F,S

205, 206, 208. General Physics. 12 credits. Four hours lecture-recitation and two hours laboratory per week.
Prerequisites: Math 211 for Physics 205. Math 212 and Physics 205 for physics 206, and Math 213 and
Physics 206 for Physics 208. A sequence for students majoring in a science or engineering. Topics discussed are:
classical mechanics, electricity and magnetism, optics, thermodynamics, and introductory modern
physics. A student may not receive credit for Physics 205,206 and also Physics 203,204 or Physics 101,102.
F,S

223. Introduction to Astronomy. 3 credits. Study of the universe; solar system, stars and stellar
evolution, black holes, galaxies, big bang cosmology, and the expansion of the universe. F,S

223L. Astronomy Laboratory. 1 credit. Corequisite: Phys 223; Observations with telescope and
unaided eye. Plotting of planetary orbits from recorded data. Use of Doppler shifts to determine speeds of
galaxies. Distance determinations from Doppler shifts and Hubble’s law. Solar spectrum. F,S
256. The science of Music and Sound. 4 credits. Three hours of lecture and two hours laboratory per week. Prerequisites: None. Knowledge of elementary algebra is recommended. A study of the production, analysis, and perception of musical sounds. On demand.

290. 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.

311. Foundations of Contemporary Physics. 4 credits. Three hours of lecture-recitation and two hours laboratory per week. Prerequisite: 8 hours of College Physics in consent of instructor. A semiquantitative study of the development of contemporary physics. Physics 311 may not be taken for credit if credit has been received for Physics 208. On demand.

317. Mechanics. 3 credits. Prerequisites: Physics 205,206 or approval of department. Motion of a single particle, central forces and simple oscillatory systems. F/2

318. Mechanics. 3 credits. Prerequisites: Physics 317 or approval of department. A continuation of Physics 317. Rigid body motion, wave propagation, generalized coordinates and fluid dynamics. S/2

320. Elementary Solid State Physics. 3 credits. Prerequisite: Physics 208 or approval of department. An introduction to solid state physics with emphasis on applications. F,S

321. Methods of Experimental Physics. 2 credits. Prerequisite: Two semesters of general physics or approval of the department. Assembly and design of electronic circuits with emphasis on their application to instruments used in scientific measurements. On demand

324. Thermal Physics. 3 credits. Prerequisites: Physics 205,206,208 or approval of department. Thermodynamics with an introduction to statistical physics. S/2

325. Optics. 3 credits. prerequisites: Physics 205,206,208 or approval of department. Geometrical and physical optics with an emphasis on physical optics. S

325L. Optics Laboratory. 1 credit. Corequisite: Physics 325. Laboratory to accompany Physics 325. S

327. Electricity and Magnetism. 3 credits. Prerequisites: Physics 205,206 or approval of department. A quantitative treatment of electro-magnetic theory with an introduction to Maxwell’s equations. F/2

328. Electricity and Magnetism. 3 credits. Prerequisite: Physics 327 or approval of department. Maxwell’s’ equations. The scalar potential as a solution of a boundary value problem. The vector potential and its application. A quantitative treatment of dielectrics, magnetic materials and electromagnetic radiation. S/2

428. Modern Physics Laboratory. 2 credits. Prerequisite: Physics 208 or approval of department. A repetition of the experiments which led to the current state of physics. F

431. Introductory Quantum Physics. 3 credits. Prerequisite: Physics 208 or approval of department. An introduction to quantum mechanics with applications to atomic structure. S/2

432. Nuclear physics. 3 credits. Prerequisite: physics 208 or approval of department. An introduction to the theory of the atomic nucleus. On demand.

437. Introductory Solid State Physics. 3 credits. Prerequisite: approval of department. Selected topics from solid state physics. S/2


490. Special Problems. 1-3 credits. Prerequisite: approval of the department. F,S

Physiology

(Phy)

Bode, Carlson, McCleary, Samson, Stinnett, and Vari

Courses

301. Mechanics of Human Physiology. 4 credits. Prerequisites: Introductory courses in two of the following subjects: anatomy, chemistry, or biology. A study of the normal function of the human body with particular consideration given to the necessary background needed by paramedical, physical education and home economics students. There are six hours of formal classroom study including three hours of laboratory and in addition optional review periods each week.
Political Science and Public Administration
(Psci)

R. Kweit (Chair), Baker, Cozzetto, M. Kweit, Markovich, Pedeliski, and Pynn

The Department of Political Science offers undergraduate programs leading to the Bachelor of Arts with a major or minor in Political Science, and to the Bachelor of Science in Public Administration with an emphasis on general public administration. The B.A. is offered through the College of Arts and Sciences and the B.S.P.A. through the College of Business and Public Administration. The undergraduate programs are designed to provide students with a broad background in the liberal arts and the administrative sciences, and to prepare them for governmental service, graduate studies, law school, and teaching.

The Department of Political Science also offers graduate programs through the Graduate School leading to the M.A. and the M.P.A.

College of Arts and Sciences

B.A. WITH MAJOR IN POLITICAL SCIENCE

Required 125 hours, including:

I. General Education Requirements, see pages 32-40.

II. The Following Curriculum:

37 major hours, including:

PSci 101 ........................................American Government I ...............................................................(3)
PSci 102 ........................................American Government II ............................................................(3)
PSci 220 ........................................International Politics ...............................................................(3)
PSci 225 ........................................Comparative Politics ..............................................................(3)
PSci 231 ........................................Politics of Public Administration .............................................(3)
PSci 300 ........................................Introduction to Research Methods ............................................(3)
PSci 311 ........................................Political Thought I .................................................................(3)
PSci 312 ........................................Political Thought II .................................................................(3)
PSci 405 ........................................Political Behavior .................................................................(3)
PSci 432 ........................................Public Policy Making Process ....................................................(3)
PSci 495 ........................................Senior Colloquium .................................................................(1)
PSci ..............................................Electives .................................................................................(6)

Required in other departments:

Level II proficiency in a foreign language.
Economics 210 Introduction to Business and Economic Statistics or equivalent (3 credits)
Economics 202 Introduction to Macroeconomics (3 credits)

MINOR IN POLITICAL SCIENCE

Required 21 hours, including:

PSci 101 ........................................American Government I ...............................................................(3)

Select 6 hours from:

PSci 220 ........................................International Politics ...............................................................(3)
PSci 225 ........................................Comparative Politics ...............................................................(3)
PSci 231 ........................................Politics of Public Administration .............................................(3)
PSci ..............................................Political Theory .................................................................(3)
PSci 305 or PSci 306 .........................................................(3)
PSci 402 ........................................State and Local Government ....................................................(3)
PSci 405 ..............................Political Behavior ...............................................................(3)

6 additional hours of electives from 300 level and above courses in Political Science which may include the courses listed.

College of Business and Public Administration

B.S.P.A. WITH MAJOR IN PUBLIC ADMINISTRATION

Required 125 hours, including:

I. General Education Requirements, see pages 32-40.

II. The College of Business and Public Administration Requirements, see page 85.

III. The Following Curriculum:

Pre-Public Administration Core

Act 200, 201 ..........................Elements of Accounting.................................................................(6)
BVED 217 .................................Fundamentals of Management Information Systems ............(4)
Econ 201 ..................................Principles of Macroeconomics .............................................(3)
Econ 202 ..................................Principles of Macroeconomics .............................................(3)
Econ 210 .................................Introduction to Business and Economic Statistics .................(3)
Math 103 .................................College Algebra. .................................................................(3)
or
Math 104 ..................................Finite Mathematics .................................................................(3)
PSci 101, 102 ..............................American Government I, II..................................................(6)
Comm 161 ..................................Fundamentals of Public Speaking ....................................(3)
PSci 231 ..................................Politics of Public Administration ..............................................(3)

IV. GENERAL PUBLIC ADMINISTRATION

Required:

PSci 300 ..................................Intro Research Methods ............................................................(3)
PSci 309 ..................................Legislative and Executive Processes .............................................(3)
PSci 404 ..................................Urban Politics and Administration ..............................................(3)
PSci 432 ..................................Public Policy Making Process .......................................................(3)
PSci 437 ..................................Administrative Processes ............................................................(3)
PSci 493 ..................................Professional Projects in Public Administration .........................(1)
Econ 324 ..................................Public Finance .................................................................(3)
Mgmt 300 ..................................Principles of Management ......................................................(3)
Mgmt 310 ..................................Organizational Behavior .......................................................(3)
or
Soc 431 ..................................Organizations and Behavior ......................................................(3)
Mgmt 400 ..................................Organizational Theory and Analysis .....................................(3)

Recommended:

PSci 480 ..................................Administrative Internship .........................................................(2-6)
Act 207 ..................................Managerial Accounting ............................................................(2)
Act 312 ..................................Fund Accounting .................................................................(3)
Act 315 ..................................Business in the Legal Environment .............................................(3)
BVED 305 ..................................Microcomputer Applications for Business .........................(3)
Econ 308 ..................................Intermediate Microeconomic Theory ........................................(3)
Econ 309 ..................................Intermediate Macroeconomic Theory and Policy .................(3)
Econ 341 ..................................Economics of Labor ............................................................(3)
Econ 355 ..................................Economics of Regulation ......................................................(3)
Econ 430 ..................................Political Economy ...............................................................(3 )
Econ 444 ..................................Economics of Human Resources .............................................(3)
Econ 450 ..................................Industrial Organization and Public Policy .................................(3)
Mgmt 309 ..................................Quantitative Approaches to Management Decision .............(3)
Psy 301 ..................................Industrial & Organizational Psychology ........................................(3)
Soc 334 ..................................Social Participation .................................................................(3)
Soc 391 ..................................Smial Psychology .................................................................(3)
SWK 418 ..................................Social Policy Analysis ............................................................(3)
SWK 458 ..................................Human Services Administration ...............................................(3)

Electives (consult with adviser for Public Administration): courses in political science, management, economics, history, sociology, anthropology, geography, and other fields.
MINOR IN PUBLIC ADMINISTRATION

Required 21 hours, including:

PSci 231.  Politics of Public Administration.  (3)
PSci 300.  Introduction to Research Methods, or its Equivalent.  (3)
PSci 404.  Urban Politics and Administration.  (3)
PSci 432.  Public Policy Making Process.  (3)
PSci 437.  Administrative Processes.  (3)

Select 6 hours from:

PSci 309.  Legislative and Executive Processes.  (3)
PSci 433.  Administrator and Public Affairs.  (3)
PSci 480.  Administrative Internship.  (2-6)
Econ 324.  Public Finance.  (3)
Mgmt 305.  Managerial Concepts, or its Equivalent  (BPA students may not use Mgmt 305)  (3)
Soc 431.  Organizations and Behavior.  (3)

Other Courses may be elected with the consent of the Department.

Courses

101. 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

102. American Government II.  3 credits. Structure, function and problems of state and local government; executive, legislative, and judicial processes; federalism and metropolitan government. F,S

220. International Politics.  3 credits. An introduction to international politics with emphasis on the international system, the major actors, the struggle for power, and the struggle for order. S

225. Comparative Politics.  3 credits. An introduction to comparative politics with emphasis on the democratic systems of Europe. F

231. Politics of Public Administration.  3 credits. Prerequisite: PSci 101. 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 and contemporary issues are also highlighted. F

300. Introduction to Research Methods.  3 credits. Prerequisite: a statistics course prior to enrollment. General consideration of research methods and data analysis in political science and the social sciences. F

305. American Constitution — Governmental Powers.  3 credits. American Constitution studied in the light of U.S. Supreme Court decisions and interpretations; focus on government powers, federal relationships, and economic regulation. F

306. American Constitution — Civil Liberties 3 credits. Analyzed U.S. Supreme Court decisions and interpretations which focus on civil liberties; equal protections, due process, First Amendment rights. F,S

308. Intergovernment Relations.  3 credits. Analyzes the growing interrelationship of federal, state and local governments with emphasis on financial aspects. F/S

309. The Legislative and Executive Processes.  3 credits. A survey of the organization, functions and interaction of the American legislative and executive branches of government. S

311. Development of Political Thought I.  3 credits. Classical political thought to the seventeenth century with emphasis on the thought of Plato, Aristotle, Cicero, St. Augustine, St. Thomas Aquinas, and Machiavelli. F

312. Development of Political Thought II.  3 credits. Political thought from the seventeenth century to the present with emphasis on the thought of Hobbes, Locke, Rousseau, Hume, Burke, Hegel, and Marx. S

318. American Political Thought.  3 credits. A historical analysis of the major thinkers and of the streams of thought which molded the political life and institutions of the United States from the puritans to the present. F

320. Foreign Policies.  3 credits. Prerequisite: PSci 220 or consent of instructor. Examination of the roles of major powers in the international system, with emphasis on the foreign policies of the United States and other major powers. S

323. Issues in Comparative Politics.  3 credits. Prerequisite: PSci 225 or consent of instructor. Examination of contemporary issues in comparative politics with particular emphasis on the dynamics of change in political systems. F

337. Cooperative Education.  1-6 credits. Repeatable to 12 credits. Prerequisite: Permission of department to enroll. Compensated on-the-job experience in various areas of political science. S-U grading only. F,S

339. Survey of Public Administration.  3 credits. Prerequisite: PSci 101. Introduction to the development of public administration in the United States Introduces students to concepts and methods used in its practice. The political aspects of public bureaucracy and contemporary issues are also highlighted. For
non-majors, credit cannot be applied to B.S.P.A. or Political Science majors. (No credit if PSci 231 has been completed or audited.) F

393. Problems in Political Science. 1-3 credits. Maximum 6 credits. Students study special topics under the direction and supervision of a member of the staff; prior consent of instructor required before enrollment. F,S

400. Principles of Social Science. 3 credits. An examination of the basic concepts and methodological foundations of political science and the social sciences generally. S/2

402. Problems in State and Local Government. 3 credits. Undergraduate seminar and research course covering major problems confronting state and/or local governments in institutional design, decision-making systems and public policy. On demand.

404. Urban Politics and Administration. 3 credits. Prerequisite: PSci 101. Analysis of the socioeconomic context of urban America and its impact on politics, policy, and administration. Once per year, F/2, S/2

405. Political Behavior. 3 credits. Prerequisite: PSci 101. 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

345. College of Arts and Sciences

432. Public Policy Making Process. 3 credits. Prerequisite: PSci 101. 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: PSci 231 or 339. Explanation of theoretical and practical aspects of personnel and financial management in the public sector. S

440. Administrative Internship. 2-6 credits. Prerequisite: 12 hours in Political Science. On-the-job training in a governmental position with final report and analysis of the agency by the intern. Prior approval of instructor required prior to enrollment. S/U grading only. F,S

491. Readings in Political Science. 1-6 credits. Selected readings with oral and written reports. Consent of instructor required prior to enrollment. F,S

493. Professional Project in Public Administration. 1 credit. 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 administrative issues. This course is designed for Public Administration majors only. S

495. Senior Colloquium. 1 credit. Prerequisite: Senior standing. Corequisite: PSci 432. 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: PSci 432 and PSci 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

Psychology

M. Grabs (Chair), Antes, Chee, Ferraro, Helm, Honts, King, Levinson, Manning, McDonald, Paulson, Penland, Peters, Petros, Plaud, Till, Tyler, and Wright

College of Arts and Sciences

B.A. OR B.S. WITH MAJOR IN PSYCHOLOGY

Required 125 hours, including:

I. General Education Requirements, see pages 32-40.
II. The Following Curriculum:

30 major hours, including:

Psy 101.......................Introduction to Psychology .................................................................(3)
Psy 241................................Introduction to Statistics .............................................................(4)
Psy 303................................Research Methods in Psychology .............................................(4)
Psy 405................................History and Systems of Psychology .............................................(4)

One course from Area A:

Psy 433..........................Psychology of Learning .................................................................(3)
Psy 434..........................Motivation and Emotion .................................................................(3)
Psy 435..........................Physiological Psychology .............................................................(3)
Psy 436..........................Perception .........................................................................................(4)
Psy 439..........................Cognitive Psychology .................................................................(3)

One course from Area B:

Psy 421..........................Individual and Group Differences ...............................................(3)
Psy 451..........................Advanced Developmental Psychology .........................................(3)
Psy 470..........................Introduction to Clinical Psychology ..............................................(3)

Psy 101 is prerequisite to all other psychology classes.

Required in other departments:

Level II proficiency in a foreign language

Math 103..........................College Algebra .................................................................(3)

Math 104..........................Finite Mathematics .................................................................(3)

Any two of the following:

Biol 101..........................Introduction to Biology .............................................................(4)
Biol 102..........................Intro to Biology .................................................................(4)
Anat 204, 20ML..................Anatomy for Paramedical Personnel (with laboratory) ...........(5)

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 of biological or physical sciences or calculus.

MINOR IN PSYCHOLOGY

Required 20 hours, including:

Psy 101..........................Introduction Psychology .................................................................(3)
Psy 251..........................Developmental Psychology .........................................................(4)
Psy 370..........................Abnormal Psychology .................................................................(3)

Students receiving teaching certification in secondary education (except CDIS) must also include:

Psy 241..........................Introduction to Statistics .................................................................(4)
Psy 303..........................Research Methods in Psychology ...................................................(4)

Courses

Psychology 101 is the prerequisite for all other Psychology courses.

101. Introduction to Psychology, 3 credits. Basic prerequisite to all other psychology courses. Nature and scope of psychology as a science and a profession. 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: Mathematics 103 or 104. Descriptive and inferential statistics as applied to psychological measurement and experimentation. F.S

251. Developmental Psychology, 4 credits. Intellectual, emotional and social development of the normal individual; significance of childhood experience for later development. F.S

301. Industrial and Organizational Psychology, 3 credits. Prerequisite: any basic statistics course. Selection, training, motivation, leadership, job satisfaction, human engineering and working environments as applied to business and industry. F.S

303. Research Methods in Psychology, 4 credits. Prerequisites: Mathematics 103 or 104, Psychology 241. Methods of gathering knowledge in psychology with special emphasis on the experimental method. F.S

331. Behavior Modification, 3 credits. Theory and practice in the application of operant and classical conditioning procedures to humans in applied settings. S
355. **Adulthood and Aging.** 3 credits. Prerequisite: Psy 101 plus 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.

360. **Introduction to Personality.** 3 credits. Examination of basic concepts in the field of personality. F,S.

361. **Social Psychology.** 4 credits. (See Sociology 361). F,S.

370. **Abnormal Psychology.** 3 credits. Prerequisites: Psychology 101 and three additional hours of psychology. Systematic study of behavior pathology, with primary emphasis on etiology and symptomatology. F, S.

405. **History and Systems of Psychology.** 3 credits. Prerequisite: Psychology 303. A consideration of the historical background and development of problem areas in psychology and a survey of contemporary psychological theories.

421. **Individual and Group Difference.** 3 credits. Prerequisites: Psychology 241 and 251 or consent of instructor. Origins and consequences of psychological differences among individual and groups with special emphasis on sex differences and racial differences. S/2.


435. **Physiological Psychology.** 3 credits. Prerequisites: Biology 101,102, Psychology 303, or consent of instructor. Physiological basis of psychological functions.

436. **Perception.** 4 credits. Prerequisite: Psychology 303. Perceptual basis of behavior. F/2.

438. **Brain and Behavior.** 3 credits. Prerequisites: 303, Biology, 101,102 or consent of instructor. The physiological and anatomical mechanisms of learning and memory. S/2.


450. **Child Clinical Psychology.** 3 credits. Prerequisites: 251,370 or consent of instructor. Child psychopathology; etiology, behavior and treatment. S/2.

451. **Advanced Developmental Psychology.** 3 credits. Prerequisites: Psychology 251 and Psychology 303. In depth analysis of topics covering the entire lifespan, from genetic and prenatal influences to death and dying. Every other year.

460. **Advanced Social Psychology.** 3 credits. Prerequisites: Psychology 303, 361 (or Sociology 361). 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. S/2.

470. **Introduction to Clinical Psychology.** 3 credits. Prerequisites: Psychology 241, 370 or consent of instructor. A systematic survey of the field of clinical psychology; basic concepts in diagnosis, psychotherapy, research and professional problems.

491. **Individual Projects in Psychology.** 1-4 credits. Repeatable to 8 credits. Prerequisite: consent of instructor.

492. **Tutoring in Psychology.** 2 credits. Repeatable to 4 credits. Prerequisite: consent of instructor. S-U grading only.

493. **Readings in Psychology.** 1-3 credits. Repeatable to 8 credits. Prerequisite: consent of instructor.

494. **Special Topics in Psychology.** 1-3 credits. Prerequisite: consent of instructor. On demand.

495. **Seminar in Psychology.** 1-3 credits. Prerequisite: consent of instructor. On demand.

496. **Senior Seminar.** 1 credit. Prerequisite: Psy 303. Senior Seminar is intended as an opportunity to discuss and integrate recent trends in the field of psychology. The course also provides an opportunity for advanced students to exercise analytical and communication skills related to their training in psychology. S-U grading only.

499. **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.

---

**Russian Studies**

R. Koprince (Advisor)

**College of Arts and Sciences**

**B.A. WITH MAJOR IN RUSSIAN STUDIES**

Required 125 hours, including:

1. General Graduation Requirements, see pages 32-40.
The Following Curriculum:

Econ 331 ..........................Comparative Economic Systems. ..................................................(3)
Hist 416 .......................................Russia to 1855. .................................................................(3)
Hist 417 ..........................Russia since 1855. .................................................................(3)
PSci 320...............................Foreign Policies of Major Powers .........................................(3)
Lang 101, 102 ..................Beginning Russian. .................................................................(8)
Lang 201,202 ..................Second-Year Russian..............................................................(8)
Lang 301,302 ...................Third-Year Russian.................................................................(6)

3 hours from:
- Econ 360. ..................Marxian Economic Analysis..................................................(3)
- Lang 305,306. ..........Reading and Composition..........................................................(4)
- Lang 331 ..........................Russian Literature in Translation ............................................(2.3)
- Lang 490 ..........................Individual Russian Readings ...............................................(1-3)
PSci 323. ..........................Issues in Comparative Politics..................................................(3)

With the permission of the Russian Studies advisor, other courses maybe elected to fulfill the Russian Studies degree requirement.

MINOR IN RUSSIAN STUDIES

Required:

Hist 416 .......................................Russia to 1855. .................................................................(3)
Hist 417 .......................................Russia since 1855. .................................................................(3)
Lang 101, 102 ..................Beginning Russian. .................................................................(8)
Lang 201,202 ..................Second-Year Russian..............................................................(8)

9 hours, not all in one department, from:
- Econ 331 ..........................Comparative Economic Systems. ..................................................(3)
- Econ 360. ..................Marxian Economic Analysis..................................................(3)
- Lang 301,302 ..................Third-Year Russian.................................................................(6)
- Lang 305,306. ..........Reading and Composition..........................................................(4)
- Lang 331 ..........................Russian Literature in Translation ............................................(2.3)
- Lang 490 ..........................Individual Russian Readings ...............................................(1-3)
PSci 320...............................Foreign Policies of Major Powers .........................................(3)
PSci 323 ..........................Issues in Comparative Politics..................................................(3)

Scandinavian Studies

P. Thorson (Advisor)

College of Arts and Sciences

MINOR IN SCANDINAVIAN STUDIES

Required: 28 hours, including:

Lang 101, 102 ..................Beginning Norwegian.................................................................(8)
Lang 201, 202. ..................Second-Year Norwegian...............................................................(8)
Hist 221 ..........................The Scandinavian Countries Since 1500. ........................................(3)

9 hours from the following:
- Lang 301, 302 ..................Advanced Norwegian .................................................................(6)
- Lang 401, 402 ..................Norwegian Literature.................................................................(6)
- Lang 403 ..........................Ibsen (in English).................................................................(3)

or
- Lang 404 ..........................Ibsen (in English).................................................................(3)
- Lang 490 ..........................Individual Norwegian Readings ...............................................(1-3)

Other courses appropriate to the program selected with advisor.

For the benefit of the students in the Scandinavian field, a Scandinavian Cultural Center is located on the UND campus. Besides an extensive book collection, the center has numerous
tapes, records and cultural programs on Scandinavia. A listening room has been established with a gift from Oscar Lunseth. A number of scholarships are available for study in Scandinavia.

Social Science

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. A reading proficiency in a foreign language (Level IV) is strongly recommended for those students who plan to enter the professions or graduate work. Consult your adviser on this matter. Arts and Sciences students who wish to declare the “teaching major” should also complete the equivalent of a major in a single social science and should consult the Arts and Sciences and the Center for Teaching and Learning offices at an early date.

College of Arts and Sciences
T. Rand, Advisor

B.A. WITH MAJOR IN SOCIAL SCIENCE

Required 125 hours, including:

I. General Education Requirements, see pages 32-40.

II. The Following Curriculum:

60 hours
Select courses in the pattern listed below from Anthropology, Economics, Geography*, History, Political Science, and Sociology. At least 24 hours must be in Upper Level work.
21 hours in one department.
12 hours in another department.
9 hours in each of three of the remaining departments.
*For Geography courses carrying Social Science Credit, see page 31.

Center for Teaching and Learning
A. Tyree and D. Xu, Advisors

B.S.ED. WITH COMPOSITE MAJOR IN SOCIAL SCIENCE

Required 125 hours, including:

I. General Education Requirements, see pages 32-40.

II. The Center for Teaching and Learning Requirements, see page 169.

III. The Following Curriculum:

Anth 171 Introduction to Cultural Anthropology .........................................................(3)
Econ 105 Elements of Economics .............................................................................(3)
Econ 420 Economics Education ................................................................................(3)
Geog 161 World Regional Geography .........................................................................(3)
Geog 319 Geography for Teachers .............................................................................(2)
Hist 101 Western Civilization to 1500 ........................................................................(3)
Hist 102 Western Civilization since 1500 .................................................................(3)
Hist 103 United States to 1877 ..................................................................................(3)
Hist 104 United States since 1877 ............................................................................(3)
PSci 101 American Government I ................................................................................(3)
PSci Electives ...............................................................................................................(3)
Soc 101 .............................................. Introduction to Sociology ................................................................. (3)

An area of concentration from below ................................................................. (12-18)

All courses to be selected with approval of faculty advisers.

Anthropology 12 hours.
Economics 12 hours.
Geography (Human or Cultural) 13 hours.
World History 12 hours.
American History 12 hours.
Political Science 12 hours.
Psychology-minimum of 18 hours to be determined by Psychology Department.
Sociology 12 hours.

Social Work
Swk

M. Jacobsen (Chair), Bratteli, Chandy, Dawes, Fry, Furman, Haagenstad, 
Haga, Heitkamp, B. Jacobsen, Klinkhammer, Muhlhauser, 
Perry, Remboldt, and Rodenhiser

The Department of Social Work holds undergraduate accreditation status with the Council on Social Work Education. Graduates of this program are eligible for regular membership in the National Association of Social Workers and may also be eligible for advanced standing in many graduate schools of social work. Each student must apply for such advanced standing independently.

The curriculum includes a broad liberal arts foundation for subsequent social work courses. Social work courses are open to sophomores, juniors and seniors. The principal educational objective of the social work program is to prepare students for beginning social work practice. Secondary educational objectives are to prepare students for graduate social work education or other graduate programs in the human service related fields, and to prepare undergraduate students for active participation, as knowledgeable citizens in the social, political, and civic processes which facilitate the well being of all citizens, groups, communities, and institutions.

Students who are interested in majoring in social work should register their intent with the department at the beginning of the freshman year, if possible. At that time students will be assigned an advisor from the Social Work Department to help them make an informed choice about majoring in social work and to assist them with their academic planning.

Minimum technical standards for admission into the social work program are:

a. ability to communicate in such a manner as to facilitate a helping relationship in the delivery of services.
b. mobility sufficient to perform essential work-related activities.
c. personal resources (psychological, social and intellectual) that facilitate the use of self in a helping manner in a social work setting.

Students are required to make application for admission to the social work program. Criteria for admission are as follows:

(1) completion of 45 semester hours of course work.
(2) attainment of a cumulative GPA of 2.4 or better.
(3) completion of three social work courses: SWk 246 Human Behavior in the Social Environment I, SWk 255 Social Work in a Modern Society, SWk 346 Human Behavior in the Social Environment II - or their equivalent (as approved by the
social work faculty) with a grade of “C” or better. The combined GPA for the three courses must be at least an average of “B”.

(4) completion of Biol 100 Principles of Biology, Biol 100L Principles of Biology Lab; PSci 101 American Government I; and Psy 101 Introduction to Psychology.

(5) evidence of at least 40 hours volunteer or paid work in a community service agency within two years preceding application for admission. (Examples of acceptable community service agencies are: human service agencies, hospitals, Y Family Centers, social/recreational centers, nursing homes).

Admission to the social work program is on a competitive basis. The number of applicants that will be admitted is determined by the number of suitable field practicum placements available to undergraduate social work students. Acceptance into the program will be based upon the applicant’s grade point average, written statement, personal interview, and other personal qualifications.

Students who have previously been admitted to the social work program but have not enrolled in a social work base course for six consecutive semesters (excluding summer sessions) must re-apply for admission to the program before enrolling in any social work base course. In accordance with accreditation standards, departmental requirements at the time of readmission shall constitute the student’s required program of study.

Social work majors must achieve an overall GPA of 2.4 and a grade of “C” or better in all social work courses (base) in which they were enrolled prior to: 1) admission; and 2) Field Instruction.

In the event a student transfers into the social work program from an accredited (CSWE) undergraduate social work program (or one in candidacy status), the student must complete at least thirty semester hours at UND. Twenty of those hours must be in required social work courses (base). In the event a student wishes to transfer credit for social work courses completed at the previous institution, course equivalence will be determined by the UND course instructor and the department chairperson.

There are special requirements while enrolled in SWk 487: Field Instruction. Many field instruction agencies are located outside the Grand Forks area. The student is responsible for travel, housing and food costs in addition to the payment of tuition while in the semester-long placement.

The faculty reserves the right not to place a student in a field instruction agency and to remove a student from SWk 487: Field Instruction if performance is unsatisfactory. Students must complete the field practicum experience during the last semester in which they are enrolled prior to graduation.

**College for Human Resources Development**

**B.S. IN SOCIAL WORK**

Required 125 hours including:

I. General Education Requirements, see pages 32-40.

II. College for Human Resources Requirements, see page 102.

III. The Following Curriculum.

A. Base (44 hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWk 246</td>
<td>Human Behavior in the Social Environment I</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 255</td>
<td>Social Work in a Modern Society</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 346</td>
<td>Social Welfare</td>
<td></td>
</tr>
<tr>
<td>SWk 322</td>
<td>Intro to Social Work Methods I: Individuals</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 333</td>
<td>Research Methodology in Social Work</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 346</td>
<td>Human Behavior in the Social Environment O</td>
<td></td>
</tr>
<tr>
<td>SWk 418</td>
<td>Social Policy Analysis</td>
<td></td>
</tr>
<tr>
<td>SWk 450</td>
<td>Social Work Methods II: Groups</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 452</td>
<td>Social Work Methods III: Families</td>
<td>(3)</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>SWk 454</td>
<td>Social Work Methods IV: Communities.</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 460</td>
<td>Senior Seminar</td>
<td></td>
</tr>
<tr>
<td>SWk 487</td>
<td>Field Instruction</td>
<td>(4-10)</td>
</tr>
<tr>
<td>SWk 488</td>
<td>Field Instruction Seminar</td>
<td>(1.2)</td>
</tr>
</tbody>
</table>

**B. Required in other departments (39 hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 100</td>
<td>Principles of Biology</td>
<td>(4)</td>
</tr>
<tr>
<td>Comm 161</td>
<td>Fundamentals of Public Speaking</td>
<td>(3)</td>
</tr>
<tr>
<td>Economics</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Political Science 101</td>
<td>American Government I</td>
<td>(3)</td>
</tr>
<tr>
<td>History</td>
<td>(three credit hour course only)</td>
<td></td>
</tr>
<tr>
<td>Literature</td>
<td>(English Department)</td>
<td>(3)</td>
</tr>
<tr>
<td>Statistics</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>Psychology</td>
<td>(upper division)</td>
<td>(6)</td>
</tr>
<tr>
<td>Sociology</td>
<td>(upper division)</td>
<td>(6)</td>
</tr>
<tr>
<td>Cultural Diversity</td>
<td></td>
<td>(4)*</td>
</tr>
</tbody>
</table>

*Selected from the following:

| Anth 171 | Intro to Cultural Anthropology                           | (3)     |
| Anth 379 | Culture Area Studies                                      | (3)     |
| Anth 465 | Culture, Illness & Health                                |         |
| A&S 225  | Intro to Study of Women                                  | (3)     |
| Engl 357 | Women Writers & Readers                                   | (2.4)   |
| Engl 365 | Black American Writers                                    |         |
| Engl 367 | American Indian Literature                               | (3)     |
| IS 121   | Intro to Indian Studies                                  | (3)     |
| IS 203   | Intro Survey of Chippewa History                         | (3)     |
| IS 207   | History of Three Affiliated Tribes                       | (3)     |
| IS 235   | Cross.Cultural Seminar                                  | (2)     |
| IS 301   | History of Western Sioux                                | (3)     |
| IS 330   | Contemp Plains Indian Culture                            |         |
| IS 345   | Contemp Amer Indian Issues                               | (3)     |
| SWk 358  | Contemp Issues in Rehab                                  | (2)     |
| Soc 436  | Social Inequality                                        | (3)     |

A total of 39 hours is required and a given course may not he used to satisfy more than one requirement within this section.

Courses used to fulfill the approved minor requirements may also be used to meet the above requirements whenever appropriate and applicable.

**MINORS**

Students are encouraged to declare either a University approved minor or, in conjunction with their adviser, develop a unique set of elective courses tailored to their future professional interests. This selection should be made at the time of admission to the Department and should be made after consultation with the faculty advisor.

**REHABILITATION SERVICES MINOR**

Required: 20 hours including:

1) Twelve hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWk 309</td>
<td>Medical &amp; Psychosocial Aspects of Disability</td>
<td>(3)</td>
</tr>
<tr>
<td>or OT 309</td>
<td>PT 309 or Nursing 286 for respective majors</td>
<td></td>
</tr>
<tr>
<td>SWk 358</td>
<td>Contemporary Issues in Rehabilitation</td>
<td>(2)</td>
</tr>
<tr>
<td>SWk 455</td>
<td>Rehabilitation Process</td>
<td>(2)</td>
</tr>
<tr>
<td>SWk 457</td>
<td>Vocational Development in Rehabilitation</td>
<td>(2)</td>
</tr>
<tr>
<td>SWk 475</td>
<td>Testing and Assessment</td>
<td>(3)</td>
</tr>
</tbody>
</table>

2) Eight hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anat 204</td>
<td>Anatomy for Paramedical Personnel</td>
<td>(3.5)</td>
</tr>
<tr>
<td>CTL 315</td>
<td>Education of Exceptional Students</td>
<td>(3)</td>
</tr>
<tr>
<td>CTL 416</td>
<td>Functional Curricula for Students with</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate Mental Handicaps</td>
<td>(2)</td>
</tr>
<tr>
<td>CDis 343</td>
<td>Language Development &amp; Disorders</td>
<td>(3-4)</td>
</tr>
<tr>
<td>HPER 360</td>
<td>Recreation/Leisure Services for Individuals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>with Disabilities</td>
<td>(3)</td>
</tr>
</tbody>
</table>
### GERONTOLOGY MINOR

**Required:** 20 hours including:

1) The following eleven hours:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWk 354</td>
<td>Orientation to Gerontology</td>
<td>(2)</td>
</tr>
<tr>
<td>Soc 352</td>
<td>Aging</td>
<td>(3)</td>
</tr>
<tr>
<td>Psy 355</td>
<td>Adulthood and Aging</td>
<td>(3)</td>
</tr>
<tr>
<td>Nurs 418</td>
<td>Physical Changes of Aging</td>
<td>(3)</td>
</tr>
</tbody>
</table>

2) Nine hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDis 365</td>
<td>Aging and Communication Processes</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 101</td>
<td>Philosophy and Life</td>
<td>(3)</td>
</tr>
<tr>
<td>Phil 210</td>
<td>Introduction to Ethics</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 206</td>
<td>Recreational Crafts</td>
<td>(3)</td>
</tr>
<tr>
<td>IT 300</td>
<td>Technology, Society and the Individual</td>
<td>(2)</td>
</tr>
<tr>
<td>HPER 360</td>
<td>Recreational Services for Individuals with Disabilities</td>
<td>(3)</td>
</tr>
<tr>
<td>HPER 362</td>
<td>Leisure Education and Counseling</td>
<td>(3)</td>
</tr>
<tr>
<td>HPER 363</td>
<td>Recreational Activities for the Elderly</td>
<td>(3)</td>
</tr>
<tr>
<td>Psy 421</td>
<td>Individual and Group Differences</td>
<td>(3)</td>
</tr>
<tr>
<td>Soc 353</td>
<td>Sociology of Death and Dying</td>
<td>(3)</td>
</tr>
<tr>
<td>Soc 354</td>
<td>Medical Sociology</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 470</td>
<td>Methods of Adult Education</td>
<td>(2)</td>
</tr>
<tr>
<td>FCS 240</td>
<td>Fundamentals of Nutrition</td>
<td>(3)</td>
</tr>
<tr>
<td>FCS 361</td>
<td>Personal and Family Finance</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 306</td>
<td>Social Welfare</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 346</td>
<td>Human Behavior in the Social Environment II</td>
<td>(3)</td>
</tr>
<tr>
<td>IS 121</td>
<td>Introduction to Indian Studies</td>
<td>(3)</td>
</tr>
</tbody>
</table>

With current approval of the student adviser and the committee chairperson up to three credit hours of departmental tutorial readings, special topics and/or research studies may be included.

### CHEMICAL USE/ABUSE AWARENESS MINOR

**Required:** 20 credit hours including:

1) The following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWk 410</td>
<td>Drugs; Addiction Dynamics</td>
<td>(2)</td>
</tr>
<tr>
<td>PhTx 410</td>
<td>Drugs Subject to Abuse</td>
<td>(2)</td>
</tr>
<tr>
<td>Soc 355</td>
<td>Drugs and Society</td>
<td>(3)</td>
</tr>
</tbody>
</table>

2) Thirteen from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soc 102</td>
<td>Social Problems</td>
<td>(3)</td>
</tr>
<tr>
<td>*Soc 355</td>
<td>The Family</td>
<td>(3-4)</td>
</tr>
<tr>
<td>Psy 363</td>
<td>Introduction to Personality</td>
<td>(3)</td>
</tr>
<tr>
<td>Psy 370</td>
<td>Abnormal Psychology</td>
<td>(3)</td>
</tr>
<tr>
<td>CDis 365</td>
<td>Development &amp; Education of Adolescents</td>
<td>(3)</td>
</tr>
<tr>
<td>PhTx 402</td>
<td>Principles of Drug Action</td>
<td>(2)</td>
</tr>
<tr>
<td>PhTx 490</td>
<td>Readings in Pharm/Drug Abuse</td>
<td>(3)</td>
</tr>
<tr>
<td>Comm 301</td>
<td>Psychology of Communication</td>
<td>(3)</td>
</tr>
<tr>
<td>SWk 309</td>
<td>Medical &amp; Psychosocial Aspects of Disability</td>
<td></td>
</tr>
<tr>
<td>IS 345</td>
<td>Contemporary American Indian Issues</td>
<td>(3)</td>
</tr>
<tr>
<td>HRD 493</td>
<td>International School of Alcohol Studies</td>
<td>(3)</td>
</tr>
<tr>
<td>**Coun 565</td>
<td>Dynamics of Addiction Seminar: Special Topics in Chemical Use/Abuse</td>
<td>(2)</td>
</tr>
</tbody>
</table>

*Course required for licensing in addiction counseling.

**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 Criminal Justice Studies, Psychology, Sociology, Spanish, Communication or Indian Studies.

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) and the nine-month 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.

Courses

246. Human Behavior in the Social Environment L 3 credits. Prerequisites: Psychology 101 and Biology 100/100L or consent of the instructor. The behavioral science base of human behavior for social work practice; interpretation of biological, psychological, social and cultural determinants of human behavior of children and adolescence in the family system. F,S

255. Social Work in a Modern Society. 3 credits. The growth and development of social work as a profession, its roles, values and goals as a helping profession. F,S

306. Social Welfare. 3 credits. Introduction to the historical development of social welfare; study of philosophies, programs and legislation with emphasis on recognized values of a democratic society relative to social welfare and social insurance programs. F,S

309. Medical & Psychosocial Aspects of Disability. 3 credits. This course offers a basic medical and psychosocial understanding of disability for human service workers. Primary emphasis is on medical terminology; causes, treatment, and prognosis of major disabilities; and the vocational and psychosocial impact of selected disabling conditions. F,S

311. Child Welfare. 3 credits. Historical perspective of the social, legal and economic status of childhood; study of the special status of childhood in a modern society and the provisions used in an attempt to meet the needs of children. F

322. Introduction to Social Work Methods 1: Individuals. 3 credits. Prerequisites: SWk 306 and 346; must be formally admitted to the major. The study of the basic elements of generalist social work practice with emphasis on the problem solving processes and interfactional skills with individuals. It includes a laboratory session in which students practice the skills covered in the course. F,S

333. Research Methodology in Social Work. 3 credits. Prerequisite: Junior standing or consent of instructor. An overview of research methodology in social service professions, with special emphasis on the evaluation of service delivery and personal professional practice. F,S

337. Cooperative Education in Social Work. 1-6 credits. Prerequisite: SWk 450 or consent of the instructor. This course offers students individually supervised field practicum in a human service agency. Students will be expected to integrate social work theory with practice. S-U grading only.

342. Social Work and the Legal Process. 2 credits. An introduction to the human service delivery system and its interface with the legal system. Emphasis will be placed on services in rural communities for adult populations. S

346. Human Behavior in the Social Environment H. 3 credits. Prerequisite: SWk 246 or consent of instructor. The behavioral science base of social work practice; interpretation of biological, psychological, social, and cultural determinants of human behavior. F,S
354. Orientation to Gerontology. 2 credits. A general introduction to gerontology including the study of the aging process, the relationship between the theoretical and practice aspects of aging, and the interdisciplinary nature of practice. F

358. Contemporary Issues in Rehabilitation. 2 credits. Examination of contemporary issues of importance in the field of rehabilitation, such as: recent legislation, transportation and architectural barriers, the teamwork concept, adjusting to a disability, and appropriating resources. F,S

375. Community Living Topics. 3 credits. Repeatable to a maximum of six credits. An introduction to the topic of community living for special populations, including the study of the deinstitutionalization movement, community living programs, and community services for the chronic mentally ill. The developmentally disabled, the physically disabled, and other special needs groups. F,S

410. Drugs: Addiction Dynamics. 2 credits. Prerequisite: Junior standing. This course is an introduction to the dynamics of drug addiction and related drug abuse issues. Special emphasis will be placed on alcohol as the most frequently used and abused drug. S

418. Social Policy Analysis. 3 credits. Policies and issues associated with local, state and national social welfare programs; community action and current social legislation concerning poverty, housing, civil rights, mental health, social hygiene, and other programs affecting the life and welfare of people. F,S

450. Social Work Methods II: Groups. 3 credits. Prerequisite: SWk 322. Examination of models of social work practice used in working with small groups from a systems perspective. Emphasis will be placed on the generalist model as practiced within professional social work values. A laboratory for experimental learning is a requirement of the course. F,S

452. Social Work Methods III: Families. 3 credits. Prerequisite: SWk 322. Examination of models of social work practice used in working with families from a systems perspective. Emphasis will be placed on the generalist model as practiced within professional social work values. A laboratory for experiential learning is a requirement of the course. F,S

454. Social Work Methods IV: Communities. 3 credits. Prerequisite: SWk 450 or 452. The study and application of the role of generalist social work practice in community work. This includes a laboratory session in which students practice the skills covered in the course in the community. F,S

455. Rehabilitation Process. 2 credits. Examination of the basic principles and methods used in rehabilitation. Topics covered include rehabilitation philosophy and values; rehabilitation legislation; psychosocial and vocational adjustment to disability; facilitative caseload management; interviewing persons with disabilities; counseling methods and the disabled; rehabilitation teamwork; coordinated services for the severely disabled; and rehabilitation research. F

457. Vocational Development in Rehabilitation. 2 credits. Deals with the importance of vocational choice for persons with disabilities by analyzing occupational information, employment barriers, placement techniques and follow-up procedures. S

460. Senior Seminar. 2 credits. Prerequisites: SWk 450, Seminar, with emphasis placed on the principles, concepts, values and ethics of the profession in relation to social services, social policy, and social action. F,S

475. Testing and Assessment. 3 credits. The study of basic assessment techniques in the testing of persons with disabilities, with special emphasis on personality, vocational, intelligence, aptitude, behavior, and achievement testing. S

487. Field Instruction. 4-10 credits (repeatable to a maximum of 10). Prerequisites: SWk 418,454 and 460. Corequisite: SWk 488. A one semester block placement (academic year) requiring 40 hours weekly in an approved social welfare agency. Using various agency settings students will have the opportunity and be expected to translate into professional practice the following knowledge: knowledge of agency, knowledge of network of community resources, identification with profession, self awareness, awareness of others, engagement, assessment, planning, implementation, evaluation, and communication skills. Upon completion of the Field Instruction program, students will have completed practice in a number of areas. A goal-oriented evaluation of student performance in appropriate knowledge areas will be completed by field instructors and department faculty and will be based upon performance in an agency setting and liaison seminars.

Application for Field Instruction must be submitted two semesters preceding the semester of placement. Students will also be requested to contact the Field Coordinator to submit a plan for field instruction. S-U grading only. F,SS,SS

488. Field Instruction Seminar. 1-2 credits (repeatable to 2). Prerequisites: SWk 418, 454 and 460. Co-requisite: SWk 487. This seminar integrates classroom content with actual practice through written assignments and seminar discussion. F,SS,SS

493A (regular grading) 493B (S-U grading). Special Topics. 1-3 credits. Repeatable to a maximum 6 credits. Prerequisite: SWk 255 or consent of instructor. Individually or group supervised research or interdisciplinary studies and seminars in social work related areas. F,SS,SS
Sociology  
(Soc)  
R. Ludtke (Chair), Hume, Lareon, Meyer, Moan, Staplea, Stofferahn, Tiemann, White, and Ziner  

This department offers a major and minor in sociology and it houses the program in Criminal Justice. 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 hours, including  

1. General Education Requirements, see pages 32-40.  

11. The following Curriculum:  

33 major hours, including:  

Soc 301 ........................................Basic Sociological Theory .......................................................(3)  
Soc 323 ........................................Sociological Research Methods .............................................(3)  
Soc 326 ........................................Sociological Statistics .............................................................(3)  
Soc 361 ........................................Social Psychology .................................................................(4)  

9 hours from:  

Soc 308........................................Social Change .................................................................(3)  
Soc 335........................................The Family ........................................................................(3)  
Soc 431........................................Organizations and Behavior .........................................................(3)  
Soc 436........................................Social Inequality .................................................................(3)  
Soc 437........................................Population .............................................................................(3)  
Soc 450........................................Deviant Behavior .................................................................(3)  

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 credits 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 hours, 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  

101. 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. Students wishing to earn credit from Sociology 101 by means of independent study should obtain information from the University counseling center on the CLEP examinations administered there. Sociology 101 may also be available through Personalized Self Instruction (PSI); entrance to the PSI section is by permission of the instructor. F,S  

102. Social Problems. 3 credits. No prerequisite. A sociological analysis of major social problems in America. F  

209. Selected Topics. 1-4 credits. An examination of special topics in sociology taught at the sophomore level, usually without prerequisites. On demand.
250. Diversity in American Society. 3 credits. Prerequisite: Soc 101. An introductory survey of the racial, ethnic and cultural mosaic of American Society. Basic theories of intergroup relations, prejudice and discrimination are covered. S

252. Criminology. 3 credits. No prerequisite. 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. No prerequisite. The nature, extent, causes and treatment of delinquency. Delinquency prevention programs are explored. F

301. Basic Sociological Theory. 3 credits. Prerequisite: Soc 101. 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,S

306. Social Change. 3 credits. Prerequisites: 6 hours of sociology. 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: Sociology 301. A general consideration of methods involved in survey research in the social sciences. F,S

326. Sociological Statistics. 3 credits. No prerequisite. 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: consent of instructor. 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

337. 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

340. Sociology of Gender and Sex Roles. 3 credits. Prerequisite: Soc 101 or Soc 102 or % 250. The implications of gender for social behavior in cross-cultural and historical perspective as well as in contemporary Western society. F

351. Correction. 3 credits. Prerequisites: Soc 252 or CJS 251. A course describing the correctional system as a part of the criminal justice system. A survey and discussion of topics dealing with offender behavior, institutional programs and community response to ex-offenders. F

352. Aging. 3 credits. No prerequisite. Specialization theory and its implication for the aging process. S

353. Sociology of Death and Dying. 3 credits. No prerequisite: The study of social aspects of death and dying as they involve the individual, the family, organizations, and life-and-death decisions. S

354. Medical Sociology. 3 credits. Prerequisite: Soc 101 or Soc 102. Sociological analysis of health care definitions and roles, and the organization, availability and control of health care. F

355. Drugs and Society. 3 credits. No prerequisite. 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: Sociology 101 or Psychology 101. (Same course as Psychology 361). 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

407. Political Sociology. 3 credits. Prerequisite: 6 hours of Soc or consent of instructor. 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. No prerequisite. Topics in sociology taught at the senior level. On demand.

430. Sociology of Education. 2-3 credits. Prerequisite: 6 hours of Soc or consent of instructor. Analysis of education as a social institution, the school as a social system and the professional and organizational role of teachers, the school and problems of the community. 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 gods. The kinds of organizations studied include industrial, medical, educational and other types. F

435. Racial and Ethnic Relations. 3 credits. Prerequisite: Soc 301 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. An examination of various forms and modes of portraying human inequality. An investigation of the role of inequality in human affairs, its measurement and significance. On demand.
Space Studies (Spst)

C. Wood (Chair), Gabrynowicz, Seielstad, and Williams

Center for Aerospace Sciences

A minor in Space Studies is available to introduce students to the complexities of 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 high-tech areas in a major field of study.

Political, legal, and scientific aspects are dealt with extensively, and key technologies are introduced. Whether or not the student goes on to a career in the space field, useful knowledge will be gained regarding the development and operation of high-tech systems.

MINOR IN SPACE STUDIES

Required 20 hours, including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SpSt 200</td>
<td>3</td>
<td>Introduction to Space Studies. An introduction to a range of topics in space studies including: 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. F</td>
</tr>
<tr>
<td>SpSt 491</td>
<td>2</td>
<td>Independent Study</td>
</tr>
<tr>
<td>SpSt 305</td>
<td>3</td>
<td>Introductory Space Mission Design.</td>
</tr>
<tr>
<td>SpSt 405</td>
<td>3</td>
<td>Advanced Space Mission Design.</td>
</tr>
<tr>
<td>SpSt 410</td>
<td>3</td>
<td>Life Support Systems</td>
</tr>
<tr>
<td>SpSt 420</td>
<td>3</td>
<td>Space Science &amp; Exploration</td>
</tr>
<tr>
<td>SpSt 430</td>
<td>3</td>
<td>Earth System Science</td>
</tr>
<tr>
<td>SpSt 440</td>
<td>3</td>
<td>Commercialization of Space</td>
</tr>
</tbody>
</table>

Space Studies electives

Courses

200. Introduction to Space Studies. 3 credits. An introduction to a range of topics in space studies including: 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. F

305. Introductory Space Mission Design. 3 credits. Prerequisite: SpSt 200 and junior standing or higher. 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. F

405. Advanced Space Mission Design. 3 credits. Prerequisite: SpSt 305 or consent of instructor. A team design project to develop the requirement 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. For the advanced student. S

410. Life Support Systems. 3 credits. Prerequisite: graduate status or SpSt 200. 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. F

420. Space Science and Exploration. 3 credits. Prerequisite: SpSt 200. Revolutionary advances that have occurred in astronomy, the earth sciences and planetary science as a result of currently 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. S

430. Earth System Science. 3 credits. Prerequisite: SpSt 200 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. Particular emphasis is placed on remote sensing techniques for global monitoring of biogeochemical processes. The role of human activities on Earth processes and the consequences of global environments 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. F

440. Commercialization of Space. 3 credits. Prerequisite: graduate status or SpSt 200. A study of the current state of commercial space activities, with analysis of the possibilities and the barriers. Key areas include launch services, satellite communications, remote sensing, microgravity materials processing, and interaction with the government. Global competition against subsidized or government-sponsored entities is examined. S

470. Special Topics in Space Studies. 1-3 credits. Prerequisite: consent of instructor. Lecture, discussion and readings on specific topics of current interest. Maybe repeated for credit if topic is different up to a total of 6 credits. Topics have included: Global Change; Life in the Universe, Asteroids, Comets and Meteorites; Planet Venus; and Manned Exploration of Moon and Mars. On demand.

480. Reading in Space Studies. 1-3 credits. Prerequisite: 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

491. Independent Study. 2 credits. Prerequisite: Senior standing and 15 hours of Space Studies. An independent study project culminating in a paper on an approved topic in Space Studies. Requires weekly meetings with the student’s assigned adviser. F,S

Theatre Arts

D. Plato (Chair), Cutler, Engle, Gillette, Jacobsen, and Lindbarg

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 Department of Theatre Arts in the College of Fine Arts and Communication at the University of North Dakota is the only department in any institution of higher learning in the State of North Dakota which is dedicated exclusively to the theatre arts discipline. A diversified faculty are personally involved in and teach the various areas of the theatre arts, i.e., playwriting, acting, voice, movement, directing, history, dramatic literature, technical theatre, costuming, set design, lighting, and make-up.

The curriculum of the Department of Theatre Arts provides students with opportunities to pursue either of the undergraduate degrees of Bachelor of Fine Arts or Bachelor of Arts, as well as the Master of Arts degree at the graduate level. Major concentrations in most of the
Theatre Arts areas stated in the preceding paragraph are available to candidates for any of the previously listed degrees, although the curriculum assures a well-rounded experience in the chosen discipline and the other fine arts. The Bachelor of Fine Arts is a pre-professional degree, and it requires a higher level of proficiency in theatrical production and is an appropriate preparation for students who desire theatrical careers.

The instructional program of the Department is integrated with the production programs of the Business Theatre which provide broad practical experience for the students in theatre arts. The Business Theatre produces four or five major productions during the academic year, generally including an opera or musical. Several experimental or workshop productions, with student directors and designers, are staged each year in the Studio Theatre.

The regular season of productions is designed to offer a series of contrasting literary and production styles, thereby challenging and enlightening both participants and audiences.

During the summer season, two or three productions are staged by the Summer Theatre Festival Company, staffed by faculty and students. The Department also sponsors a touring group called Suitcase Shakespeare, a company of student actors performing selected scenes and soliloquies for regional high schools. Stipends and academic credit are available for both Summer Theatre and Suitcase Shakespeare.

The facilities of the Department are located in the Business Theatre and in adjacent Chandler Hall. In addition to the fully-equipped, 365 seat, proscenium-stage theatre in the Burtness facility, there are a set-construction shop, costume shop, and the 180-seat Studio Theatre. The Chandler Hall facilities include: a dance studio, classroom and rehearsal spaces, a design studio and shops, and office and storage spaces. The Department has access to the 2,400 seat Chester Fritz Auditorium with its 60 foot proscenium stage, which is fully equipped with an elevator lift forestage, flylines, stage house and sophisticated sound and lighting systems.

The Bachelor of Fine Arts program in Theatre Arts 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 to the chairperson who will then schedule an audition or portfolio presentation and personal interview for the candidate with the Theatre Arts faculty. BFA applications are generally accepted in February with screening held in March. Upon acceptance, the student will be assigned a faculty adviser. Each student will be reviewed annually by Theatre Arts faculty, which 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 newly implemented 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 Fine Arts and Communication

B.F.A. WITH A MAJOR IN THEATRE ARTS

Required 125 hours including:

I. General Education Requirements, see pages 32-40.

II. College of Fine Arts and Communication Requirements (These requirements are satisfied through specific requirements within the BFA curriculum in III. B.).
### A. Core I (courses normally taken during the first two years of study)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA 122</td>
<td>Makeup for Theatre and Television</td>
<td>(1)</td>
</tr>
<tr>
<td>TA 130</td>
<td>The Art and Craft of Theatre</td>
<td>(3)</td>
</tr>
<tr>
<td>TA 200</td>
<td>Rehearsal and Performance</td>
<td>(3)</td>
</tr>
<tr>
<td>TA 225</td>
<td>Stagecrafts</td>
<td>(3)</td>
</tr>
<tr>
<td>TA 226</td>
<td>Intro to Design</td>
<td>(3)</td>
</tr>
<tr>
<td>TA 227</td>
<td>Acting I</td>
<td>(3)</td>
</tr>
<tr>
<td>TA 250</td>
<td>Readings in Dramatic Literature</td>
<td>(3)</td>
</tr>
</tbody>
</table>

*At least one hour of TA 200 must be for technical theatre involvement.

### B. Core 11 (courses normally taken during the last two years of study)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA 300</td>
<td>Play Direction I</td>
<td>(~)</td>
</tr>
<tr>
<td>Engl 315</td>
<td>Shakespeare</td>
<td>(3)</td>
</tr>
<tr>
<td>TA 423</td>
<td>History of the Theatre: Classical, Medieval, Renaissance</td>
<td>(3)</td>
</tr>
<tr>
<td>TA 424</td>
<td>History of the Theatre: 17th Century to the Present</td>
<td>(3)</td>
</tr>
<tr>
<td>Music Courses in History/Theory</td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>TA/Engl Additional courses in Dramatic Literature (may include TA 330)</td>
<td>(6)</td>
<td></td>
</tr>
</tbody>
</table>

### c. From one of the following tracks:

1. **Performance**
   - **Required**
     - TA 140/140L Stage Movement                                    | (2)     |
     - TA 314 Vocal Performance Techniques                           | (3)     |
     - TA 180,280,380,480 Studio                                    | (8)     |
     - TA 481 Theate Practicum                                       | (3)     |
     - TA 328 Acting II                                              | (3)     |
     - TA 402 Acting III                                             | (3)     |

   - **Electives**
     - TA 222 Advanced Makeup                                         | (1)     |
     - TA 229 Creative Dramatics                                      | (3)     |
     - TA 329 Children’s Theatre                                     | (3)     |
     - TA 339 Production Design                                       | (3)     |
     - TA 404 Acting for the Music Theatre                           | (3)     |
     - TA 411 Audition Techniques                                     | (1)     |
     - TA 425 Play Direction II                                       | (3)     |
     - TA 490 Senior Project                                          | (4)     |
     - TA 481 Approved Practicums                                     | (3)     |

   - **Specific Tracks**
     - Relevant special topics courses in Theatre Arts
     - May also include two additional hours of studio study (180, 280,380, 480)

   *Courses to be approved by advisor

2. **Design and Technical Theatre**

   - **Required**
     - TA 326 Lighting for Stage I                                   | (2)     |
     - TA 339 Production Design                                      | (3)     |
     - TA 425 Scene Design for the Stage                             | (3)     |
     - TA 427 Costume Design                                         | (3)     |
     - TA 481 Theatre Practicum                                      | (7)     |
     - TA 490 Senior Project                                         | (4)     |

   - **Electives**
     - TA 222 Advanced Makeup                                         | (1)     |
     - TA 325 Scene Ctrl                                              | (3)     |
     - TA 336 Lighting for Stage II                                   | (2)     |
College of Arts and Sciences

B.A. WITH A MAJOR IN THEATRE ARTS

Required 125 hours including:

1. General Education Requirements, see pages 32-40.

11. Level IV proficiency in a foreign language.

111. The Following Curriculum:

33 hours, including

TA 130.......................................The Art and Craft of Theatre. ..............................................................(3)
TA 200......................................Rehearsal & Performance .................................................................(2)
TA 225......................................Stagecrafts I .......................................................... ............................................(3)
TA 226......................................Intro to Design ....................................................................................(3)
TA 227......................................Acting I .........................................................................................(3)
TA 250......................................Readings in Dramatic Literature ....................................................(3)
TA 300......................................Play Direction I .................................................................................(3)
TA 330......................................Contemporary Theatre ........................................................................(3)
TA 423......................................History of Theatre: Classical Medieval & Renaissance .......... (3)
TA 424......................................History of Theatre: 17th Century to the Present ....................... (3)

4 hours from the following:

TA 122......................................Makeup I .......................................................................................(1)
TA 222......................................Makeup II ......................................................................................(1)
TA 223......................................Beginning Oral Interpretation .........................................................(3)
TA 299......................................Creative Dramatics ...........................................................................(3)
TA 325......................................Scenecraft .......................................................................................(3)
TA 326......................................Lighting for Stage I ..............................................................................(2)
TA 328......................................Acting II .........................................................................................(3)
TA 329......................................Children's Theatre ........................................................................ (3)
TA 426......................................Scene Design for Stage .................................................................(3)
TA 427......................................Costume Design .............................................................................(3)
TA 481......................................Theatre Practicum ..........................................................................(1)
TA 498......................................Playwriting ..................................................................................(3)

MINOR IN THEATRE ARTS

Required 23 hours, including:

TA 130.......................................The Art and Craft of Theatre ..............................................................(3)
TA 200......................................Rehearsal & Performance .................................................................(1)
TA 225......................................Stagecrafts I .......................................................... ............................................(3)
TA 227......................................Acting I .........................................................................................(3)
TA 300......................................Play Direction I .................................................................................(3)

3 hours from the following:

TA 423......................................History of Theatre ........................................................................ (3)
TA 424......................................History of Theatre ........................................................................ (3)

3 hours from the following

TA 250......................................Readings in Dramatic Literature ....................................................(3)
TA 330......................................Contemporary Theatre ........................................................................(3)

Courses from the following to total 23 hours:

TA 122......................................Makeup of Theatre & Television .......................................................(1)
TA 229......................................Creative Dramatics ...........................................................................(3)
TA 326......................................Lighting for Stage I ........................................................................ (2)
TA 328......................................Acting II .........................................................................................(3)
TA 329......................................Children's Theatre ........................................................................ (3)
### Courses

121. Introduction to Theatre Arts. 3 credits. Basic orientation and historical perspective including physical attributes, styles, the relationship of playwright, director, actor, designer, and producer as it relates to current theatre practice. F,S

122. Makeup for Theatre and Television. 1 credit. Principles of theatrical and television makeup with practical experience in class and laboratory participation in University productions, F,S

130. The Art and Craft of Theatre. 3 credits Introduction to basic principles, theory, and techniques of theatrical performance. For prospective majors and minors. F

140. Stage Movement. 2 credits. Co-requisite: TA 140L. A course which explores the use of the body as an instrument of the actor. Techniques of centering, coordination, relaxation, energization. Basic principles of stage movement are exercised through script analysis, improvisation, dance, mime, martial arts, and circus techniques. F

140L. Stage Movement Laboratory. 0 credits. Co-requisite TA 140. A laboratory to accompany TA 140, Stage Movement. Performance and practice in exercises learned in TA 140. F

180. Theatre Performance Studio. 1 credit repeatable to 2. A studio setting wherein students will explore movement, voice, improvisation, auditioning, stage combat, and the implementation of other relevant acting tools. Frequent use of guest lecturers and guest artists. F,S

200. Rehearsal and Performance. 1 credit. Participation in theatre performances 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.

222. Advanced Makeup. 1 credit. Prerequisite: TA 122 or consent of instructor. A continuation of 122 with emphasis on the use of putty, robber, adhesives, wax, wigs, national types, and non-realistic styles. F/2

223. Beginning Oral Interpretation. 3 credits. Oral reading of literature to secure an understanding of the intellectual and emotional content of literature and to communicate this meaning to a listener. On demand.

225. Stagecraft. 3 credits. Designed to familiarize the student with crafts and technologies of production; scenery construction, costume construction, painting, lighting equipment, sound techniques. Practical experience, shop procedures and safety practices are tied to lab experience in University productions. S

226. Intro to Design. 3 credits. Introduces the student to the principles and elements of design, the design process, and the methods of presentation of design ideas. F

227. Acting L. 3 credits. Basic principles of acting with emphasis on movement; basic character development through improvisation and script. F,S


250. Readings in Dramatic Literature. 3 credits. Directed readings in dramatic literature from various periods with emphasis on script analysis and interpretation for production. S/2

280. Theatre Performance Studio. 1 credit. Repeatable to 2. Prerequisite TA 180 and admittance to BFA program. Continuation of TA 180. F,S

300. Play Direction 1.3 credits. Prerequisites: TA 227 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

314. Vocal Performance Techniques. 3 credits. Vocal and articulatory skills are taught through study of phonetics and the use of physical exercises and performance. On demand.

325. Scene Craft. 3 credits. Specialized construction and rigging of scenery, advanced technology applications to the stage, drafting projects and practical problem solving. Prerequisites: TA 225 and TA 226, On demand.

326. Lighting for Stage I. 2 credits. Prerequisite: TA 225 or consent of instructor. The principles, mechanics and design of stage and television lighting; its relationship 10 set, makeup and costume design; plus laboratory participation in University productions. F/2

328. Acting II. 3 credits. Prerequisite: TA 227 or consent of instructor. Application of the skills of acting to the various types and styles of dramatic literature. F

329. Children’s Theatre. 3 credits. Repeatable up to 6 hours. The production of theatre for children; the history of children’s theatre; selection and analysis of scripts; problems of directing and acting; laboratory work producing plays for children. S/2

330. Contemporary Theatre. 3 credits. Analysis of trends and developments of the theatre from Ibsen’s realistic plays to recent avant-garde dramas with emphasis on staging problems, literary value and audience appeal. S/2
336. Lighting for Stage II. 2 credits. Prerequisite: TA 225, or consent of instructor. This course is specifically designed to develop a lighting aesthetic for directors, designers, and technicians. There will be a script analysis with practical application, plus laboratory participation in University Theatre productions. F/2

339. Production Design. 3 credits. Prerequisites; TA 130, 225 and 226, 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, craftsmen, and managers. S

350. Dramatic Production and Criticism. 3 credits. Prerequisites: TA 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.

380. Theatre Performance Studio. 1 credit, repeatable to 2. Prerequisite TA 280. Continuation of TA 280. F/S

402. Acting III. 3 credits. Prerequisite: TA 328. Intensive work in individual and ensemble techniques with study and practice of characterization and movement in Period and Style. S/2

404. Acting for the Music Theatre. 3 credits. Prerequisite: TA 227, or consent of instructor. Basic principles of acting for the musical theatre, including work in movement, characterization, and the various skills involved in becoming an actor/singer. S

411. Audition Techniques. 1 credit. Prerequisite: 6 credits in Acting/Performance courses. Selection, rehearsal, and performance of theatrical material for auditions. F/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.

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. S

425. Play Direction II. 3 credits, Prerequisite: TA 300 or consent of instructor. A continuation of TA 300 with emphasis on style. Laboratory experience. S

426. Scene Design for the Stage. 3 credits. Repeatable up to 6 hours. Prerequisites: TA 225 and 226 or equivalent. Review of leading contemporary stage and television designers such as Appia, Craig, R.E. Jones, Mielziner, Svoboda and Ming Cho Lee. In addition to the theoretical study, students will create individual projects in scene design. A strong emphasis is placed on reinforcing “action” of script with physical setting. On demand.

427. Costume Design. 3 credits. Prerequisites: TA 225 and 226, or equivalent. Repeatable up to 6 credits. Elements, principles, and styles of design applied to the visual creation of a dramatic character. S

480. Theatre Performance Studio. 1 credit, repeatable to 4. Prerequisite: TA 380. Continuation of TA 380. F/S

481. Theatre Practicum. 1-2 credits. Repeatable 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

490. Senior Project. 4 credits. Individual work in an approved area. F,S

498. 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

Visual Arts

(VA)

J. McElroy-Edwards (Chair), Auyong, Fundingsland, Kelley, Koozin, Luber, McCleery, Miller, Monsebroten, Paulsen, and Schaefer

The Department of Visual Arts 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 of study, are: two-dimensional (drawing, painting, photography, printmaking), three-dimensional (ceramics, sculpture, fibers, metalsmithing), history of visual arts, and visual arts 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 prerequisite to the ultimate objective of nurturing growth in conceptual ability and creative production. The Edmund A. Hughes Fine Arts Center provides specialized studios and opportunities for work in the various visual arts media.

The Department of Visual Arts in the College of Fine Arts and Communication of the University is an accredited institutional member of the National Association of Schools of Art and Design.

**College of Fine Arts**

**B.F.A. WITH MAJOR IN VISUAL ARTS**

Required 132 hours including:

1. General Education Requirements, see pages 32-40.

11. College of Fine Arts and Communication Requirements, see page 98 including:

Electives in Fine Arts Disciplines (other than Visual Arts) .........................................................(6)

111. The Following Curriculum:

All BFA degree majors in visual arts have minimum requirement of 15 credits in History of Visual Arts courses, (Phil 356, Aesthetics, may be taken in partial fulfillment of Art History requirement), and 74 credits in Visual Arts Practicum (studio) courses. Distribution of those credits is as follows:

Core Requirements:

VA 108..........................................Hand & Power Tool Safety .................................................................(1)
VA 130, 131..................................Drawing I, 11 ..............................................................................(6)
VA 173, 174.................................Design I: Two-dimensional; Design 11: Three-dimensional ........(6)
VA 210..........................................Art History Survey: Paleolithic to Renaissance......................(3)
VA 21 I.................................Art History Survey: Renaissance to Present ........................................(3)
VA 230..........................................Figure Drawing I .................................................................(3)

and 18 credits from:

VA 200, 201..............................Sculpture I, II ............................................................................(3, 3)
VA 204, 205..............................Jewelry Making I, II .................................................................(3, 3)
VA 220, 221..............................Painting I, II .............................................................................(3, 3)
VA 231..........................................Figure Drawing I .................................................................(3)
VA 240..........................................Screen Printing .................................................................(3)
VA 241..........................................Relief & Serigraphy .............................................................(3)
VA 251..........................................Ceramics I .............................................................................(3)
VA 252..........................................Ceramics II .........................................................................(3)
VA 276..........................................Surface Design on Fabric ......................................................(3)
VA 277..........................................Fibers I ......................................................................................(3)
VA 278..........................................Fibers II ......................................................................................(3)
VA 279..........................................Fibers III ......................................................................................(3)

Before advancement to upper-division status, all B.F.A. candidates must participate in review and evaluation by the Visual Arts Faculty.

Major Area Courses:

At least 24 credits must be completed (including 200-level courses) in one of the following media areas:

- Ceramics
- Drawing
- Fibers
- Painting
- Photography
- Printmaking
- Metalsmithing: Jewelry and Sculpture
- Small Sculpture

Upper-level students are required to complete a MINIMUM of 38 credits in courses selected from the following list:

VA 302, 303..............................Sculpture III, IV ............................................................................(3, 3)
VA 322, 323..............................Painting III, IV ............................................................................(3, 3)
Va 332, 333. Figure Drawing 111, 1V. .................................................................(3, 3)
Va 340. Printmaking: Lithography. .................................................................(3)
Va 341. Printmaking 111: Plate & Color Lithography. .................................................(3)
Va 342, 343. Printmaking 111, 111: Intaglio. ..........................................................(3, 3)
Va 344, 345. Printmaking: 111, 111: Serigraphy. .........................................................(3, 3)
Va 351. Ceramics 11: Sculpture. ...........................................................................(3)
Va 353. Ceramics 111: Throwing. ...............................................................(3)
Va 355. Clay & Glazes. .......................................................................................(3)
Va 361. Concepts in Visual Arts Education. ......................................................(2)
Va 365, 366. Photography Studio 1, II. .................................................................(3, 3)
Va 371, 372, 373. Fibers 111, 111, IV. ..............................................................(3, 3, 3)
Va 375. Brush Lettering & Sign Painting. ..........................................................(3)
Va 379. Color Theory. .......................................................................................(3)
Va 391a, 391 b. Special Topics .............................................................................(1-4)
Va 410. All History: Selected Topics. .................................................................(1-4)
Va 412. All History: 20th Century (to 1930s). .........................................................(3)
Va 413. Art History: 20th Century (1930s to present). ............................................(3)
Va 416. Art History: Italian Renaissance. ............................................................(3)
Va 417. Art History: Northern Renaissance. ..........................................................(3)
Va 418. Art History: Baroque. .................................................................................(3)
Va 419. Art History: 19th Century. .......................................................................(3)
Va 490. Special Projects/Independent Research ............................................(variable credit dependent upon scope of project)
All B.F.A. candidates are required to be represented in the BFA Group Exhibition with the approval of their faculty adviser.
Electives in disciplines other than visual arts with not more than 9 credits in other fine arts disciplines; these electives may be employed to fulfill the requirement for teacher certification ...................................................(11)

**College of Arts and Sciences**

**B.A. WITH MAJOR IN VISUAL ARTS**

Required 125 hours including:

I. General Education Requirements, see pages 3240.

11. The Following Curriculum of 48 major credits:

All BA degree majors in Visual Arts have a minimum requirement of 9 credits in History of Visual Arts courses, (Phil 356, Aesthetics, may be taken in partial fulfillment of ‘Art History requirement) and 39 credits in Visual Arts Practicum (studio) courses. Distribution of those credits is as follows:

Core Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Va 108</td>
<td>Hand &amp; Power Tool Safety</td>
<td>1</td>
</tr>
<tr>
<td>Va 130, 131</td>
<td>Drawing</td>
<td>6</td>
</tr>
<tr>
<td>Va 173, 174</td>
<td>Design I: Two-dimensional; Design H: Three-dimensional</td>
<td>6</td>
</tr>
<tr>
<td>Va 210</td>
<td>Art History Survey: Paleolithic to Renaissance</td>
<td>3</td>
</tr>
<tr>
<td>Va 211</td>
<td>Art History Survey: Renaissance to Present</td>
<td>3</td>
</tr>
</tbody>
</table>

Plus at least 9 credits in the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Va 200, 201</td>
<td>Sculpture I, II</td>
<td>3, 3</td>
</tr>
<tr>
<td>Va 204, 205</td>
<td>Jewellerymaking 1, II</td>
<td>3, 3</td>
</tr>
<tr>
<td>Va 220, 221</td>
<td>Painting I, II</td>
<td>3, 3</td>
</tr>
<tr>
<td>Va 230, 231</td>
<td>Figure Drawing I, II</td>
<td>3, 3</td>
</tr>
<tr>
<td>Va 240</td>
<td>Printmaking I: Intaglio</td>
<td>3</td>
</tr>
<tr>
<td>Va 241</td>
<td>Printmaking I: Relief and Serigraphy</td>
<td>3</td>
</tr>
<tr>
<td>Va 251</td>
<td>Ceramics I</td>
<td>3</td>
</tr>
<tr>
<td>Va 253</td>
<td>Ceramics 11: Throwing</td>
<td>3</td>
</tr>
<tr>
<td>Va 260</td>
<td>Slide Photography</td>
<td>3</td>
</tr>
<tr>
<td>Va 261</td>
<td>Color Printing</td>
<td>3</td>
</tr>
<tr>
<td>Va 274</td>
<td>Calligraphy</td>
<td>3</td>
</tr>
<tr>
<td>Va 276</td>
<td>Surface Design on Fabric</td>
<td>3</td>
</tr>
<tr>
<td>Va 277</td>
<td>Fiber</td>
<td>3</td>
</tr>
</tbody>
</table>
Upper-level students are required to complete a MINIMUM of 20 credits in courses selected from the following list:

VA 302, 303........................................Sculpture 111, IV .................................................................(3, 3)
VA 322, 323....................................painting III, IV ........................................................................(3, 3)
VA 332, 333....................................Figure Drawing III, IV ..................................................................(3, 3)
VA 340........................................Printmaking II: Lithography .......................................................(3)
VA 341..........................................Printmaking II: Plait & Color Lithography .................................(3)
VA 342, 343....................................printmaking 11, III: Intaglio .................................................(3, 3)
VA 344, 345....................................Printmaking II: Serigraphy ......................................................(3, 3)
VA 351..........................................Ceramics II: Sculpture ...............................................................(3)
VA 353..........................................Ceramics 11: Throwing .............................................................(3)
VA 354..........................................Clay & Glazes .............................................................................(3)
VA 355..........................................Concepts in Visual Arts Education ..........................................(2)
VA 365, 366........................................Photography Studio 1, II .........................................................(3, 3)
VA 371, 372, 373............................Fibers 11, II, IV ........................................................................(3, 3, 3)
VA 375..........................................Brush Lettering & Sign Painting ..............................................(3)
VA 376..........................................Color Theory ..............................................................................(3)
VA 391a, 391 b..................................Special Topics ......................................................................(1-4)
VA 410..........................................Art History: Selected Topics ..................................................(1-4)
VA 412, 413.................................Art History: 20th Century (to 1930s) .................................................(3)
VA 414.................................Art History: 20th Century (1930s to present) .................................(3)
VA 416..........................................Art History: Italian Renaissance ..............................................(3)
VA 417..........................................Art History: Northern Renaissance .............................................(3)
VA 418, 419..................................Art History: Baroque ..............................................................(3)
VA 419..........................................Art History: 19th Century .......................................................(3)

7 hours from the following: Art History, Ceramics, Drawing, Fibers, Jewelry, Painting, Printmaking, Sculpture, Photography

MINOR IN VISUAL ARTS (Studio)
Required 22 hours including:

VA 110........................................Introduction to Understanding Art .................................................(3)
VA 130, 131.................................Drawing I, II ..............................................................................(6)
VA 173, 174.................................Design I: Two dimensional; Design II: Three Dimensional ...(6)

6 hours of Art History Survey:

VA 210........................................Art History Survey: Paleolithic to Renaissance .........................(3)
VA 211........................................Art History Survey: Renaissance to the Present ........................(3)

12 hours from any 400 level Art History Course ..........................................................(12)

7 hours from the following: Ceramics, Fibers, Painting, Jewelry, Printmaking, Sculpture

MINOR IN ART HISTORY
Required 24 hours including:

6 hours of Art History Survey:

VA 210........................................Art History Survey: Paleolithic to Renaissance .........................(3)
VA 211........................................Art History Survey: Renaissance to the Present ........................(3)

12 hours from any 400 level Art History Course ..........................................................(12)

6 hours from the following studio courses:

VA 100........................................Introduction to Sculpture ...........................................................(3)
VA 120........................................Introduction to Drawing and Color Materials ...............................(3)
VA 173, 174.................................Design I: Two-dimensional; Design II: Three-dimensional ...(6)

MINOR IN VISUAL ARTS EDUCATION (Middle or Secondary)
22 hours required as follows:

VA 110........................................Understanding Art ..............................................................(3)
VA 130, 131.................................Drawing I, II ..............................................................................(6)
VA 173, 174.................................Design I: Two dimensional; Design II: Three-dimensional ...(6)

7 hours from the following: Ceramics, Fibers, Painting, Jewelry, Printmaking, Sculpture

Center for Teaching and Learning
B.S.Ed Degree with a Combined Major in Elementary Education and Visual Arts

For curriculum outline see page 176 under the Center for Teaching and Learning.

Courses

100. Introduction to Sculpture. 3 credits. Introduction for non-majors to sculptural materials, process and concepts. F,S

108. Hand & Power Tool Safety. 1 credit. Lectures and demonstrations of power machinery and hand tools with emphasis on safety in practical application. Skills acquired equip the student for advanced courses in all media areas. F,S

110. Introduction to the Understanding of Art. 3 credits. Films, original works, slides, discussions, demonstrations. Structure and meaning of visual art forms as revealed through the analysis of psychological, sociological and philosophical applications of art mediums. F,S

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. F,S

130. Drawing I. 3 credits. Form, proportion, composition, and perspective covering a wide range of media and subject; experimentation in line and color quality; figure work. F,S

131. Drawing II. 3 credits. Prerequisite: VA 130. A continuation of the skills and concepts developed in Drawing I. F,S

151. Introduction to Ceramics. 3 credits. Introduction for non-majors to basic handforming processes and glazing techniques. Clay and firing processes are learned through lecture, discussions, demonstrations, and readings. F,S

173. Design I: Two-Dimensional. 3 credits. Basic concepts of 2-dimensional design as they apply to the fine and applied arts are learned through projects with various media, black and white and color. F,S

174. Design II: Three-Dimensional. 3 credits. Prerequisite: VA 173. Basic concepts of 3-dimensional design as they apply to the fine and applied arts are learned through projects with various media. F,S

200. Sculpture I. 3 credits. Prerequisites: VA 108, 174. Introduction to philosophy, aesthetics, history and processes of sculpture. Demonstrations in the use of metals, stone, clay, plaster, wood, etc. F,S

201. Sculpture II. 3 credits. Prerequisite: VA 200. Continuation of Sculpture I. F,S

204. Jewellery Making I. 3 credits. A comprehensive laboratory understanding of non-ferrous metals and their manipulation is presented, leading to proficiency for the making of body ornaments and simple containers from sheet. F

205. Jewellery Making II. 3 credits. Prerequisite: VA 204. A continuation of comprehensive laboratory understanding of non-ferrous metals & their manipulation is presented. Leading to proficiency for the making of body ornaments and simple containers from sheet. S

210. Art History Survey: Paleolithic to Renaissance. 3 credits. A survey of western art from Paleolithic to the Renaissance. F

211. Art History Survey: Renaissance to Present. 3 credits. A survey of western art from Renaissance to the present. S

220. Painting I. 3 credits. Prerequisite: VA 131. Experimentation with oil painting and associated media with emphasis upon creative compositions, using models, still-life subjects and imaginative contemporary expressions. F,S

221. Painting II. 3 credits. Prerequisite: VA 220. Continuation of concepts and techniques explored in Painting I. F,S

230. Figure Drawing I. 3 credits. Prerequisite: VA 131. Expressive and analytical drawing of the figure. Work is done in varied media, varied techniques and varied conceptual approaches to help students develop visual expressive skills. F,S

231. Figure Drawing II. 3 credits. Prerequisite: VA 230. Continuation of problems introduced in Figure Drawing I. F,S

240. Printmaking I: Intaglio. 3 credits. Survey of intaglio processes, including etching, engraving, aquatint, etc. on zinc and plastic. F

241. Printmaking II: Relief and Serigraphy. 3 credits. Survey of relief and serigraphic print processes. F

250. Ceramics I. 3 credits. 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. F,S

253. Ceramics II: Throwing. 3 credits. Prerequisite: VA 151 or 251 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 first semester emphasis is placed on centering the clay on the wheel and mastering the basic bowl and bottle forms. F,S

260. Slide Photography. 3 credits. A non-darkroom oriented class in slide photography emphasizing the aesthetic design and compositional aspects of this artistic medium. S/U grading only. F,S
261. Color Printing. 3 credits. Prerequisite: VA 260 or instructor approval. This beginning course in color printing is designed as a complementary follow up course to Slide Photography. VA 260. S/U grading only. F,S

274. Calligraphy. 3 credits. Lettering styles in Gothic, Roman and Script, utilizing several media and techniques; studies of the importance of lettering in advertising and illustrations. F,S

276. Surface Design on Fabric. 3 credits. Prerequisite: VA 173. Exploration of technical and design possibilities of various surface embellishments on fabric (printed, dyed). Demonstration/course lecture/studio work. F

277. Fibers I. 3 credits. Prerequisite: VA 173. Samples and finished art projects of student’s design carried out exploring technical and design possibilities of various textile techniques. Demonstrations/course lecture/studio work. S

302. Sculpture 111.3 credits. Prerequisite: VA 201. Continued involvement in advanced sculpture processes and emphasis on personal style development. F,S

303. Sculpture IV. 3 credits. Prerequisite: VA 302. Continuation of Sculpture 111. F,S

304. Jewelry and Small Sculpture I. 3 credits. Prerequisite: VA 205 or consent of instructor. Specialized techniques and processes, new and traditional, of metal fabrication ranging from body adornments to small sculptural forms with emphasis on design and craftsmanship. Includes designing, piercing, soldering, bezel setting, forming, forging, wire-pulling, casting, enameling. Incorporation of mixed media encouraged. F,S

305. Jewelry and Small Sculpture II. 3 credits. Prerequisite: VA 304 or consent of instructor. Continuation and expansion of Jewelry and Small Sculpture 1, plus bench journal, marketing and exhibition experience. S

306. Jewelry and Small Sculpture 111.3 credits. Prerequisite: VA 305. Expansion of bench techniques and studio production, including advanced design, repair, gem identification and settings, marketing, portfolio and exhibit experience. F

307. Jewelry and Small Sculpture IV. 3 credits. Prerequisite: VA 306. Continuation of Jewelry and Small Sculpture II. S

322. Painting 111.3 credits. Prerequisite: VA 221. Further development of painting concepts, comprehension and search of various media and styles. The course stresses the focus of one’s attitudes towards developing a more personal visual statement in areas of personal interest. F,S

323. Painting IV. 3 credits. Prerequisite: VA 322. Continuation of Painting 111. F,S

332. Figure Drawing 111.3 credits. Prerequisite: VA 231 or consent of instructor. Using the human figure as a basis for searching out presentation of plastic form, design and content. Traditional and experimental searching in various media, styles, forms. F,S

333. Figure Drawing IV. 3 credits. Prerequisite: VA 332. Continuation of Figure Drawing III. F,S

337. Cooperative Education. Part-time, fall and spring, 1-3 credits. Repeatable to 3 credits only. Full-time, fall and spring, 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. S/U grading only. F,S

340. Printmaking II: Lithography. 3 credits. Prerequisite: VA 240 or 241. Basic black and white stone lithographic processes. F

341. Printmaking 111: Plate and Color Lithography. 3 credits. Prerequisite: VA 240. Advanced work in stone lithography to include color processes. Introduction to plate lithography and related photographic processes. S

342. Printmaking II: Intaglio. 3 credits. Prerequisite: VA 240. Intaglio work to include metal and plexiglass plates. Elaboration on the use of techniques, including soft ground, sugar lift, and the double print process. Introduction to multiple color printing and experimental processes. A slide survey of contemporary printmakers. F

343. Printmaking III: Intaglio. 3 credits. Prerequisite: VA 342. Continuation of Printmaking II: Intaglio. F,S

344. Printmaking 11: Serigraphy. 3 credits. Prerequisite: VA 241. Investigation of screen printing techniques with professional quality, non-toxic materials and a full range of stencil systems including experimental approaches. F,S

345. Printmaking II: Serigraphy. 3 credits. Prerequisite: VA 344. Continuation of Printmaking 11: Serigraphy. F,S

351. Ceramics II: Sculpture. 3 credits. Prerequisite: VA 151 or 174 or 251 or consent of instructor. A sculptural approach to clay is explored with emphasis on both representing figurative forms and solving more abstract, conceptual problems. The second semester is an extension of the first with more advanced problems in the same areas. F/S

353. Ceramics III: Throwing. 3 credits. Prerequisite: VA 253. Devoted to more complex problems such as throwing larger pieces, multiple-sectioned forms, sets of forms and lidded pieces. F,S

355. Clay & Glazes. 3 credits. Prerequisite: VA 151. This is a technical approach to the raw materials used in ceramics. The various processes of calculating, mixing, evaluating, and returning both clay and glazes are explored. Through lectures, readings and laboratory test work, a basic understanding of clay and glazes is achieved. S
361. Concepts in Visual Arts Education. 2 credits. Lecture, discussion course designed to give an overview of visual arts education, current topics in visual arts education, the relationship of visual arts education to the arts and education, survey of literature in visual arts education; concept approaches to instructing the visual arts grades 6 to 12. S

365. Photography Studio I. 3 credits, repeatable to 6. Prerequisite: VA 261. Refinement of conceptual and formal qualities in silver or non-silver process photographic projects using color, black and white or hand coloring techniques. The scope of work and media will be determined by contractual arrangement between student and instructor. F/S

366. Photography Studio II. 3 credits (repeatable to 6 credits). Prerequisite: VA 365 or consent of instructor. Further development of conceptual and formal qualities in silver or non-silver process photographic projects in 35mm, medium or large camera formats. The scope of work and media will be determined by contractual arrangement between students and instructor. F/S

371. Fibers II. 3 credits. Prerequisites: VA 173 or 174 and 277. Course work will consist of sample making and sustained projects woven on the loom. Techniques taught include yarn dying. F

372. Fibers 111.3 credits. Prerequisite: VA 371. A continuation of skills acquired in Fibers II. This course will deal with double-weave loom construction processes and other multiple layer possibilities. S

373. Fibers IV. 3 credits. Prerequisites: VA 173 or 174 and 372. This course will deal with structure and pattern in weaving. Work will consist of samples and finished visual statements. F,S on demand.

375. Brush Lettering and Sign Painting. 3 credits. Prerequisite: VA 274. A continuation of Calligraphy; further practical knowledge of the applications of freehand brush lettering; layout techniques; materials involved. F,S

379. Color Theory. 3 credits. Prerequisite: VA 173. Advanced experimentation with color phenomena, light & pigment theory through historical, theoretical and practical approaches. S

391a. Special Topics. 1-4 credits. Prerequisite: upper division status. Experience in specialized techniques and processes as they apply to various media both new and traditional. Offered on request. May be conducted either on laboratory or tutorial basis as subject matter permits. Letter grade only. F,S

391b. Special Topics. 1-4 credits. Prerequisite: upper division status. Experience in specialized techniques and processes as they apply to various media both new and traditional. Offered on request. May be conducted either on laboratory or tutorial basis as subject matter permits. S-U grade only. F,S

410. Art History: Selected Topics. 1-4 credits. Prerequisite: VA 210,211. Art historical topics outside the regular art history curriculum or specialized subjects as indicated by title of course. May be repeated as title changes. F,S,SS

412. Art History: 20th Century (to 1930s). 3 credits. Prerequisites: VA 210, VA 211. The origins of 20th Century “isms” from the 19th-Century trends through the 1930s in Europe. F

413. Art History: 20th Century (1930s to present). 3 credits. Prerequisites: VA 210, VA 211. A critical view of the artistic proliferation in Europe and the United States from the 1930s to the present. S

416. Art History: Italian Renaissance. 3 credits. Prerequisites: VA 210, VA 211. Survey of Italian Renaissance Art and Architecture from 1300-1600. S

417. Art History: Northern Renaissance. 3 credits. Prerequisites: VA 210, VA 211. Survey of Northern Renaissance Art from France, Germany and the low countries, 1300-1600. F

418. Art History: Baroque Art and Architecture. 3 credits. Prerequisites: VA 210, VA 211. Survey of 17th Century Baroque Art and Architecture in Italy. France and Holland. S

419. Art History: 19th Century. 3 credits. Prerequisites: VA 210, VA 211. Survey of 19th Century Art with an emphasis on French painting. S

460. Methods, Materials and Philosophy: Art in the Elementary Classroom. 3 credits. Prerequisites: Sophomore standing in CTL or VA. 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 discipled-based education. F,S

490, Special Projects/Independent Research. 1-6 credits, no more than 12 in each media. Prerequisite: Permission of instructor or chairperson. Research and creative experiences within a specific area of interest in the Visual Arts with emphasis on refinement of aesthetic applications of techniques and media: Sculpture, History of Visual Arts, Painting, Drawing, Printmaking, Ceramics, Visual Arts Education, Fibers, Multimedia, Jewelry, Photography. F,S,SS

Women Studies

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 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
Women Studies

category of analysis, courses examine women’s experiences and the institutions and systems
that affect women’s lives. 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 General Education
Requirements. The Women Studies Program expands our concepts of a well-educated
person.

College of Arts and Sciences

MINOR IN WOMEN STUDIES

Twenty hours of courses in Women Studies completed with a CPA of at least 2.0 are required for the
minor.

I. Required courses (total hours 4 to 7):
- A&S 225. Introduction to the Study of Women. (3)
- A&S 498. Senior Study (credits maybe shared with major field) (1-4)

II. At least three of the following (total hours 9):
- Anth 230. Women & Men in Society & Culture (3)
- Biol 250. Human Sexuality (3)
- Engl 357. Women Writers & Readers (3)
- Hist 332. Women in American History (3)
- Soc 340. Sociology of Gender & Sex Roles (3)

III. At least six hours from (total hours 6):
- BVED 450. Special Topics: Human Dynamics in Business (3)
- CTL 430. Human Relations (3)
- IS 346. Contemporary Indian Women (3)
- Comm 310. Women Minorities, & Media (3)
- Soc 335. The Family (3)

Other special topics or seminars as appropriate:
- History 300. Psychology 495. Counseling 565.
- Languages 231, English 200, Honors 299 & 395

Students may declare a minor through the College of Arts and Sciences and should also contact the
Director of Women Studies and one other member of the Women Studies faculty to design a program
of study.
Administration and Faculty

STATE BOARD OF HIGHER EDUCATION

The University of North Dakota is a part of the North Dakota University System consisting of eight publicly supported colleges and universities and three branch campuses. The State Board of Higher Education, constitutionally responsible for the management of the University, 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

RICHARD LOKKEN, Minot; term expires June 30, 1995
ALLAN BRAATEN, Barney; term expires June 30, 1996
PATRICK HILL, Bismarck; term expires June 30, 1997
CYNTHIA KALDOR, Hillsboro; term expires June 30, 1998

PAUL EBELTOFT, Dickinson; term expires June 30, 1999
JOSEPH PELTIER, Arthur; term expires June 30, 2000
JEANETTE SATROM, Oriska; term expires June 30, 2001

Chancellor of Higher Education, BRUCE BERGLAND, Bismarck

ADMINISTRATION

KENDALL L. BAKER Ph.D., President

BRUCE GJOVIG, B. S., Director, Center for Innovation and Business Development
GERALD H. GROENWOLD, Ph. D.; Director, Energy and Environmental Research Center
SALLY PAGE, M. B.A., Affirmative Action Officer

JAMES F. PENWARDEN, B. A., Director, Office of University Relations
TIMOTHY RERICK, B. S. B.A., Internal Auditor
LAUREL REUTER, M. A., Director, North Dakota Museum of Art
EARL STRINDEN, M. A., Executive Vice President, UND Alumni Association and Foundation

DAVID VORLAND, M. S., Executive Assistant to the President
TERRY WANLESS, Ed. D., Director, Athletics

MARLENE L. STRATHE, Ph.D., Vice President for Academic Affairs and Provost

Deans reporting to the academic vice president:

ROBERT BOYD, Ed. D., Dean, Outreach Programs
W. JEREMY DAVIS, J.D., L. L. M., Dean, School of Law
MARY HARRIS, Ph. D., Dean, Center for Teaching and Learning
MOGENS HENRIKSEN, Ph. D., Dean, School of Engineering and Mines

BRUCE JACOBSEN, Ph.D., Dean, College of Fine Arts and Communication

HARVEY KNULL, Ph. D., Dean, Graduate School
W. FRED LAWRENCE, Ph. D., Dean, College of Business and Public Administration

LOIS MERRILL, Ph. D., Dean, College of Nursing
JOHN ODEGARD, M. S., Dean, Center for Aerospace Sciences
BERNARD O’KELLY, Ph. D., Dean, College of Arts and Sciences
SUE SCHMITT, Ed. D., Dean, College for Human Resources Development

Other administrators reporting to the academic vice president:

JEANNE ANDEREGG, M. L. S., Coordinator, Honors Program
RICHARD BALSLEY, Ed. D., Director, Office of Institutional Research

BARRY BRODE, M.S., Director, UND Television
WILLIAM J. KLOSTER, M.S., Lieutenant Colonel, Professor, Military Science

FRANK D’ANDRAIA, M. L. S., Director, Libraries
KENNETH DAWES, Ph. D., Director, Office of Research and Development
THOMAS DuVAL, General Manager, UND Radio
MARY GRIEZ KWEIT, Ph. D., Director, International Programs
ALICE C. POEHL, Ph. D., Director, Office of Records
SHARON REZAC ANDERSEN, B.A., Director, International Student Affairs
DANIEL R. RICE, Ph. D., Director, Office of Instructional Development
CLAYTON JENSEN, M. D., Interim Dean, School of Medicine
JACK CARROLL, Ph. D., Chief Executive Officer, Medical Center Rehabilitation Hospital
LYLE BEISWENGER, B. S. B.A., Vice President for Finance
ALICE BREKKE, M. Acc., Director, Budget and Grants Administration
PEGGY LUCKE, B. S. B.A., Controller, Accounting Office
FRED MacGREGOR, B.A., Director, Personnel Services and Payroll
WANDA SPOMBERT, B. S., Manager, Business Office
DALE VETTER, B. S. B.A., Director, Computer Center
AL HOFFARTH, B. S. B.A., Vice President for Operations
DONALD FORBES, B. S. B.A., Manager, University Bookstore

RICHARD GANYO, Director, Printing Center
DELORES JACOBSON, B. A., Administrative Officer
RICHARD LEHN, Director, Telecommunications
MARGARET MYERS, B.S. B.A., Accountant
LEROY SONDROL, Director, Physical Plant
JAMES UHLER, Director, Auxiliary Services
DAVID VAN SICKLE, B. S. B.A., Director, Word Processing, Mailing Services
TERRY WEBB, M. A., Director, Residence Services
GORDON HENRY, Ed. D., Vice President for Student Affairs
LILLIAN ELSINGA, M.A., Dean of Students
RICHARD GROSZ, Ed. D., Director, Counseling Center
LEIGH JEANOTTE, Ed. D., Director, Native American Programs
MA RYANNE LUST GRAAF, M.Ed., Director, Memorial Union
DEAN SCHIEVE, Ph. D., Assistant Vice President for Student Affairs; Interim Director for Enrollment Services
MARK THOMPSON, B.A., Director, Career Services
HAROLD VANSCOY, P. A-C., Director, Student Health Service

FACULTY*

BAKER, KENDALL L., President of the University and Professor of Political Science, Ph.D., Georgetown University

A

AABOTT, DAVID, Assistant Professor of Neuroscience; M. D., Tulane University, New Orleans
ABRAHAMSON, HARMON B., Associate Professor of Chemistry; Ph. D., Massachusetts Institute of Technology
ADAMS, MARTHA J., Assistant Professor of Community Medicine and Rural Health; M. S., University of Colorado
AHLEN, MICHAEL J., Professor of Law; J. D., Vanderbilt
AHLER, JANET, Professor of Foundations of Education, Center for Teaching and Laming; Ph. D., University of Missouri
AHMED, KAZI, Adjunct Assistant Professor of Social Work; Project Director, Child Welfare Research Bureau; Ph. D., Iowa State University
ALI, MAHIR, Associate Professor of Computer Science and Chairperson of Department; Ph. D., Nottingham University, U.K.

ALKEZWEENY, ABDUL J., Associate Professor of Atmospheric Sciences; Ph. D., University of Washington
ALLEN, BARRETT S., Capt., United States Army, Assistant Professor of Military Science; B.A. Eastern Kentucky University
ALLEVA, PATTI A., Associate Professor of Law; J. D., Hofstra University School of Law
ANDEREGG, MICHAEL A., Professor of English; Ph.D., Yale University
ANDERSON, CINDY, Clinical Instructor of Nursing; M. S., University of North Dakota
ANDERSON, DALE A., Assistant Professor of Health, Physical Education and Recreation; M. S., University of North Dakota
ANDERSON, LYNN, Assistant Professor of Health, Physical Education and Recreation; M. S., University Of Oregon
ANDERSON, SIDNEY B., Adjunct Associate Professor of Geology, Ph. B., University of North Dakota
ANTES, JAMES R., Professor of Psychology; Ph. D., Iowa State University

* This list is intended for general public information purposes only and must not be construed as official or definitive. List of faculty members and their respective departments and locations of clinical faculty in the School of Medicine vary with the departmental appointments. The full-time medical facility are listed. A listing of clinical faculty may be obtained from the school on request.
ANTONENKO, DAVID R., Chairperson and Professor of Surgery; Ph. D., M. D., University of Utah
APANIAN, RONALD A., P.E., Professor of Civil Engineering and Chairperson of Department; Ph.D., Oklahoma State University
ARAZI, RICHARD, Assistant Professor of Neuroscience; M. D., University of Illinois, Chicago
ASKIM, MARY KAY, Assistant Professor of Family and Consumer Sciences; M. S., North Dakota State University
AUERBACH, MICHAEL J., Associate Professor of Biology; Ph. D., Florida State University
AUYONG, ELLEN ROSE, Professor of Visual Arts; M.A., University of Missouri-Columbia
avery, MITCHELL, Associate Professor of Chemistry; Ph. D., University of California
BEAVER, FRANK, P. E., Adjunct Assistant Professor of Geological Engineering; Ph. D., University of North Dakota
BECKER, CALVIN J., Counselor, Counseling Center, Adjunct Associate Professor of Counseling; Ed.D., University of North Dakota
BECKER, WILLIAM, Director of Surgery Residency Program and Associate Professor of Surgery; M. D., University of Minnesota
BELLAMY, PATTY-JO, Instructor of Communication; M. B.A., University of Montana
BENDER, MYRON, Professor of Industrial Technology and Chairperson of Department, Ed.D., University of West Virginia
BENGAMIN, NAGY, Professor of Electrical Engineering and Chairperson of Department; Ph. D., University of Calgary
BENOIT, VIRGIL, Associate Professor of Languages; Ph. D., University of Minnesota
BENSON, SANDRA, Assistant Professor of Nursing; M. S., University of Minnesota
BERG, CAROL, Assistant Professor of Nursing; MS., University of Arizona
BERGER, ALBERT, Associate Professor of History; Ph. D., Northern Illinois University
BERGSTROM, SCOTT, Assistant Professor of Program Development, Chair for Aerospace Sciences; Ph. D., Brigham Young University
BERINGER, RICHARD E., Professor of History, Chair of Department and Chester Fritz Distinguished Professor; Ph. D., Northwestern University
BERNE, JANE, Assistant Professor of Languages; Ph. D., University of Illinois at Urbana-Champaign
BETZWORTH, DEBORAH, Counselor, Counseling Center and Adjunct Assistant Professor of Counseling; Ph. D., University of North Dakota
BIB EL, GEORGE, Associate Professor of Mechanical Engineering; Ph. D., Case Western Reserve University Cleveland
BIBERDORF, DAVID, Adjunct Assistant Professor of Communication Disorders; O. D., Southern California College Of Optometry
BIBERDORF, PEGGY, Clinical Instructor of Communication Disorders; M. S., Minot State University
BICKFORD, J. ALBERT, Adjunct Associate Professor, Summer Institute of Linguistics; Ph. D., University of California-San Diego
BIEDERMAN, DANIEL, Assistant Professor of Economics; Ph.D., University of Kansas
BJERKE, MARILYN R., Assistant Professor of Nursing; M. S., University of North Dakota
BLACKWELL, J. LLOYD 111, Professor of Economics; Ph. D., Georgia State University

BLAKE, MICHAEL J., Assistant Professor of Music; M. Ed., University of North Dakota

BLAKE, MICHAEL J., Assistant Professor of Pharmacology and Toxicology; Ph. D., Marquette University

BLANK, RICHARD J., Associate Professor of Radiology, M. D., Bowman Gray School of Medicine, Winston-Salem

BLAUFUSS, MARK C., Assistant Professor of Pediatrics, M. D., Washington University

BLOOMQUIST, ROGER J., Professor of Business and Vocational Education; Ed. D., University of North Dakota

BLOUNT, H. GRADY, Adjunct Associate Professor of Space Studies; Ph. D., Arizona State University

BLUEMLE, JOHN P., Adjunct Associate Professor of Geology; Ph. D., University of North Dakota

BODE, ANN, Associate Professor of Physiology; Ph. D., University of Oregon

BOLONCHUK, WILLIAM W., Associate Professor of Health, Physical Education and Recreation and Chairperson of Department; M. S., University of Saskatchewan

BORDEN, WILLIAM V., Professor of English and Chester Fritz Distinguished Professor; M. A., University of California

BOSTROM, A. JOY, Distinguished Professor and Associate Professor of Family and Consumer Services and Chairperson of Department; Ph. D., Texas Woman University

BOSTROM, DONALD E., Associate Professor of Accounting and Business Law; Ph. D., North Texas State University

BOSWAI, HERBERT H., Associate Professor of German-languages; M. A., Stanford University

BOTT, ALEXANDER J., Professor of Law; J. D., Fordham University

BOUZRARA, NANCY, Assistant Professor of Languages; Ph. D., University of Michigan

BOYD, ROBERT H., Dean of Outreach Programs and Adjunct Associate Professor of Educational Administration, Center for Teaching and Learning; Ed. D., University of North Dakota

BREITWIESER, WAYNE, Assistant Professor of Internal Medicine; M. D., University of Iowa Medical School

BRIDGWYLL, JOHN, Assistant Professor of Aviation; MDIV, Southwestern Baptist Theological Seminary

BRIGGS, BRIAN T., Assistant Professor of Surgery; M. D., University of Saskatchewan

BRINKERT, RONALD, Associate Professor of Health, Physical Education, and Recreation; Ph. D., University of Oregon

BROSSEAU, JAMES D., Associate Professor of Community Medicine and Rural Health and Clinical Associate Professor of Medicine; M. D., University of Minnesota

BRUCE, A. WAYNE, Director of Medical Technology and Associate Professor of Pathology; Ph. D., University of Minnesota

BRUCE, JUDITH, Assistant Professor of Pathology; B. S., Northern Illinois University

BRUSCHMILLER, JOHN G., Professor of Chemistry; Ph. D., University of Pittsburgh

BRUSTAD, LAURIE A., Counselor, Counseling Center, Adjunct Assistant Professor of Counseling; Ph. D., University of North Dakota

BUCKINGHAM, WILLIAM M., Associate Professor of Family Medicine; M. D., University of Manitoba

BUCKLEY, ARTHUR R., Associate Professor of Pharmacology and Toxicology; Ph. D., University of Arizona

BUETTNER, ANN M., Assistant Professor of Internal Medicine; M. D., Rush Medical College

BURD, CHRISTINE, Instructor of Nursing; M. S., University of North Dakota

BURD, LARRY I., Assistant Professor of Neuroscience and Pediatrics; M. S., Eastern Montana College

BURRELL, JAMES, Assistant Director of Grand Forks Family Practice Center and Assistant Professor of Family Medicine; M. D., University Of Minnesota

BURROWS, DONALD, Associate Professor, Atmospheric Sciences; Ph. D., University of Washington

BUSHELL, CHERYL A., Assistant Athletic Trainer and Assistant Professor of Family Medicine; M.A., Western Michigan University

BUSHFIELD, MARTEE R., Director of Research, Curriculum and Development and Associate Professor of Family Medicine; Ph. D., University Of North Dakota

BYRAM, DEBRA J., Instructor of Occupational Therapy; B.S.O.T., University of North Dakota

CARIVEAU, THOMAS B., Assistant Director of Grand Forks Family Practice Center and Assistant Professor of Family Medicine; M. D., Baylor College of Medicine

CARLSON, C. GEORGE, Assistant Professor of Physiology, Ph. D., SUNY Upstate Medical Center

CARLSON, EDWARD C., Chairperson of Department and Professor of Anatomy and Cell Biology; Ph. D., University of North Dakota
CARSON, SHARON, Assistant Professor of English; Ph. D., University of Washington
CEYUN, FIKRET, Professor of Economics; Ph. D., Wayne State University
CHALMERS, LYNNE, Associate Professor of Special Education, Center for Teaching and Learning; Ph. D., University of North Dakota
CHANDY, JOSEPH, Assistant Professor of Social Work; Ph. D., University of Minnesota
CHEE, MA RYANN, Assistant Professor of Psychology; Ph.D., Purdue University
CHEN, TAR-PIN, Associate Professor of Physics; Ph.D., State University of New York
CHELLIAH, NOAH N., Associate Professor of Internal Medicine; M. D., Christian Medical College, Vellore, South India
CHONG, JOHN KING-SHUN, Associate Professor of Management; Ph. D., Mississippi State University
CHRISTIAN, STEPHANIE J., Clinical Instructor of Nursing; B.S.N., University of North Dakota
CHU, ANTHONY, Associate Professor of Internal Medicine; M. D., University of Minnesota
CLARENS, RICHARD D., Associate Professor of Family Medicine and Pharmacology and Toxicology; Pharm D., University of Minnesota
CLIFTON, JOHN, Adjunct Professor of Summer Institute of Linguistics; Ph. D., Indiana University
CLIMER, JOHN, Assistant Professor of Music; M. M., University of Cincinnati
CLINKENBEARD, DAVID L., Assistant Professor of Neuroscience; M. D., St. Louis University School of Medicine
COLE, DUANE R., Associate Professor of Physics; M.A., University of South Dakota
COLEMAN, JOYCE, Assistant Professor of English; Ph. D., University of Edinburgh
COLEMAN, MARY L., Instructor of Pathology; B. S., University of North Dakota
COLLINGS, JOHN, Assistant Professor of Mathematics; Ph. D., University of North Dakota
COLLINS, JOHN, Adjunct Assistant Professor of Psychology; Ph. D., University of North Dakota
CONKLIN, EL MARIE, Clinical Instructor of Law; J. D., University of North Dakota
COOK, PERRY, Assistant Professor of Secondary Education; PH. D., University of Wisconsin-Madison
COOLEY, ALBERT MARVIN, Associate Professor of Pathology; M. D., Northwestern University
COZZETTO, DON, Associate Professor of Political Science and Public Administration; Ph. D., Virginia Polytechnic Institute and State University
CRAWFORD, GLINDA, Associate Professor of Family and Consumer Sciences; Ph. D., Iowa State University
CRAWFORD, REBECCA R., Assistant Professor of Family Medicine; M.A., Utah State University
CRAWFORD, RICHARD D., Professor of Biology; Ph. D., Iowa State University
CUTLER, MARY, Assistant Professor of Theatre Arts; Ph.D., Bowling Green State University
CZERNEK, PETER, Assistant Professor of Internal Medicine; M. D., Medical Academy, Lodz, Poland
DAHL, IVAN J., Professor of Educational Foundations and Research, Center for Teaching and Learning; Ed.D., University of North Dakota
DAHLEN, PAULA, Instructor of Community Medicine and Rural Health; PA., University of North Dakota
DAL HO-KWOK, Assistant Professor of Computer Science; Ph. D., University of Washington
DANIELSON, BYRON D., Associate Professor of Internal Medicine; M. D., University of Minnesota
DARDIS, PATRICIA, Assistant Professor of Statewide Psychiatric Nursing Education Program at Jamestown, College of Nursing; M. S., South Dakota State University
DAVIS, DENNIS, Professor of Communication; Ph. D., University of Minnesota
DAVIS, W. JEREMY, Dean, School of Law and Professor of Law; J. D., University of Denver, LL.M., Yale University
DAWES, KENNETH J., Professor of Social Work, Director of Office of Research and Program Development, and Chester Fritz Distinguished Professor, Ph. D., University of Minnesota
DEARDEN, BRUCE G., Associate Professor of Mathematics; Ph. D., Washington State University
DELOMBRE, EUGENE, Director of Indians into Medicine Program (INMED), and Assistant Professor of Family Medicine; J.D, University of North Dakota
DE MERS, JUDY L., Associate Dean for Student Affairs and Admissions, and Associate Professor of Family Medicine; M.Ed., University of Washington
DENOME, ROGER, Assistant Professor of Biology; Ph. D., Michigan State University
DEREMER, E. DALE, Professor of Aviation; Ph. D., Utah State University
DETKE, SIEGFRIED, Associate Professor of Biochemistry and Molecular Biology; Ph. D., Colorado State University
DEW AR, GRAEHE, Associate Professor of Physics; Ph. D., Simon Fraser University
DIEZ, CLAYTON R., Assistant Professor of Industrial Technology; DIT University of Northern Iowa
DIXON, KATHLEEN, Assistant Professor of English; Ph. D., University of Michigan
DONALDSON, SANDRA M., Professor of English; Ph. D., University of Connecticut
DOOLEY, ROBERT, Adjunct Assistant Professor of Summer Institute of Linguistics; Ph. D., Oklahoma State University
DOUGAN, WILLIAM L., Assistant Professor of Management; Ph. D., Cornell University
DOWNEY, VICKI, Instructor of Nursing; B. S. N., University of North Dakota
DROKE, JOHN, Assistant Professor of Aviation; M.A., Ball State University
DUBOIS, GENE W., Assistant Professor of Spanish-Languages; Ph. D., University of California
DUERRE, JOHN A., Professor of Microbiology and Immunology; Ph. D., University of Minnesota
DUFNER, CHRISTINA, Assistant Professor of Languages-Classical; Ph. D., Princeton University
DUKE, BILL J., Assistant Professor of Neuroscience, Ph. D., California Coast University
DUNNIGAN, GERRI, Assistant Professor of Mathematics; M. S., University of North Dakota
DYER, JAMES, Assistant Professor of Geography; Ph. D., University of Georgia

E

EBERHARDT, BRUCE, Professor of Management and Chairperson of Department; Ph. D., Iowa State University
EELKEMA, ROBERT C., Director of Grants and Contracts in Community Medicine and Rural Health, Chairperson of Department and Professor of Community Medicine and Rural Health; M. D., University of Washington
EINARSON, EINAR, JR., Associate Professor of Music; M. Ed, University of North Dakota
EKLUND, ROBERT, Assistant Professor of Health, Physical Education, and Recreation; Ph. D., University of North Carolina at Greensboro
ELBERT, DENNIS, Professor of Marketing; Ph. D., University of Missouri-Columbia
ELLINGSON, DEE ANN, Assistant Professor of Accounting and Business Law; M.A., University of North Dakota
ELLIS, WALTER, Assistant Professor of History; Ph.D., University of California-Los Angeles
ELNESS, ELAINE, Education Specialist, Learning Services, Adjunct Instructor of Academic Skills, College of Arts and Sciences; M. S. T., University of Wisconsin
ELSINGA, LILLIAN 1., Dean of Students and Adjunct Assistant Professor of Human Resources Development; M.A., Michigan State University

EMERY, RUSSELL J., Director of Bismarck Family Practice Center and Assistant Professor of Family Medicine, M. D., University of North Dakota
ENGLE, RONALD G., Professor of Theatre Arts and Chester Fritz Distinguished Professor; Ph. D., University Of Illinois
EPSTEIN, PAUL N. Assistant Professor of Pharmacology and Toxicology; Ph. D., Baylor College of Medicine
ERJAVEC, JOHN, Associate Professor of Chemical Engineering; Ph. D., University of Wisconsin
ESCARRAZ, DONALD R., Professor of Finance; Ph. D., Oklahoma State University
EVERETT, DANIEL L., Adjunct Assistant Professor, Summer Institute of Linguistics; Ph. D., Universidade Estadual de Campinas

F

FABEL, CRAIG, Associate Director of Fargo Family Practice Center and Assistant Professor of Family Medicine; M. D., University of North Dakota
FERRARO, RICHARD F., Assistant Professor of Psychology; Ph. D., University of Kansas
FIRE, KEVIN M., Associate Professor of Communication Disorders; Ph. D., Ohio State University
FISCHER, RAYMOND L., Professor of Communication; Ph. D., University of Illinois
FIVIZZANI, ALBERT J., JR., Professor of Biology and Chairperson of Department; Associate Dean, College of Arts and Sciences; Ph. D., Louisiana State University
FLANNERY, KEVIN, Assistant Professor of Computer Science; Ph. D., Virginia Polytechnic Institute and State University
FOR SMAN, NELS F., Assistant Professor of Geology and Geological Engineering; Ph. D., University of North Dakota
FRANKLIN, ELIZABETH A., Associate Professor of Elementary Education, Center for Teaching and l-learning and Chairperson of program area; Ph. D., Indiana University
FRANTZ, DONALD, Adjunct Assistant Professor of Summer Institute of Linguistics; Ph. D., University of Alberta-Edmonton
FRAPPIER, JOHN, Assistant Professor of Family Medicine; M. S., University of Kansas, Lawrence
FREIN, GEORGE H., Professor of Religion; Ph.D., Catholic University of America
FRY, JAMES H., Associate Professor of Music; Ph. D., Eastman School of Music, University of Rochester
FRY, PATRICIA B., Professor of Law; J. D., Southwestern University
FRY, SUZANNE, Assistant Professor of Social Work; M.S. W., University of Southern Mississippi
FILLER, MARY LOU, Professor of Elementary Education, Center for Teaching and Learning; Ph. D., University of New Mexico

FUNDINGSLAND, PAUL E., Professor of Visual Arts; M.F.A., University of Washington

FURMAN, LEOLA E., Associate Professor of Social Work; Ph. D., Fielding Institute

GABRYNOWICZ, JOANNE, Associate Professor of Space Studies, Center for Aerospace Sciences; J. D., Yeshiva University

GALEWSKY, SAMUEL, Assistant Professor of Biology; Ph.D., Texas A & M University

GANJE, LUCY A., Assistant Professor of Communication; M. F. A., Academy of Art College-San Francisco

GELLER, JACK M., Associate Professor of Community Medicine and Rural Health and Adjunct Associate Professor of Sociology; Ph. D., Iowa State University

GERLA, PHILIP, Associate Professor of Geology and Geological Engineering; Ph. D., University of Arizona

GERSHMAN, KATHLEEN, Associate Professor of Secondary Education and Educational Foundation and Research and Chairperson of Program area, Center for Teaching and Learning,' Ed. D., Harvard University

GIBBENS, BRAD, Assistant Professor of Community Medicine and Rural Health; M. P. A., University of North Dakota

GILLEITE, GREG, Associate Professor of Theatre Arts; M.F.A., Brandeis University

GILJE, FREDRICKA, Associate Professor of Statewide Psychiatric Nursing Education Program at Jamestown, College of Nursing; Ph. D., University Of Colorado

GILSDORF, THOMAS, Associate Professor of Mathematics; Ph. D., Washington State University

GILTNER, ERIC T., Assistant to the Dean, MBA Program Administrator, and Assistant Professor, College of Business and Public Administration; MBA, University of North Dakota

GLICK, AUDREY, Clinical Assistant Professor in Communication Disorders; M. S., University of North Dakota

GODDARD, DONALD, Associate Professor of Mechanical Engineering; Ph. D., University of Nebraska

GOULD-BURKE, MARGARET, Adjunct Assistant Professor of Biology; Ph. D., Duke University-North Carolina

GOODMAN, LOWELL R., Associate Professor of Geography; Ph. D., University of Illinois

GOODWIN, JANICE K., Assistant Professor of Family and Consumer Sciences; M. S., University of Kansas-Lawrence

GOSNOLD, WILLIAM D., JR., Professor of Geology; Ph. D., Southern Methodist University

GOTT, GARY D., Associate Professor of Law and Director of Law Library; J. D., Brigham Young University

GOURNEAU, LINDA, Assistant Professor of Family Medicine; M. D., University of North Dakota

GRABE, MARK, Professor of Psychology and Chairperson of Department; Ph. D., Iowa State University

GRAINGER, CEDRIC A., Associate Professor of Atmospheric Sciences; Ph. D., State University of New York

GRAY, RICHARD J., Chairperson and Professor of Internal Medicine; M. D., University of Texas Medical School at San Antonio

GREEK, GREG D., Assistant Director of Grand Forks Family Medicine Residency Program and Assistant Professor of Family Medicine; M. D., University of North Dakota

GREENWOOD, RAYMOND, Adjunct Assistant Professor of Biology; MS., South Dakota State University

GREGORY, MICHAEL, Professor of Mathematics; Ph. D., University of Connecticut

GRETZ, MICHAEL, Associate Professor of Biology; Ph. D., Arizona State University

GREWEL, NAKAN S., Professor of Mechanical Engineering; Ph. D., University of Illinois-Chicago

GRUALVA, JAMES, Assistant Professor of Law; J.D. Northwestern School of Law

GROENEWOLD, GERALD H., Director of the Energy and Environmental Research Center and Associate Professor of Geology; Ph. D., University of Illinois-Chicago

GROSZ, RICHARD D., Director, Counseling Center, Adjunct Associate Professor of Counseling; Ed. D., University of North Dakota

GROTH, LYNN R., Associate Professor of Communication Disorders; M. S., University of North Dakota

GRUBY, RAYMOND S., Assistant Professor of Surgery; M. D., University of Texas

GULlicks, Harvey, Associate Professor of Civil Engineering; Ph. D., Iowa State University

GULlicks, Jean, Assistant Professor of Nursing; Ph. D., Iowa State University

GUST, TIMOTHY, Neuropsychologist at UND Medical Center Rehabilitation Hospital (MCRH) and Adjunct Professor of Counseling; Ph. D., University of North Dakota
GUSTAFSON, ANTHONY B., Director of Internal Medicine Residency Program and Associate Professor of Internal Medicine; M. D., Case Western Reserve University

GUY, MARK, Assistant Professor of Elementary Education; Ph.D., The University of Georgia

HAAGENSTAD, SONYA, Assistant Professor of Social Work; DSW, School of Social Work, University of Alabama

HAGA, MYRNA P., Associate Professor of Social Work; Ph.D., University of Minnesota

HALL, JUDITH, Assistant Professor of Family and Consumer Sciences and Director of Coordinated Program in Dietetics; M.S., Kansas State University

HALL, KENNETH E., Associate Professor of Spanish-Languages and Chairperson of Department; Ph.D., University of Arizona

HALLAHAN, KIRK, Assistant Professor of Communication; M.A., University of Wisconsin-Madison

HALVORSON, LARRY, Associate Program Director of the Grand Forks Family Practice Center and Associate Professor of Family Medicine; M.D., University of North Dakota

HAMAR, STEVEN K., Assistant Professor of Surgery; M.D., Baylor University College of Medicine

HAMMEN, JOHN L., 111, Assistant Professor of Geography; Ph.D., Indiana State University

HAMMOND, GEORGE, Assistant Professor of Aviation and Chair of the Department; Assistant Dean, Center for Aerospace Sciences; B.S., B.A., University of North Dakota

HAMPSTEN, ELIZABETH M., Professor of English and Chester Fritz Distinguished Professor; Ph.D., University of Washington

HANDY-MARCHELLO, BARBARA, Assistant Professor of History; M.A., North Dakota State University

HANHAN, SARAH, Associate Professor of Early Childhood Education, Center for Teaching and Learning; Ph.D., University of North Dakota

HANLEY, YVONNE M., Assistant Professor of Library Science and Audiovisual Instruction; M.S., University of North Dakota

HANS, BIRGIT, Assistant Professor of Indian Studies; Ph.D., University of Arizona

HANSEN, KENNETH, Assistant Professor of Accounting and Business Law; J.D., Indiana University of Law

HANSON, DARLENE, Assistant Professor of Nursing; B.S.N., Minot State University

HARMESON, PHILLIP, Assistant Professor of Accounting and Business Law; J.D., University of North Dakota

HARRIS, MARY M., Dean of Center for Teaching and Learning and Professor of Elementary Education; Ph.D., University of Pittsburgh

HARRIS, T. ROBERT, Assistant Professor of Mathematics; Ph.D., Kansas State University

HARRISON, COURTNEY, Assistant Professor of Languages; Ph.D., Indiana University, Bloomington

HASAN, ABU RASHID, Professor of Chemical Engineering; Ph.D., University of Waterloo, (Canada)

HAYNES, JUDITH A., Counselor, Counseling Center, Adjunct Assistant Professor of Counseling; Ph.D., University of North Dakota

HEIN, DAVID W., Professor of Pharmacology and Toxicology and Chairperson of Department; Chester Fritz, Distinguished Professor; Ph.D., University of Michigan

HEITKAMP, THOMASINE, Associate Professor of Social Work; M.S.W., University of Wisconsin-Madison

HEITMANN, JOYCE, Clinical Instructor of Statewide Psychiatric Nursing Education Program at Jamestown, College of Nursing; M.A., North Dakota State University

HELGESON, DIANE, Associate Professor of Nursing; M.S., University of North Dakota

HEMMASI, MOHAMMED, Professor of Geography and Chairperson of Department; Ph.D., Indiana University

HENLY, GEORGE A., Associate Professor of Counseling; Ph.D., University of Minnesota

HENLY, SUSAN, Associate Professor of Nursing; Ph.D., University of Minnesota

HENRIKSEN, MOGENS, Dean of the School of Engineering and Mines and Professor of Mechanical Engineering; Ph.D., Texas A&M University

HENDRY, GORDON H., Vice President for Student Affairs and Assistant Professor of Counseling; Ed.D., University of North Dakota

HENTHEN, WILLIAM, Assistant Director of Minot Family Medicine Residency Program and Assistant Professor of Family Medicine; M.D., University of Pittsburgh

HESS, CARLA, Professor of Communication Disorders and Chester Fritz Distinguished Professor; Ph.D., University of North Dakota

HETLAND, BRUCE, Assistant Professor of Internal Medicine; M.D., Southwestern University

HEUER, LORETTA, Clinical Instructor of Nursing; M.S., University of North Dakota

HEYDE, CATHY, Instructor of Family Medicine, M.S. South Dakota State University
HILL, RICHARD L., Professor of Educational Administration, Center for Teaching and Learning, and Chester Fritz Distinguished Professor; Ed. D., University of North Dakota

HILTNER, ARTHUR, Professor of Accounting and Business Law; Ph. D., University of Nebraska

HOFF, MILTON, Assistant Professor of Elementary Education and Chairperson of the Program Area of Middle School Junior High, Center for Teaching and Learning; Ed. D., University of North Dakota

HOFFMANN, MARK R., Associate Professor of Chemistry; Ph. D., University of California

HOLDEN, WILLIAM R., Assistant Professor of Communication; B.A., Drake University

HOLLOWAY, HARRY L., Professor of Biology; Ph. D., University of Virginia

HOLM, JEFFREY E., Associate Professor of Psychology; Ph. D., Ohio University

HOLTEN, RONALD, Assistant Professor of Industrial Technology; Ph. D., Iowa State University

HONTS, CHARLES, Associate Professor of Psychology; Ph. D., University of Utah

HOOPER, PATRICIA, Instructor of Communication; M.A., Marquette University

HOOTMAN, JOALLAN, Professor of Electrical Engineering; Ph. D., Iowa State University

HOOVER, JOHN, Associate Professor of Special Education, Center for Teaching and Learning; Ph. D., Southern Illinois University

HOWARD, THOMAS W., Associate Professor of History; Ph.D., Indiana University

HOWELL, FRANCIS L., Professor of Physics; Ph. D., Montana State University

HUGHES, COLIN, Assistant Professor of Biology; Ph.D., Rice University

HUME, WENDELIN, Assistant Professor of Sociology-Criminal Justice; MA., Sam Houston State University

HUMPHRIES, CHARLOTTE, Associate Professor of Health, Physical Education and Recreation; Ph. D., Louisiana State University

HUNT, CURTISS D., Adjunct Assistant Professor of Anatomy and Cell Biology; Ph. D., University of North Dakota

HUNT, MARY A., Assistant Professor of Neuroscience; Ph. D., University of Utah

HUNTER, SUSAN L., Assistant Professor of Nursing; MS., University of Texas at Austin

HURLEY, ROXANNE, Clinical Assistant Professor of Nursing; M.S., University of North Dakota

INGBRETSON, MARK, Assistant Professor of Internal Medicine; M. D., University of North Dakota

ISEMINGER, GORDON L., Professor of History; Ph. D., University of Oklahoma

ISLAND, RICHARD T., Assistant Professor of Aviation; M.A., Webster University

ISZLER, DONNA, Assistant Professor of Statewide Psychiatric Nursing Education Program at Jamestown, College of Nursing; M.A., North Dakota State University

IVERSON, DIANNE, Medical Director of Cytotechnology and Assistant Professor of Pathology, M. D., University of North Dakota

J

JACKSON, WILFRED, Assistant Professor of Aviation; M. S., George Washington University

JACOBS, KATHERINE, Adjunct Instructor of Theatre Arts; M.F.A., Tulane University

JACOBS, BRUCE C., Dean of the College of Fine Arts and Communication and Professor of Theatre Arts; Ph. D., University of Minnesota

JACOBSEN, G. MICHAEL, Associate Professor of Social Work and Chairperson of Department; Ph. D., University of Iowa

JACOBSON, DANIEL C., Associate Professor of Music; Ph. D., University of California-Santa Barbara

JAHN, ERIC, Adjunct Assistant Professor of Pharmacology and Toxicology and Surgery; M. D., Medical College of Wisconsin-Milwaukee

JASPERSE, CRAIG P., Assistant Professor of Chemistry; Ph. D., University of Wisconsin-Madison

JEANOTTE, LEIGH D., Assistant to the Vice President for Student Affairs for Native American Programs and Adjunct Assistant Professor in Foundations of Education, Center for Teaching and Learning; Ed.D., University of North Dakota

JENNY, RUTH, Clinical Instructor of Law; J. D., University of North Dakota

JENSEN, CLAYTON E., Interim Dean, School of Medicine, Professor of Family Medicine and Chairperson of Department; M.D., Bowman Gray School of Medicine, Winston-Salem

JENSEN, MARK O., Associate Professor of Surgery, M. D., University of Minnesota School of Medicine

JENSEN, MICHAEL, Assistant Professor of Chemistry; Ph. D., University of Minnesota

JENSEN, WARREN C., Assistant Professor of Aviation; M. D., University of California, San Francisco-School of Medicine

JENSEN, WILLIAM F., Adjunct Assistant Professor of Biology; Ph. D., University of North Dakota

JERATH, SUKHYVARSH, P. E., Professor of Civil Engineering; Ph.D., University of Illinois
JOVIC, ZELJKO, Assistant Professor of Neuroscience; M. D., School of Medicine, Belgrade, Yugoslavia

JOHNSON, ALAN R., Assistant Professor of Family Medicine; M.D., University of Minnesota

JOHNSON, ARNOLD F., Assistant Professor of Electrical Engineering; M. S. E. E., Iowa State University

JOHNSON, BEVERLY, Assistant Professor of Physical Therapy; B. S., University of North Dakota

JOHNSON, GEORGE M., Professor of Microbiology and Immunology; Ph. D., University of Washington

JONES, MICHAEL L., Adjunct Assistant Professor of Physics; Ph. D., University of North Dakota

JUHL, NYLA, Associate Professor of Nursing; Ph. D., University of Texas-Austin

K

RANG, Y. JAMES, Assistant Professor of Pharmacology and Toxicology; Ph. D., Iowa State University

KARIM, MICHAEL, Assistant Professor of Aviation; Ph. D., Ohio State University

KARNER, FRANK R., Professor of Geology; Ph. D., University of Illinois

KECK, ARNOLD W., Assistant Professor of Physical Therapy and Adjunct Assistant Professor of Anatomy and Cell Biology; B. S., Minot State College

KEENE, WARREN, Assistant Dean for Medical School Northwest Campus at Minot, Assistant Professor of Family Medicine and Assistant Program Director of Minot Family Practice Center; M. D., University of Washington

KELLEHER, JAMES J., Chairperson and Professor of Microbiology and Immunology; Ph. D., Rutgers State University

KELLEY, FRANK F., Associate Professor of Visual Arts; M.F.A., Florida State University

KELLEY, MAVIS, Instructor of Elementary Education, Center for Teaching and Learning; Ph. D., University of North Dakota

KELLEY, PATRICIA, Professor of Geology and Geological Engineering and Chairperson of Department; Ph. D., Harvard University

KELLY, STEVEN, Assistant Professor of Biology; Ph. D., Texas A&M University

KEMPER, GENE A., Associate Vice President for Academic Affairs, Assistant to the President, and Professor of Mathematics; Ph. D., Iowa State University

KHACTU, DOMINIQUE N., Professor of Economics; Ph. D., University of Minnesota

KHAVANIN, MOHAMMAD, Associate Professor of Mathematics; Ph. D., University of Texas at Arlington

KIM, CHUNG-HYUN, Assistant Professor of Marketing; Ph. D., University of Oregon

KING, ALAN, Associate Professor of Psychology; Ph. D., Louisiana State University

KING, ROBERT W., Professor of English and Elementary Education, Center for Teaching and Learning; Ph. D., University of Iowa

KING, SHIRLEY, Assistant Professor of Languages; Ph. D., University of Washington

KLINKHAMMER, ROBERT, Associate Professor of Social Work; M. S. W., University of Washington

KLOSE, PATSY, Assistant Professor of Statewide Psychiatric Nursing Education Program at Jamestown, College of Nursing; B. S., Jamestown College

KLOSTER, WILLIAM J., Lt. Colonel, United States Army, and Professor of Military Science; M. S., Florida Institute of Technology

KNOWLTON, DOUGLAS, Associate Professor of Neuroscience and Clinical Associate Professor of Psychology, Associate Professor of Special Education; Ph. D., University of North Dakota

KNUDSON, PAUL B., Assistant Dean for Medical School Southwest Campus at Bismarck and Associate Professor of Family Medicine; M. D., University of Minnesota

KNULL, HARVEY R., Dean of Graduate School, Chester Fritz; Distinguished Professor and Professor of Biochemistry and Molecular Biology; Ph. D., Pennsylvania State University

KNUTSON, MARION, Associate Professor of Community Medicine and Rural Health, Co-director of Physician Assistant Program at Minot, Director, Division of Health Practitioners; M. N., University of Washington

KOBRINSKY, NATHAN, Associate Professor of Pediatrics; M. D., St. John’s Ravenscourt, Winnipeg

KOHNS, DONALD P., Professor of Business and Vocational Education; Ph. D., University of Minnesota

KOOZIN, KRISTINE L., Associate Professor of Visual Arts; Ph. D., Ohio University

KOOZIN, TIMOTHY, Associate Professor of Music; Ph. D., University of Cincinnati

KOPRINCE, RALPH G., Associate Professor of Languages-Russian; Ph. D., University of Michigan

KOPRINCE, SUSAN, Associate Professor of English; Ph. D., University of Illinois-Champaign

KORBACH, ROBERT J., Professor of Economics; Ph. D., University of Maryland

KRAFT, LARRY, Professor of Law; LL.M., University of Texas

KRASNIEWSKI, WITOLD, Assistant Professor of Neuroscience, M. D., American Academy in Gdansk (Poland)
KURUGANTY, SASTRY, Professor of Electrical Engineering; Ph. D., University of Saskatchewan
KUZMAUL, JOEL, Assistant Professor of Geology and Geological Engineering; Ph. D., University of California at Berkeley
KWEIT, MARY GRIGEZZ, Professor of Political Science and Public Administration and Director of International Programs; Ph. D., University of Pennsylvania
KWEIT, ROBERT, Professor of Political Science and Public Administration, Chairperson of Department and Director of MPA Program; Ph. D., University Of Pennsylvania

LaDUKE, JOHN C., Associate Professor of Biology; Ph. D., Ohio State University
LAMB, DONALD L., Associate Professor of Surgery; M. D., University of Utah
LAMBERT, DAVID O., Professor of Biochemistry and Molecular Biology and Chester Fritz Distinguished Professor; Ph. D., University of Wisconsin
LANDRY, RICHARD G., Professor of Educational Measurements and Statistics, Center for Teaching and Learning; Evaluation Coordinator, Writing Across the Curriculum; Director of Bureau of Educational Research, and Chester Fritz Distinguished Professor; Ph. D., Boston College
LANG, GRETCHEK, Professor of Anthropology; Ph. D., University of Minnesota
LANG, JEFFREY, Assistant Professor of Biology; Ph. D., University of Missouri
LANGEMO, DIANE, Professor of Nursing; Ph. D., University of Minnesota
LANGEMO, E. MARK, Professor of Business and Vocational Education; EdD., University of North Dakota
LARSON, ANNETTE C., Instructor of Community Medicine and Rural Health; F. N. P., University of North Dakota
LARSON, JAMES H., Professor of Sociology; Ph. D., University of Kentucky
LARSON, LINDA M., Assistant Professor of Pathology; MS., University of North Dakota
LARSON, OLIVE, Assistant Professor of Nursing; Ed. D., University of South Dakota
LARSON, OMER R., Professor of Biology; Ph. D., University of Minnesota
LAWRENCE, W. FRED, Dean of College of Business and Public Administration and Professor of Management; Ph. D., Georgia State University
LAYCOCK, MARY, Assistant Professor of Foundations and Early Childhood Education; Ph. D., Pennsylvania State University
LEACH, MELINDA, Assistant Professor of Anthropology; Ph. D., University of California–Los Angeles
LEBUGLE, ANDRE M., Associate Professor of Language-French; Ph. D., State University of New York-Buffalo
LEDUC, ROBERT E., Assistant Professor of Mathematics; M. A., University of Wisconsin–Madison
LEE, JEONG WAN, Associate Professor of Finance; Ph. D., University of Texas at Austin
LEE, KAP, Director of Biomedical Resource Facility and Professor of Community Medicine and Rural Health; D. V. M., Seoul National University
LEE, RANDY H., Professor of Law; J.D., Washington and Lee University
LEFEEVER, RICHARD, Associate Professor of Geology; Ph. D., University of California
LEMON, DONALD K., Professor of Educational Administration, Center for Teaching and Learning; Ed. D., University of Kansas
LESSARD, JAMES, Associate Professor of Internal Medicine; M. D., Southern Illinois University
LEVINSON, STEPHEN, Adjunct Assistant Professor, Summer Institute of Linguistics; Ph. D., Reading University
LEVINSON, STEVEN, Clinical Professor of Psychology; Ph. D., University of Rochester, New York
LEWIS, BARBARA E., Associate Professor of Music; Ph. D., Indiana University
LEWIS, ROBERT W., JR., Professor of English, Coordinator of Peace Studies, and Chester Fritz Distinguished Professor; Ph. D., University of Illinois
LIEBERMAN, DIANA, Professor of Biology; Ph. D., University of Ghana
LIEBERMAN, M., Research Professor of Biology; Ph. D., University of California–Irvine
LINDBERG, SANDRA, Assistant Professor of Theatre Arts; MFA, MA- Theatre Illinois State University
LINDHOLM, LYNN, Associate Professor of Philosophy and Chairperson of Department of Philosophy and Religion; Ph. D., City University of New York
LINDQUIST, MARY L., Associate Professor of Special Education, Center for Teaching and Learning; Ph. D., University of Wisconsin
LINDSETH, PAUL, Assistant Professor of Aviation; M. A., Central Michigan University
LITTLE, JOHN R., Associate Professor of English; M. F. A., University of Arkansas
LOCKNEY, THOMAS M., Professor of Law; LLM., Harvard University

LOVELACE, KENT, Associate Professor of Aviation; M. S., University of North Dakota

LOWE, D. SCOTT, Associate Professor of Religion; Ph. D., University of Iowa

LOWE, IVAN, Adjunct Assistant Professor of Linguistics; Ph. D., Cambridge University (England)

LOYLAND, MARY, Associate Professor of Accounting and Business Law; Ph.D., University of Nebraska-Lincoln

LUBER, PATRICK, Assistant Professor of Visual Arts; M. F. A., University of New Mexico

LUDLOW, DOUGLAS, Associate Professor of Chemical Engineering; Ph. D., Arizona State University

LUDTKE, RICHARD L., Professor of Sociology and Chairperson of Department; Ph. D., University of Kentucky

LUTZ, DENNIS J., Chairperson and Professor of Obstetrics and Gynecology; M.D., Cornell University Medical College

LYKKEN, GLENN L., Director of Engineering Physics and Professor of Physics; Ph. D., University of North Carolina

LYSNE, DWIGHT H., Assistant Professor of Neuroscience; M. D., University of Minnesota

MABEY, RENEE R., Instructor of Physical Therapy, M. S., University of North Dakota

MACEJKOVIC, CHERYL, Assistant Professor of Nursing; MS., University of North Dakota

NJ ADD EN, JOHN P., Assistant Professor of Communication Disorders; Ph. D., Ohio State University

MAHONEY, TIMOTHY J., Assistant Professor of Surgery; M. D., Tufis University

MANAKKALATHIL, JACOB, Associate Professor of Marketing; D. B.A., United States International University

MANN, WILLIAM S., Director of Grand Forks Family Medicine Residency Program and Associate Professor of Family Medicine; M. D., University of Glasgow

MANNING, DEBRA, Assistant Professor of Psychology; Ph. D., University of Minnesota

MANNION GRACE, Assistant Professor of Music; M.A., University of California, Santa Barbara

MARIN, PHILIP, Assistant Professor of Internal Medicine; M. D., Northwestern University

MARK, VICTOR W., Assistant Professor of Neuroscience; M. D., Albany Medical College

MARKEN, DORY, Assistant Professor of Occupational Therapy; M. S., University of North Dakota

MARKOVICH, DENISE, Professor of Finance; Ph. D., University of Manitoba

MARKOVICH, STEPHEN C., Professor of Political Science and Public Administration; Ph. D., University of Virginia

MARLETT, STEPHEN, Adjunct Assistant Professor, Summer Institute of Linguistics; Ph. D., University of California-San Diego

MARSHALL, DAVID F., Associate Professor of English; Ph. D., New York University

MARTSOLF, JOHN T., Professor of Pediatrics and Pharmacology and Toxicology; M. D., Jefferson Medical College-Philadelphia

MASON, EARL S., P. E., Professor of Civil Engineering; Ph. D., Utah State University and J. D., University of North Dakota

MATHENEY, RONALD K., Assistant Professor of Geology; Ph. D., Arizona State University

MATHSEN, DON V., P. E., Assistant to the Dean — Development, School of Engineering and Mines, and Adjunct Associate Professor of Mechanical Engineering; M. S., University of North Dakota

MATTHEWS, HU, Adjunct Professor, Summer Institute of Linguistics; Ph. D., University of Pennsylvania

MATTSON, STEVEN R., Assistant Director of Minot Family Medicine Residency Program and Associate Professor of Family Medicine; M. D., Michigan State University

MAXSON, STEPHEN, Adjunct Assistant Professor of Biology; Ph. D., University of North Dakota

McCLEARN, ANDREW, Assistant Professor of Neuroscience; M. D., University of North Dakota

McCLEARY, VIKKI M., Instructor of Physiology, Ph. D., University of North Dakota

McCLEARY, KATHRYN, Professor of Visual Arts; M.F.A., Michigan State University

McCORMACK, JOHN T., Assistant Professor of Anatomy and Cell Biology; Ph. D., University of Kansas

McCUTCHEON, NEIL J., Assistant Professor of Communication; M. A., University of Cincinnati

McDONALD, ARTHUR, Adjunct Professor of Psychology; Ph. D., University of South Dakota

McDONALD, JUSTIN, Assistant Professor of Psychology; Ph. D., University of South Dakota

McELROY-EDWARDS, JACQUELYN N., Professor of Visual Arts and Chairperson of Department; M. F. A., University of Montana

McINTYRE, SUSAN, Assistant Professor of Occupational Therapy and Chairperson of Department; M. S., University of North Dakota
McKENZIE, JAMES J., Professor of English; Ph. D., University of Notre Dame
McLAREN, GORDON D., Professor of Internal Medicine; M. D., Stanford University School of Medicine
McLEAN, MARY E., Professor of Special Education. Center for Teaching and Learning; Ph. D., University of Wisconsin, Madison
McCLEAN, DONALD, Assistant Professor of Aviation; M.A., Webster University
MEAD, RICHARD W., Assistant Professor of Aviation; MA., University of Northern Colorado
MEDALEN, RODNEY E., Associate Professor of Accounting and Business Law; MS. and M.Ed., University of North Dakota
MEEK, JAY, Professor of English; M.A., Syracuse University
MEEK, MARTHA, Assistant Professor of English; Ph. D., Syracuse University
MELLAND, HELEN, Assistant Professor of Nursing and Chairperson of Department of Professionalism and Practice; Ph. D., University of Minnesota
MERRILL, LOIS J., Dean and Professor of Nursing; Ph. D., University of Nebraska
MESSENGER, THEODORE L. JR., Professor of Philosophy; Ph. D., Johns Hopkins University
METZGER, JERRY M., Professor of Mathematics; Ph. D., University of Connecticut
MEYER, MICHAEL E., Associate Professor of Sociology and Director of Criminal Justice Studies; Ph. D., University of Oklahoma-Norman
MILAVETZ, BARRY I., Associate Professor of Biochemistry and Molecular Biology; Ph. D., University of Illinois
MILBURN, LONNA Associate Professor of Nursing; Ph. D., University of Texas
MILES, ARTHUR R., Associate Professor of Electrical Engineering; Ph. D., University of Wisconsin
MILLER, DONALD, Professor of Visual Arts; M.F.A., Mills College, M.A., New Mexico Highland University
MILLSPAUGH, RICHARD, Assistant Professor of Mathematics; Ph. D., University of Oklahoma
MILTENBERGER, RAYMOND, Adjunct Associate Professor of Psychology; Ph. D., Western Michigan University
MOCHORUK, JAMES, Assistant Professor of History; Ph. D., University of Manitoba
MOE, RONALD D., P. E., Associate Professor of Electrical Engineering; Ph. D., University of Kansas
MOEN, DONALD A., P. E., Associate Professor of Mechanical Engineering; Ph. D., Iowa State University
MOEN, JANET KELLY, Associate Professor of Sociology, and Community Medicine and Rural Health; Ph. D., Cornell University
MOHAGEN, ROBERTA BARTA, Assistant Professor of Business and Vocational Education; Ph. D., University of Minnesota
MOHR, PEGGY M., Instructor of Physical Therapy, Ph. D., University of North Dakota
MOHR, THOMAS M., Associate Professor of Physical Therapy and Chairperson of Department; Ph. D., University of North Dakota
MONNING, REGINA, Professor of Nursing and Associate Dean; Ph. D., University of Minnesota
MONSEBROTEN, ANITA L., Associate Professor of Visual Arts, M. F. A., University of Kansas
MORETN, CHARLES, Assistant Professor of Civil Engineering; Ph. D., University of Pittsburgh
MOSER, STEVEN, Assistant Professor of Management; Ph. D., University of Cincinnati
MUHLHAUSER, TARA, Project Director, Children and Family Services Training Center, Adjunct Assistant Professor of Social Work; J. D., University of North Dakota
MUNSKI, DOUGLAS C., Professor of Geography; Ph. D., University of Illinois
MU RASKIN, MURRAY, Professor of Physics; Ph. D., University of Illinois
MURPHY, LOUISE A., Associate Program Director of the Bismarck Family Practice Center and Assistant Professor of Family Medicine; M. D., University of North Dakota

N
NALSMAITH, DONALD P., P. E., Professor of Mechanical Engineering and Chairperson of Department of Engineering Management and Mechanical Engineering; Ph. D., Iowa State University
NARANG, NEELAM, Assistant Professor of Neuroscience; Ph. D., University of Illinois
NAVARA, JAMES L., Professor of Business and Vocational Education and Chairperson of Department: Ed. D., Oregon State University
NELSON, DAVID C., Assistant Professor of Languages–German; MA., University of North Dakota
NELSON, GAYLE. Director of Child Care and Family Services and Instructor of Early Childhood Education; M. Ed, University of North Dakota
NELSON, ROALD D., Professor of Internal Medicine: M. D., University of Iowa
NELSON, SUSAN L., Associate Professor of Marketing and Chairperson of Department; Ph. D., Georgia State University
NELSON, THERON R., Professor of Finance and Chairperson of Department; Ph. D., Georgia State University

NESS, LEE J., Assistant Professor of Accounting and Business Law; LLM., University of Denver

NESTE, SUSAN L., Coordinator, University Learning Center and Adjunct Instructor of Academic Skills, College of Arts and Sciences; M. A., University of North Dakota

NEUMANN, NICHOLAS, Professor of Internal Medicine; M. D., Wayne State University

NEWMAN, WILLIAM P., Professor of Internal Medicine; M. D., University of Texas

NEILSEN, FORREST, Research Chemist at USDA Human Nutrition Lab and Adjunct Professor of Biochemistry; Ph. D., University of Wisconsin

NORDLIE, ROBERT C., Professor of Biochemistry and Molecular Biology, Chairperson of Department and Chester Fritz Distinguished Professor; Ph. D., University of North Dakota

NORMAN, VIRGINIA L., Associate Professor of Nursing; M.A., University of North Dakota, MS., University of Minnesota

NORRIS, THOMAS E., Executive Associate Dean for Academic and Research Affairs and Professor of Biochemistry and Molecular Biology; Ph. D., Indiana University

NWOKE, BEN U., CMfgE., Associate Professor of Industrial Technology; Ph. D., Iowa State University

OATFIELD, ROBERT, Professor of Internal Medicine, M. D.: Stritch School of Medicine, Loyola University, Chicago

OBERPRILLER, JEAN C., Associate Professor of Anatomy and Cell Biology; Ph. D., Tulane University

OBERPRILLER, JOHN O., Professor of Anatomy and Cell Biology; Ph. D., Tulane University

ODEGARD, JOHN D., Dean of Center for Aerospace Sciences and Professor of Aviation; M. S., University of North Dakota

ODONNELL, SHERYL, Associate Professor of English; Ph. D., University of Arizona

O’KEEFE, HEATHER C., Associate Professor of Communication; M. P. A., University of North Dakota

O’KEEFE, NORBERT J., Chairperson of Department and Associate Professor of Radiology; M. D., University of Minnesota

O’KELLY, BERNARD, Dean of College of Arts and Sciences and Professor of English; Ph. D., Harvard University

O’KELLY, MARCIA, Professor of Law; J. D., University of North Dakota and LL. M., George Washington University

OLAFSON, RICHARD A., Assistant Dean for Medical School Southeast Campus at Fargo, Associate Dean for Veterans Affairs, and Professor of Neuroscience; M. D., University of Pennsylvania

OLSEN, GLENN W., Associate Professor of Early Childhood Education, Center for Teaching and Learning and Chairperson of Program area; Ph. D., University of Wisconsin-Madison

OLSON, JAMES R., Associate Professor of Surgery; M. D., Northwestern University

OLSON, MARK D., Associate Professor of Anatomy and Cell Biology; Ph. D., University of North Dakota

OLSON, MYRNA, Professor of Special Education, Center for Teaching and Learning and Chairperson of Program Area; Ed. D., University of North Dakota

O’NEIL, THOMAS E., Assistant Professor of Computer Science: Ph. D., Iowa State University

O’NEILL, GEORGE W., Associate Professor of Neuroscience; Ph. D., Georgia State University

O’NEILL, PATRICK, Associate Professor of Economics, ‘Ph. D., Boston College

OPGRANDE, J. DONALD, Professor of Surgery; M. D., University of Kansas

OSBORNE, LEON F., Associate Professor of Atmospheric Sciences; M. S., Oklahoma University

OTERO-CAGICIDE, MANUEL R., Assistant Professor of Internal Medicine: M. D., National University of Mexico

OWENS, THOMAS C., P. E., Professor of Chemical Engineering, Chairperson of Department, and Associate Dean, School of Engineering and Mines; Ph. D., Iowa State University

P

PARK, JAESUN, Associate Professor of Management; Ph. D., Northwestern University

PARKER, MELISSA, Associate Professor of Health, Physical Education and Recreation; Ph.D., Ohio State University

PATRICK, DALE, Director, Safety Office, Adjunct Assistant Professor of Industrial Technology; M. S., Northern State, Colorado

PAULEN, BRIAN O., Professor of Visual Arts and Chester Fritz Distinguished Professor; M.F.A., Washington State University

PAULSON, MICHAEL, Clinical Professor of Psychology: Ph. D., University of North Dakota

PAULSON, ROLF R., Associate Professor of Internal Medicine; M. D., University of Minnesota

PEDELISKI, THEODORE, Professor of Political Science; Ph. D., University of Minnesota
PELTON, MARY HELEN, Assistant Dean and Director of Extension and Professional Services of Continuing Education, and Adjunct Assistant Professor of Educational Administration; Ed. D., Denver University

PENLAND, JAMES, Adjunct Assistant Professor of Psychology; Ph. D., University of North Dakota

PERKINS, DEXTER, Professor of Geology; Ph. D., University of Michigan

PERRIN, KATHY, Instructor of Occupational Therapy; B. S., University of North Dakota

PERRY, DAVID C., Associate Professor of Social Work; Ph. D., University of North Dakota

PETERS, DOUGLAS, Professor of Psychology; Ph. D., Southern Illinois University

PETERSON, CHAD, Instructor of Family Medicine; M.A., University of North Dakota

PETROS, THOMAS, Professor of Psychology; Ph. D., Kent State University

PETZOLD, LOTHAR, Adjunct Associate Professor of Communication and Management

PHILLIPS, MONTE L., P. E., Professor of Civil Engineering; Ph. D., University of Illinois

Pierce, David, Assistant Professor of Chemistry; Ph. D., University of Vermont

PIPER, DONALD L., Professor of Educational Administration, Center for Teaching and Learning; Ed.D., University of Illinois

PLATO, DAN A., Associate Professor of Theatre Arts and Chairperson of Department; M. F. A., Southern Illinois University

PLAUD, JOSEPH, Assistant Professor of Psychology; Ph.D., University Of Maine

POELLOT, MICHAEL R., Associate Professor of Atmospheric Sciences; M. S., Colorado State University

POLITOFF, ALBERTO L., Associate Professor of Neuroscience; M. D., Medical School, University of Chile

POOCHIGIAN, DONALD V., Associate Professor of Philosophy; Ph. D., Claremont Graduate School

PORTER, ANN, Adjunct Assistant Professor of Educational Administration; Ed. D., University of North Dakota

PORTER, DONALD E., Associate Professor of Management; Ph. D., Stanford University

POTTER, GERALD L., Associate Professor of Philosophy; S.T.D., Gregorian University

POTTER, THOMAS A., Associate Professor of Finance; Ph. D., University of Colorado

PRICE, NEIL V., Associate Professor of Library Science and Audiovisual Instruction and Chairperson of Department; Ph. D., University of Pittsburgh

PRIGGE, GLENN, Professor of Mathematics; Ph. D., University of Minnesota

PRIGGE, LILA, Professor of Business and Vocational Education; Ph. D., University of North Dakota

PYNN, RONALD E., Professor of Political Science and Public Administration; Ph. D., University of Michigan

QUA KEN BUSH, STEVE, Adjunct Associate Professor of Summer Institute of Linguistics; Ph.D., Georgetown University

RADEL, CURTIS, Instructor and Director of Nurse Anesthesia Clinical Specialization; M. S., University of North Dakota

RAM, PRABHU, Assistant Professor of Computer Science; Ph.D., North Dakota State University

RAMSETT, DAVID E., Professor of Economics and Chairperson of Department; Ph. D., University of Oklahoma

RAND, THOMAS A., Associate Dean of College of Arts and Sciences and Associate Professor of Humanities; B. D., Harvard Divinity School

RANKIN, ELIZABETH D., Associate Professor of English; Ph. D., State University of New York at Binghamton

RAO, B. SESHAGIRI, Professor of Physics and Chairperson of Department; Ph. D., Pennsylvania State University

RAU, KEITH, Assistant Professor of Internal Medicine; M. D., University of North Dakota

RAY, PAUL D., Professor of Biochemistry and Molecular Biology and Chester Fritz Distinguished Professor; Ph.D., St. Louis University

REID, GEMETTE, Assistant Professor of Secondary Education; Ph. D., Michigan State University

REID, JOHN R., Professor of Geology; Ph. D., University of Michigan

REINITZ, DAVID M., Assistant Professor of Microbiology and Immunology; Ph. D., University of Illinois

REMBOLDT, PAUL A., Assistant Professor of Social Work; M. S. W., Arizona State University

RENDahl, STEPHEN E., Associate Professor of Communication; Ph. D., University of Minnesota

RENICK, PAUL R., Assistant Professor of Library Science and Audiovisual Instruction; M. L. S., Peabody College

REUTER, LAUREL, Director of North Dakota Museum of Art and Associate Professor of Humanities; M. A., University of North Dakota
RHEUDE, ELIZABETH, Assistant Professor of Music; M. M., Michigan State University

RHODES, RICHARD A., Adjunct Assistant Professor, Summer Institute of Linguistics; Ph. D., University of Michigan

RICE, DANIEL R., Director of Instructional Development and Associate Professor of Educational Administration; Ph. D., University of North Dakota

RICHARDS, THOMAS, Assistant Professor of Mathematics; Ph. D., Washington State University,

RICHTER, ROBERT, Master Sergeant, United States Army, Instructor of Military Science; A.A., U.S. Army

RIECKE, WILLIAM C., Associate Professor of Pediatrics; M. D., Tulane University

RIEKE, GARL K., Associate Professor of Anatomy and Cell Biology; Ph. D., Louisiana State University

RINEHART, RONALD, Professor of Atmospheric Sciences; Ph.D., Colorado State University

ROBERTS, JAMES S., Adjunct Assistant Professor, Summer Institute of Linguistics; Ph. D., Georgetown University

ROBERTSON, CHARLES L., Assistant Professor of Aviation; M.A., Ball State University

ROBINSON, THOMAS J., Professor of Mathematics; Ph. D., Iowa State University

RODDE, JAMES F., Director of Choral Studies and Associate Professor of Music; D. M.A., University of Iowa

RODENHISER, ROY, Assistant Professor of Social Work; Ed. D., University of Southern California

ROSOKS, RUDOLPH, Associate Professor of Pediatrics; M. D., University of Wisconsin

ROSS, ELLIOTT D., Professor of Neuroscience; M. D., Boston University School of Medicine

ROWLEY, DAVID, Assistant Professor of History; Ph. D., University of Michigan

RUDD, JAMES D., Director of Division of Sports Medicine, Head Athletic Trainer and Assistant Professor of Family Medicine; M. S., University of North Dakota

RUDE, REBECCA, Assistant Professor of Family and Consumer Sciences; M. S., North Dakota State University

RUIT, KENNETH, Assistant Professor of Anatomy and Cell Biology; Ph. D., Loyola University Of Chicago

RYAN, CASEY J., Assistant Dean for Medical School Northeast Campus at Grand Forks and Associate Professor of Internal Medicine; M. D., University of Colorado

S

SALUJA, SUNDAR S., Professor of Geological Engineering; Ph. D., University of Wisconsin

SAMPSON, DOUGLAS, Adjunct Professor of Physics; Ph. D., Yale University

SAMSON, WILLIS K., Chairperson and Professor of Physiology; Ph. D., University of Texas Health Science Center

SAMUELSON, ALBERT F., Associate Professor of Neuroscience; M. D., University of Cincinnati

SANBORN, PATRICIA, Professor of Humanities and Philosophy; Coordinator of Humanities; Coordinator of Integrated Studies; Ph. D., Columbia University

SAXOWSKY, GAIL, Clinical Assistant Professor of Statewide Psychiatric Nursing Education Program at Jamestown, College of Nursing; M. S., Loma Linda University

SCHAEFER, RONALD H., Professor of Visual Arts; M.F.A., University of Wisconsin

SCHAUER, JANET, Clinical Assistant Professor of Nursing; M. S., University of Minnesota

SCHAUER, ROGER W., Assistant Professor of Family Medicine; M. D., Wayne State University School of Medicine

SCHILL, MARY JO, Clinical Assistant Professor of Communication Disorders; M.A., Indiana University

SCHLOSSER, ISAAC, Professor of Biology; Ph. D., University Of Illinois

SCHMITT, SUE A., Dean of College for Human Resources Development and Professor of Counseling; Ed. D., Mississippi State University

SCHNEIDER, FREDERICK E., Professor of Anthropology; Ph. D., University of Missouri

SCHNEIDER, MARY JANE, Professor of Indian Studies, Chairperson of Department and Chester Fritz Distinguished Professor; Ph. D., University of Missouri

SCHROEDER, TIM, Associate Professor of Health, Physical Education and Recreation; Re.D., Indiana University

SCHULZ, KIRK, Assistant Professor of Chemical Engineering; Ph. D., Virginia Polytechnic Institute and State University

SCHWALM, MIZUHO, Adjunct Assistant Professor of Physics; Ph. D., Montana State University

SCHWALM, WILLIAM, Professor of Physics; Ph.D., Montana State University

SEABLOOM, ROBERT W., Professor of Biology; Ph. D., University of Minnesota

SEARCY, EILEEN, Staff Psychologist at UND Medical Center Rehabilitation Hospital (MCRH); Adjunct Assistant Professor of Counseling; and Adjunct Assistant Professor of Psychology; Ph. D., Arizona State University
SEAWORTH, TIMOTHY, Counselor, Counseling Center and Adjunct Assistant Professor of Counseling; Ph. D., University of North Dakota

SEDGWICK, CAROL IRWIN, Associate Professor of Music; D. M. A., Eastman School of Music

SEIDEL, ROBERT E., Assistant Professor of Geography; Ph.D., University of North Dakota

SEIELSTAD, GEORGE A., Assistant Dean for Academics and Professor of Space Studies, Center for Aerospace Sciences; Ph.D., California Institute of Technology

SHABB, JOHN, Assistant Professor of Biochemistry and Molecular Biology; Ph. D., West Virginia University

SHAMDAS, GLENN J., Assistant Professor of Internal Medicine; M. D., University of Malaga, Spain

SHARBO, DAVID A., Professor of Neuroscience; M. D., St. Louis University School of Medicine

SHERIDAN, DANIEL P., Professor of English and Chairperson of Department; Ph. D., Northwestern University

SHERIDAN, WILLIAM F., Professor of Biology and Chester Fritz Distinguished Professor; Ph. D., University of Illinois

SHUTT, MERRILL M., Associate Professor of Community Medicine and Rural Health, Co-Director of Physician Assistant Program and Director of Division of International Health; M. D., M. P. H., University of Iowa

SIEGEL, MARK B., Associate Professor of Surgery; M. D., University of California

SIMUNDS, ERIN E., Instructor of Physical Therapy; M. S., University of Wisconsin

SINGH, KAMLA D., Visiting Professor of Mathematics; Ph. D., University of Delhi

SLOTNICK, HENRY B., Medical Education and Evaluation Director and Professor of Neuroscience; Ph. D., University of Illinois

SMART, KATHY, Assistant Professor of Industrial Technology; Ed. D., University of North Dakota

SMITH, C. MILTON, Director of Minot Family Medicine Residency Program and Associate Professor of Family medicine; M. D., University of Texas

SMITH, VICTORIA, Assistant Professor of Communication; Ph. D., University of Minnesota

SOLIAH, DAVID, Director of HECN Student Information Systems and Assistant Professor; Ph. D., University of North Dakota

SOLOSE, JANE, Assistant Professor of Music; D. M. A., Eastman School of Music

SOPER, ROGER L., Chairperson of Department and Professor of Pathology, M. D., Johns Hopkins University

SPAIN, LARRY R., Clinical Associate Professor and Director of Legal Services; J. D., Creighorn University

SPANIER, JONATHAN, Assistant Professor of Microbiology and Immunology; Ph. D., University of Minnesota

STADTER, RICHARD P., Chairperson of Department and Professor of Neuroscience; M. D., Cornell University

STAHL, LOTHAR, Assistant Professor of Chemistry; Ph. D., University of Utah

STANLAKE, LOWELL P., Assistant Professor of Mechanical Engineering; M. S., University of North Dakota

STAPLES, CLIFFORD L., Associate Professor of Sociology; Ph. D., Washington State University

STATON, DENNIS, Professor of Neuroscience; Ph.D., Harvard; M. D., University of Miami

STEEN, THOMAS B., Associate Professor of Health, Physical Education and Recreation; Ph.D., Ohio State University

STENEHJEM, KEITH A., Associate Professor of Community Medicine and Rural Health, and Director of the Division of Biomedical Communications; Ed. D., University of North Dakota

STILES, ROBERT E., Assistant Professor of Health, Physical Education and Recreation and Health Golf Coach; M. S., University of North Dakota

STINNETT, HENRY O., Associate Professor of Physiology; Ph. D., University of California at Davis

STITH, JEFFREY, Professor of Atmospheric Sciences and Chairperson of the Department; Ph. D., University of Washington

STOFFERAHN, CURTIS W., Associate Professor of Sociology and Director, Social Science Research Institute; Ph. D., Iowa State University

STRACKBEIN, DEANNA L., Associate Professor of Elementary Education, Center for Teaching and Learning; Ph. D., Arizona State University

STRADLEY, SCOT A., Associate Professor of Economics; Ph. D., University of Utah

STRAND BERG, KENNETH, Adjunct Assistant Professor of Internal Medicine; Pharm. D., North Dakota State University

STRANTZ, NANCY, Assistant Professor of Law; J. D., South Texas College of Law

STRATHE, MARLENE I., Vice President for Academic Affairs and Provost and Professor of Educational Foundations and Research; Ph.D. Iowa State University

STROMMEN, GORDON, Adjunct Associate Professor of Internal Medicine; Pharm. D., University of Nebraska
SUJKALSki, KATHERINE A., Assistant Professor of Biochemistry and Molecular Biology; Ph. D., University of North Dakota

SVEDARSKY, DANIEL, Adjunct Professor of Biology; Ph. D., University of North Dakota

SWENSEN, G. KNUDE, Assistant Professor of Marketing; Ph. D., University of Illinois

SWENSON, JOHN A., Director of Student Health Services and Associate Professor of Internal Medicine; M. D., University of Nebraska

SWENSON, WAYNE M. Assisstant to the Chairperson and Professor of Surgery; M. D., Harvard Medical School

SWISHER, WAYNE E., Associate Professor of Communication Disorders and Chairperson of Department; Ph. D., University of Wisconsin

SZIGETI, ELVIRA, Professor of Nursing and Chairperson of Department of Adult Health; Ph. D., University of Texas

T

TANGEDAHL, GUY, Associate Program Director of Bismarck Family Medicine Residency Program and Assistant Professor of Family Medicine; M. D., University of North Dakota

THEIGE, DAVID J., Assistant Professor of Internal Medicine; M. D., University of North Dakota

THIBEAULT, PAUL G., Clinical Instructor of Law; J.D., Hastings College of Law

THOMAS, GLORIA JEAN, Associate Professor of Educational Administration, Center for Teaching and Learning; Ph. D., Brigham Young University

THOMASSON, KATHRYN, Assistant Professor of Chemistry; Ph.D., Iowa State University

THOMPSON, BRIDGET M., Assistant Professor of Nursing; M. S., University of Texas

THOMPSON, CLARENCE, Adjunct Assistant Professor of Anatomy and Cell Biology; M. S., University of North Dakota

THOMPSON, HowARD E., Director of Cytotechnology Program and Assistant Professor of pathology; B.A., University of North Dakota

THOMPSON, MYRA J., Assistant Professor of Nursing; M. S. N., South Dakota State University

THOMPSON, SUSAN, Adjunct Assistant Professor of Psychology; Ph. D., University of North Dakota

THOMS, WILLIAM E., Professor of Law; J. S. D., Tulane University

THORSON, PLAYFORD V., JR., Professor of History; Ph. D., University of Minnesota

TIEMANN, KATHLEEN A., Associate Professor of Sociology and Director of Woman Studies; Ph. D., Western Michigan University

TIGHT, ROBERT R., Interim Chairperson of Department and Associate Professor of Internal Medicine; M.D., University of Rochester

TIll, ROBERT, Professor of Psychology; Ph. D., University of Minnesota

TILLISCH, JANET K., Associate Professor of Pediatrics; M. D., University of Kansas

TIIoJTA, DAVID, Assistant Professor of Chemistry; Ph. D., Kansas State University

TIMMONS, Teresa A., Assistant Professor of Neuroscience, M. D., Mayo Medical School

TIONGSON, GENARO L., Medical Director at Medical Center Rehabilitation Hospital, Clinical Assistant Professor of Physical Medicine and Rehabilitation; M. D., Far Eastern University Institute of Medicine

TODHUNTER, PAUL, Associate Professor of Geography; Ph. D., University of California-Los Angeles

TOLBERT, SCOTT, Assistant Professor of Mechanical Engineering; B. S., University of North Dakota

TORGERSON, LESLIE A., Assistant Professor of Pathology; M. D., Washington University, St. Louis

TOWNE, GARY, Associate Professor of Music; Ph. D., University of California

TRASK, TIMOTHY D., Sergeant First Class, United States Army, Instructor of Military Science; A. A., Central Texas College

Tschacher, Walter, Assistant Professor of Languages; German; Ph. D., University of Wisconsin

TUGGY, DAVID H., Adjunct Assistant Professor, Summer Institute of Linguistics; Ph. D., University of California-San Diego

TWOHEY, DENISE, Associate Professor of Counseling; U. D., Western Michigan University

TYLER, JOHN D., Professor of Psychology and Director of Psychological Services Center; Ph. D., University of Texas

TYREE, JR., ALEXANDER, Assistant Professor of Secondary Education, Center for Teaching and 1-earning; Ph. D., University of Wisconsin-Madison

TYREE, ELIZABETH, Assistant Professor of Nursing and Chairperson of the Department of Family and Community Health Nursing; M. P. H., University of Michigan

U

UHERKA, DAVID J., Professor of Mathematics and Chairperson of Department; PhD., University of Utah

UHLENBERG, BEVERLY, Associate Professor of Home Economics and Nutrition; Ph.D., University of North Dakota

UHLENBERG, DONALD, Associate Professor of Elementary Education, Center for Teaching and Learning; Ph. D., Ohio State University
V

VARI, RICHARD C., Associate Professor of Physiology; Ph. D., University of Kentucky
VERMEERSCH, MICHAEL, Associate Professor of Mechanical Engineering; Ph. D., Princeton
VERMEERSCH, PATRICIA, Assistant Professor of Nursing; Ph.D., Case Western Reserve University
VITTON, JOHN J., Associate Professor of Management; Ph. D., University of Nebraska-Lincoln
VIVIAN, JAMES F., Professor of History; Ph. D., American University
VOGELTANZ, NANCY D., Assistant Professor of Neuroscience, Adjunct Assistant Professor of Psychology; Ph. D., University of Maine
VOLDEN, CECILIA, Professor of Nursing; M. S., University of Minnesota

W

WACKER, DUWAYNE M., Associate Professor of Accounting and Business Law; M. S., University of North Dakota
WACKSMAN, RICHARD M., Associate Professor of Internal Medicine; M. D., American University of the Caribbean
WAGNER, GREGORY, Assistant Professor of Aviation; M. S., Webster University
WAGNER, JOHN L., Assistant Professor of Physics, Ph. D., University of Virginia
WALKER, DEBRA, Assistant Professor of Family Medicine, M. D., University of Minnesota School of Medicine
WALLER, JAMES R., Associate Professor of Microbiology and Immunology; Ph. D., University of Minnesota
WAMBSGANSS, JACOB, Associate Professor of Accounting and Business Law; Ph. D., University of Nebraska, Lincoln
WAMSLEY, JAMES, Professor of Pharmacology and Toxicology and Neuroscience; Ph. D., University of Iowa
WANG, JUN, Associate Professor of Industrial Technology; Ph. D., Case Western Reserve University
WATSON, DIETTA, Assistant Professor of Health, Physical Education and Recreation; M.A., Adams State College
WEBER, DAVID, Adjunct Assistant Professor, Summer Institute of Linguistics; Ph. D., University of California
WELLS, DIANA, Assistant Professor of Mathematics; Ph. D., Washington State University
WEISSMAN, HENRY C., Professor of Physical Therapy; J. D., University of North Dakota
WHEELDON, JOHN A., Assistant Professor of Electrical Engineering; M. S., South Dakota School of Mines and Technology
WHITE, FRANCIS, Instructor of Sociology; MA., University of North Dakota
WHITE, WILLIAM, Assistant Professor of Computer Science; Ph. D., Ohio State University-Columbus
WHITEHEAD, JAMES R., Associate Professor of Health, Physical Education and Recreation; Ed.D, Arizona State University
WIENER, DAVID M., Associate Professor of English; Ph. D., University of Illinois
WIGGEN, THOMAS P., Associate Professor of Computer Science; Ph. D., Louisiana State University
WILSANEN, RONALD E., Associate Professor of Family Medicine and Director of the Fargo Family Practice Center; M. D., University of Minnesota Medical School
WILHITE, MARY J., Associate Professor of Nursing; Ed. D., University of Tulsa
WILDE, HAROLD H., Associate Professor of Accounting and Business Law and Chairperson of Department; Ph.D., University of Nebraska
WILLIAMS, JOHN A., Professor of Anthropology and Chairperson of Department; Ph. D., Ohio State University
WILLIAMS, JOHN D., Professor of Research Methods; Chairperson of Program Area of Educational Foundation and Research, Center for Teaching and Learning; Ph. D., Colorado State College
WILLIAMS, STEVEN, Assistant Professor of Space Studies; Ph. D., Arizona State University
WILSNACK, RICHARD W., Professor of Neuroscience and Adjunct Professor of Sociology; Ph. D., Harvard University
WILSNACK, SHARON C., Chester Fritz Distinguished Professor, Professor of Neuroscience and Adjunct Professor of Psychology; Ph. D., Harvard University
WINRICH, LONNY B., Professor of Computer Science; Ph.D., Iowa State University
WOLD, KEVIN, Major North Dakota Army National Guard, Assistant Professor of Military Sciences; B. S., NDSU; B. S., Colorado State University
WONDERLICH, STEPHEN, Associate Professor of Neuroscience; Ph. D., University of Missouri
WOOD, CHARLES, Professor of Space Studies and Chairperson of the Department; Ph. D., Brown University
WOOLSEY, NEIL F., Professor of Chemistry; Ph. D., University of Wisconsin
Other Academic Professionals

Ahler, Stanley A., Research Archaeologist, Anthropology; Ph. D., University of Missouri

Andrew, Lynne, Assistant Women Basketball Coach; M. S., University of North Dakota

Bollinger, Robert D., Assistant Football Coach; M.S., University of North Dakota

Borchert, Jeani Research Associate, Anthropology; M.A., University of Montana

Borho, Alan A., Research Associate of Atmospheric Sciences; B. S., University of North Dakota

Brattell, Marlys J., Program Director of Consortium of Gerontology; M. S. W., University of Wisconsin

Bruce, Donna M., Associate Director of Admissions; B.S. B.A., University of North Dakota

Clark, Nancy, Head Volleyball Coach; M. Ed., Western Kentucky University

Clay, Richard D., Head Women Track Coach; M. S., St. Cloud State University

Eisenbeis, Clyde T., Assistant to the Dean, Engineering and Mines; B. S., University of North Dakota

Erjavec, Julie, Director, Central Legal Research and Legal Council, School of Law; J.D., University of North Dakota

Fontaine, Cordell, Research Associate, Social Science Research Institute; M.A., University of North Dakota

Gjovig, Bruce, Director of Center for Innovation and Business Development, School of Engineering and Mines; B.S., University of North Dakota

Gläs, Richard, Head Basketball Coach; M.S., Western State University

Grandall, Michael G., Men’s Track Coach; M.S., University of North Dakota

Hawthorne, Joan, Coordinator, Writing Across the Curriculum; M.A., University of Colorado

Helgason, Craig, Research Assistant of Center for Aerospace Sciences; B.S., University of North Dakota

Hurley, Patrick, Research Associate of Atmospheric Sciences; B.S., Pennsylvania State University

Kearns, Walter J., Director, Small Business Development Center; M.B.A., Florida Institute of Technology

Klassen, Albert, Senior Research Associate and Project Director, Neuroscience; University of Kansas

Lennon, Dale, Assistant Football Coach; M.A., Northern State University

McCann, Kathleen, Assistant Athletic Director, Ph. D., University of North Dakota

Meher, Ronald E., Project Director, Business and Vocational Education; M.S., North Dakota State University

Ness, Jonothan, Research Associate, Center for Aerospace Science; B.S., University of North Dakota

Oliszczak, Pete, Assistant Athletic Director; Ed. D., University of North Dakota

Perry, T. Craig, Assistant Hockey Coach; B.A., University of North Dakota

Politz, Kenneth, Assistant Dean, Center for Aerospace Sciences; M.A., University of North Dakota

Pottinger, Steven R., Research Assistant of Center for Aerospace Sciences; B.S., Bemidji State University

Robinson, Denise, Head Softball Coach; B.A., Jamestown College

Roebuck, Gene, Head Women Basketball Coach; M.S., Mayville State College

Scanlan, James, Assistant Hockey Coach; M.A., Western Michigan University

Schumacher, Jeff, Head Wrestling Coach; B.S., University of North Dakota

Zahraixa, Joseph F., Associate Professor of Aviation; J.D., University of North Dakota

Zicus, Michael, Adjunct Assistant Professor of Biology; Ph. D., University of Minnesota

Zierdt, Candace, Associate Professor of Law; LLM, Temple University

Zimmerman, Sonia, Assistant Professor of Occupational Therapy; M.A., University of North Dakota

Ziner, Andrew, Assistant Professor of Sociology; Ph. D., North Texas State University
FACULTY MEMBERS EMERITI

AKERS, THOMAS, Professor Emeritus, Physiology
ANDERSON, DONALD G., Professor Emeritus, Marketing
AUSTIN, ALVIN E., Professor Emeritus, Journalism
AUYONG, THEODORE, Associate Professor Emeritus, Pharmacology
BADER, ME INHARDT, Associate Professor Emeritus, Accounting
BREKKE-BAILEY, BEVERLY, Professor Emeritus, Special Education
BALE, HAROLD, Professor Emeritus, Physics
BARNEY, WILLIAM G., P.E., Professor Emeritus, Mechanical Engineering
BEHRINGER, MARJORIE P., Professor Emeritus, Biology
BEHSMAN, ERVIN, Associate Professor Emeritus, Secondary Education
BLACKMORE, MAE MARIE, Instructor Emeritus, Center for Teaching and Learning
BOEHLLE, WILLIAM R., Professor Emeritus, Music
BOGAN, LOUIS D., Associate Professor Emeritus, Health, Physical Education and Recreation
BROWN, RALPH C., Professor Emeritus, Geography
BRUMLEVE, STANLEY J., Professor Emeritus, Physiology
BURRELL, RUTH, Professor Emeritus, Nursing
BZOCH, RONALD C., Professor Emeritus, Mathematics
CALDWELL, MARY ELLEN, Associate Professor Emeritus, English
CAPE, JULIA P., Assistant Professor Emeritus, English
CHRISTOFERSON, LEE A., Professor Emeritus, Neuroscience
CLARK, ALICE T., Professor Emeritus, Psychology; Dean Emeritus, Graduate School; Vice president Emeritus for Academic Affairs
CLIFFORD, THOMAS J., President Emeritus, Dean Emeritus, College of Business and Public Administration, and Professor Emeritus, Accounting and Business Law
COLLINS, BEN L., Professor Emeritus, English
CORNATZER, WILLIAM EUGENE, Chester Fritz Distinguished Professor and Professor Emeritus, Biochemistry
CORY, MARGARET HEYSE, Dean Emeritus, College of Nursing
CRAWFORD, JOHN, Professor Emeritus, English
CURRY, MABEL L., Professor Emeritus, Home Economics and Nutrition
CURRY, MYRON C., Associate Professor Emeritus, Speech
CVANCARA, ALAN M., Professor Emeritus, Geology and Geological Engineering
DAS, GOPAL, Professor Emeritus, Internal Medicine
DE BOER, BENJAMIN, Professor Emeritus, Physiology and Pharmacology
DEL BUSTO, MODESTO R., Professor Emeritus, Languages (Spanish)
DIXON, JOHN, Professor Emeritus, Electrical Engineering
DUNNIGAN, RALPH, Professor Emeritus, Family Medicine
EICKHOFF, LUVERN R., Associate Professor Emeritus, Industrial Technology
ENGEL, DEAN, Professor Emeritus, Communication Disorders
FISCHER, ROBERT G., Professor Emeritus, Microbiology and Immunology
FLETCHER, ALAN G., Dean Emeritus and Professor Emeritus, Engineering and Mines
FOSSUM, GUILFORD O., Professor Emeritus, Civil Engineering
FOSTER, KEITH, Associate Professor Emeritus, School of Medicine
FRANK, RICHARD E., Associate Professor Emeritus, Chemistry
THOMAS, ROBER J., Head Football Coach; M.A., University of South Dakota
TILBURY, ROGER, Research Associate of Atmospheric Sciences
TOOM, DENNIS, Research Archaeologist, Anthropology; PH. D., University of Colorado
WOLESKE, JOHN, Assistant Football Coach; M.Ed., University of Wisconsin-Whitewater

University of North Dakota
GALLANT, RUTH, Professor Emeritus, Education, Elementary Education, Center for Teaching and Learning
GARD, WILLIAM G., Associate Professor Emeritus, History
GEORGACAS, BARBARA, Associate Professor Emeritus, Languages (Classics)
GROVOM, DOROTHY, Professor Emeritus, Business and Vocational Education
HAGER, OSWALD M., Associate Professor Emeritus, Business and Vocational Education
HALAS, EDWARD S., Professor Emeritus, Psychology
HALE, RICHARD O., Associate Professor Emeritus, English
HAMMOND, GEORGE R., Assistant Professor Emeritus, Aviation
HISEY, PHILIP D., Associate Professor Emeritus, Music
HOLLAND, FRANK, Professor Emeritus, Geology
HOLLENBECK, ROBERT, Associate Professor Emeritus, Secondary Education
JACOBS, FRANCIS A., Professor Emeritus, Biochemistry and Molecular Biology
JACOBY, ARTHUR P., Professor Emeritus, Sociology
JENSEN, IVAN, Professor Emeritus, Civil Engineering
JOHNSON, STANLEY O., Associate Professor Emeritus, Visual Arts
JORGENSEN, LaVERNIA, Associate Professor Emeritus, Health, Physical Education and Recreation
KANOWSKI, PAUL, Professor Emeritus, Biology
KEMPER, ROBERT W., Associate Professor Emeritus, Accounting and Business Law
KIELMYR, HELEN, Associate Professor Emeritus, Management
KOLSTOE, RALPH, Professor Emeritus, Psychology
KORSMO, RICHARD, Associate Professor Emeritus, Accounting and Business Law
KOTCH, ALEX, Professor Emeritus, Chemistry
KRAUS, OLEN, Professor Emeritus, Physics
KRUEGER, JACK N., P. E., Professor Emeritus, Electrical Engineering
KULAS, LUDWIG, professor Emeritus, Accounting and Business Law
LAIRD, WILSON M., Professor Emeritus, Geology, and State Geologist Emeritus
LARSON, EDITH E., Professor Emeritus, Biology
LESER, ESTHER H., Professor Emeritus, Languages
LIND, AMY, Professor Emeritus, Occupational Therapy
LINKLETTER, C. MONTE, Professor Emeritus, English
LOW, FRANK, Chester Fritz Distinguished Professor and Professor Emeritus, Anatomy
MANZ, OCSAR, Professor Emeritus, Civil Engineering
MARWIN, RICHARD M., Professor Emeritus, Microbiology and Immunology
MAUCH, PATRICIA, Associate Professor Emeritus, Health, Physical Education and Recreation
MAULAND, LYLE E., Professor Emeritus, Mathematics
McbRIDE, WOODROW, Associate Professor Emeritus, Mathematics
MELDRUM, ALAN H., Professor Emeritus, Industrial Engineering
MILLER, JACK L., Associate Professor Emeritus, Music
MORGAN, WILLIAM, Professor Emeritus, Languages
MULLINS, ROBERT, Professor Emeritus, Philosophy
MURRAY, STANLEY N., Professor Emeritus, History
NOLL, JOHN O., Professor Emeritus, Psychology
NORMAN, ERNEST J., Professor Emeritus, Social Work
O’REILLY, EDWARD J., Professor Emeritus, Chemistry
OECHSLE, LOIS, Associate Professor Emeritus, Nursing
OSLUND, VALBORG, Associate Professor Emeritus, English
OWEN, JOHN B., Professor Emeritus, Biology
PALANCA, LOUIS, Professor Emeritus, Languages (Classics)
PARMAR, SURANDRA S., Professor Emeritus, Physiology
PATTERSON, CHANNING F., Associate Professor Emeritus, languages
PEDERSEN, MYRTLE, Professor Emeritus, English
PEDERSON, CLARA A., Professor Emeritus, Center for Teaching and Learning
PENN, JOHN S., Dean Emeritus, Summer Sessions and Professor Emeritus, Speech
PETERSON, RUSSELL A., Chester Fritz Distinguished Professor and Professor Emeritus, Center for Teaching and Learning

POLOVITZ, MICHAEL F., Professor Emeritus, Music

QUADAY, JOHN, Professor Emeritus, Health, Physical Education and Recreation

READ, TAMAR, Professor Emeritus, Music

RHO NEMUS, GRACE O., Associate Professor Emeritus, Health, Physical Education and Recreation

RODGERS, MARGUERITE, Assistant Professor Emeritus, German

ROGERS, JOHN H., Professor Emeritus, Visual Arts

ROWE, CLAIR, D., Dean Emeritus, College of Business and Public Administration, and Professor Emeritus, Marketing

RUE, JAMES S., Professor Emeritus, Mathematics

RUNDELL, GLENNA, Professor Emeritus, Music

RUNDLE, BEULAH, Assistant Professor Emeritus, English

RYKKEN, MARJORIE B., Professor Emeritus, Nursing

SAINT CLAIR, FOSTER Y., Professor Emeritus, English

SCOTT, RACHEL SHIELDS, Associate Professor Emeritus, Nursing

SCOTT, THOMAS, Professor Emeritus, Counseling

SEVERSON, DONALD E., Chester Fritz Distinguished Professor and Professor Emeritus, Chemical Engineering

SEVERSON, ROLAND G., Professor Emeritus, Chemistry

SHURR, AGNES G., Professor Emeritus, Nursing

SMITH, GLENN H., Professor Emeritus, History

SNOOK, THEODORE, Professor Emeritus, Anatomy

STARCHER, GEORGE W., President Emeritus

STEINMEIER, LYLE, Professor Emeritus, Accounting and Business Law

STENBERG, VIRGIL I., Professor Emeritus, Chemistry

STEWARD, JAMES A., Professor Emeritus, Chemistry

SUMMERS, LAWRENCE, Professor Emeritus, Psychology

TABOR, LILA, Associate Professor Emeritus, Psychology

THOMFORDE, CLIFFORD, Professor Emeritus, Electrical Engineering

TOMASEK, HENRY J., Dean Emeritus, Human Resources Development; Professor Emeritus, Political Science

URQUIAGA, JUAN A, Associate Professor Emeritus, Spanish

VENNES, JOHN W., Professor Emeritus, Microbiology and Immunology

WEISSUR, WILBUR O., Associate Professor Emeritus, Physics

WHALEN, C. J., Professor Emeritus, Accounting and Business Law

WHITCOMB, JOHN L., Associate Professor Emeritus, Mathematics

WILKINS, ROBERT, Professor Emeritus, History

WILKINS, WYNONA, Associate Professor Emeritus, Languages

WILLET, THELMA, Associate Professor Emeritus, Music

WINGER, MILTON E., Professor Emeritus, Mathematics

ZAZULA, FRANK, Assistant Professor Emeritus, Health, Physical Education and Recreation
## Undergraduate Fields of Study

### Undergraduate

<table>
<thead>
<tr>
<th>Field of Study</th>
<th>Courses Offered</th>
<th>Minor</th>
<th>Major</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adapted Physical Education</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Addiction Counselor Training</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertising</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aeronautical Studies</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airport Administration</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airway Science</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Studies</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anatomy</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anthropology</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art History</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athletic Coaching</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athletic Training</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aviation Administration</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Banking and Financial Economics</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biochemistry and Molecular Biology</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological &amp; Physical Sciences</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Biology</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broadcasting</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Administration</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Education</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Law</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ceramics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Use/Abuse Awareness</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- See: Social Work
- See School of Communication
- Options in Professional Flight and Air Transport
- Options in Aircraft System Management; Airway Computer Science; Airway Science Management; Aviation Maintenance Management; Electronic Systems; Air Traffic Control Related fields concentration.
- See: Visual Arts
- See: Family Medicine
- Options in Pre-Health, Plant Science, Zoology and General
- See School of Communication
- See Management
- Options in Vocational Business and Office Education; Accounting and Business Education.
- See: Social Work
- See: Visual Arts
<table>
<thead>
<tr>
<th>Field of Study</th>
<th>Courses Offered</th>
<th>Minor</th>
<th>Major</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication Disorders</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminal Justice Studies</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cytotechnology</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dentistry</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dietetics, Coordinated Program</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earth Science</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecology</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economics</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Concentrations in Law Enforcement and Criminology</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary Education</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary Education and:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Childhood</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Library Science/Audio-Visual Instruction</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Music</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Physical Education</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Visual Arts</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Elementary &amp; Secondary Education</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Music Education</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Middle/Junior High School</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Secondary Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Education</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Teaching of Subjects at:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Secondary Level</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy and Electronics</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering Management</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Engineering Physics</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See: School of Communication

See: Pre-professional
See: Family and Consumer Sciences
See: Related fields concentration
See Biology: Plant Science Emphasis
Options in Social Science; Quantitative Analysis
See: Center for Teaching and Learning

Certification. See: Center for Teaching and Learning

See: Center for Teaching and Learning for complete list

See: Industrial Technology

<table>
<thead>
<tr>
<th>Field of Study</th>
<th>Undergraduate Courses Offered</th>
<th>Minor</th>
<th>Major</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Geology and Technology</td>
<td>x</td>
<td></td>
<td></td>
<td>Options in Environmental Studies, Water Resources, and Technological Studies</td>
</tr>
<tr>
<td>Family and Consumer Sciences</td>
<td>x</td>
<td></td>
<td></td>
<td>Options in Fisheries and Game</td>
</tr>
<tr>
<td>Family Medicine</td>
<td>x</td>
<td></td>
<td></td>
<td>Options in Geohydrology-Geotechnology; Mining Engineering; Petroleum Engineering.</td>
</tr>
<tr>
<td>Financial Management</td>
<td>x</td>
<td></td>
<td></td>
<td>Options in Sedimentology—Stratigraphy or Economic Geology in BA</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>x</td>
<td></td>
<td></td>
<td>See: Languages</td>
</tr>
<tr>
<td>Fisheries &amp; Wildlife</td>
<td>x</td>
<td></td>
<td></td>
<td>See: Social Work</td>
</tr>
<tr>
<td>Biology</td>
<td>x</td>
<td></td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>French</td>
<td>x</td>
<td></td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Geography</td>
<td>x</td>
<td></td>
<td></td>
<td>See: School of Communication Two Languages</td>
</tr>
<tr>
<td>Geological Engineering</td>
<td>x</td>
<td></td>
<td></td>
<td>See: French, German Greek, Italian, Latin, Norwegian, Russian, Spanish Also, a concentrated major with Greek.</td>
</tr>
<tr>
<td>Geology</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>German</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gerontology</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graphic Communication Technology</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greek</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Education</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>History</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honors Program</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Resources Development</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indian Studies</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Technology</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Management</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intellectual History</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Business</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Studies</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italian</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journalism</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Languages (concentrated)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Languages (Classical &amp; Modern)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latin</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library Science and Audio-Visual Instruction</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing Technology</td>
<td>x</td>
<td></td>
<td></td>
<td>See: Industrial Technology</td>
</tr>
</tbody>
</table>
### Undergraduate

<table>
<thead>
<tr>
<th>Field of Study</th>
<th>Courses Offered</th>
<th>Minor</th>
<th>Major</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Concentrations in Applied Mathematics; Statistics</td>
</tr>
<tr>
<td>Mathematics</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>See: Pre-professional</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Emphasis areas in Instrumental; Choral</td>
</tr>
<tr>
<td>Medical Technology</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Meteorological Studies</td>
<td>x</td>
<td>x</td>
<td></td>
<td>See: Pre-professional</td>
</tr>
<tr>
<td>Microbiology</td>
<td></td>
<td></td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Mortuary Science</td>
<td></td>
<td>x</td>
<td>x</td>
<td>See: Business and Vocational Education</td>
</tr>
<tr>
<td>Music</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>See: Pre-professional</td>
</tr>
<tr>
<td>Music Education</td>
<td></td>
<td></td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Music Performance</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Natural Science</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Norwegian</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Nursing</td>
<td></td>
<td></td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Occupational Safety and</td>
<td></td>
<td>x</td>
<td></td>
<td>See: Business and Vocational Education</td>
</tr>
<tr>
<td>Environmental Health</td>
<td></td>
<td>x</td>
<td></td>
<td>See: Pre-professional</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Office Administration</td>
<td></td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Optometry</td>
<td></td>
<td>x</td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Pathology</td>
<td></td>
<td>x</td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Peace Studies</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Pharmacology &amp; Toxicology</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Philosophy</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Photography</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Physical Education</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Physical Science</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Physics</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Physiology</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Political Science</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Pre-professional (studies)</td>
<td></td>
<td></td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>including but not restricted to—Dentistry, Law, Medicine, Mortuary Science, Optometry, Veterinary Medicine)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional Flight</td>
<td></td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Psychology</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Public Administration</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Public Health</td>
<td>x</td>
<td></td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Public Relations</td>
<td>x</td>
<td></td>
<td></td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Recreation and Leisure Services</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Rehabilitation Services</td>
<td></td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td>x</td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
</tbody>
</table>

See: Social Work

See: School of Communication

Emphasis Areas in Administration; Leadership; Special Populations (Therapeutic)
<table>
<thead>
<tr>
<th>Field of Study</th>
<th>Courses Offered</th>
<th>Minor</th>
<th>Major</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russian</td>
<td>x</td>
<td></td>
<td>x</td>
<td>Related fields concentration.</td>
</tr>
<tr>
<td>Russian Studies</td>
<td>x</td>
<td></td>
<td>x</td>
<td>See: Norwegian and Swedish</td>
</tr>
<tr>
<td>Scandinavian Languages</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scandinavian Studies</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Science</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Composite major</td>
</tr>
<tr>
<td>Social Work</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Sociology</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Space Studies</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish</td>
<td>x</td>
<td>x</td>
<td></td>
<td>See: School of Communication</td>
</tr>
<tr>
<td>Speech</td>
<td>x</td>
<td>x</td>
<td></td>
<td>See: Communication Disorders</td>
</tr>
<tr>
<td>Speech Pathology &amp; Audiology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td>x</td>
<td></td>
<td></td>
<td>See: Mathematics</td>
</tr>
<tr>
<td>Technology Education</td>
<td>x</td>
<td></td>
<td></td>
<td>See: Industrial Technology</td>
</tr>
<tr>
<td>Theatre Arts</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Textiles, Clothing and Merchandising</td>
<td></td>
<td></td>
<td>x</td>
<td>See: Family and Consumer Sciences</td>
</tr>
<tr>
<td>Veterinary Medicine</td>
<td></td>
<td></td>
<td></td>
<td>See: Pre-professional</td>
</tr>
<tr>
<td>Visual Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocational Marketing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Women Studies</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>
## Index

<table>
<thead>
<tr>
<th>Absences, Class Established Policy</th>
<th>Page 46</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Calendar</td>
<td>iv</td>
</tr>
<tr>
<td>Academic Information</td>
<td>27</td>
</tr>
<tr>
<td>Academic Media Center</td>
<td>60</td>
</tr>
<tr>
<td>Agricultural Major</td>
<td>78</td>
</tr>
<tr>
<td>Accounting Courses</td>
<td>129</td>
</tr>
<tr>
<td>Major</td>
<td>128</td>
</tr>
<tr>
<td>Accreditation</td>
<td>2</td>
</tr>
<tr>
<td>ACT</td>
<td>11</td>
</tr>
<tr>
<td>Academic Standing</td>
<td>48</td>
</tr>
<tr>
<td>Academic Dismissal</td>
<td>47</td>
</tr>
<tr>
<td>Add and Drop Classes</td>
<td>42</td>
</tr>
<tr>
<td>Addiction Prevention Office</td>
<td>58</td>
</tr>
<tr>
<td>Addiction Counselor Training Program</td>
<td>354</td>
</tr>
<tr>
<td>Administrative Officers</td>
<td>372</td>
</tr>
<tr>
<td>Admission</td>
<td></td>
</tr>
<tr>
<td>ACT</td>
<td>11</td>
</tr>
<tr>
<td>Application</td>
<td>12</td>
</tr>
<tr>
<td>Procedure for Freshmen</td>
<td>10</td>
</tr>
<tr>
<td>for Transfer</td>
<td>12</td>
</tr>
<tr>
<td>for Former Students</td>
<td>14</td>
</tr>
<tr>
<td>Advanced Degrees</td>
<td>101</td>
</tr>
<tr>
<td>Advanced Placement</td>
<td>11</td>
</tr>
<tr>
<td>Advertising Courses</td>
<td>194</td>
</tr>
<tr>
<td>Majors</td>
<td>190</td>
</tr>
<tr>
<td>Aeronautical Studies</td>
<td>141</td>
</tr>
<tr>
<td>Aerospace Sciences</td>
<td>74</td>
</tr>
<tr>
<td>Advisor’s Signature</td>
<td>27</td>
</tr>
<tr>
<td>African American, Asian American, and Hispanic Student Programs</td>
<td>53</td>
</tr>
<tr>
<td>Affirmative Action</td>
<td>61</td>
</tr>
<tr>
<td>Airport Administration</td>
<td>140</td>
</tr>
<tr>
<td>Area Science</td>
<td>141</td>
</tr>
<tr>
<td>Alumni Office</td>
<td>61</td>
</tr>
<tr>
<td>American Studies Major</td>
<td>131</td>
</tr>
<tr>
<td>Anatomy and Cell Biology Courses</td>
<td>131</td>
</tr>
<tr>
<td>Anthropology Courses</td>
<td>133</td>
</tr>
<tr>
<td>Major</td>
<td>122</td>
</tr>
<tr>
<td>Application Fee</td>
<td>12</td>
</tr>
<tr>
<td>Application for Admission</td>
<td>12</td>
</tr>
<tr>
<td>Application for Degree</td>
<td>40</td>
</tr>
<tr>
<td>Art (See Visual Arts)</td>
<td>364</td>
</tr>
<tr>
<td>Acts and Humanities (General Education Requirements)</td>
<td>34</td>
</tr>
<tr>
<td>Arts and Sciences, College of</td>
<td>79</td>
</tr>
<tr>
<td>Admission</td>
<td>80</td>
</tr>
<tr>
<td>Arts and Sciences Courses</td>
<td>135</td>
</tr>
<tr>
<td>Majors</td>
<td></td>
</tr>
<tr>
<td>American Studies</td>
<td>131</td>
</tr>
<tr>
<td>Anthropology</td>
<td>133</td>
</tr>
<tr>
<td>Biology</td>
<td>156</td>
</tr>
<tr>
<td>Chemistry</td>
<td>181</td>
</tr>
<tr>
<td>Communication Disorders</td>
<td>198</td>
</tr>
<tr>
<td>Computer Science</td>
<td>201</td>
</tr>
<tr>
<td>Criminal Justice Studies</td>
<td>204</td>
</tr>
<tr>
<td>Earth Science</td>
<td>208</td>
</tr>
<tr>
<td>Economics</td>
<td>208</td>
</tr>
<tr>
<td>English</td>
<td>222</td>
</tr>
<tr>
<td>Fisheries and Wildlife Biology</td>
<td>160</td>
</tr>
<tr>
<td>French</td>
<td>275</td>
</tr>
<tr>
<td>Geography</td>
<td>238</td>
</tr>
<tr>
<td>Geology</td>
<td>243</td>
</tr>
<tr>
<td>German</td>
<td>275</td>
</tr>
<tr>
<td>History</td>
<td>257</td>
</tr>
<tr>
<td>Humanities</td>
<td>263</td>
</tr>
<tr>
<td>Indian Studies</td>
<td>264</td>
</tr>
<tr>
<td>Intellectual History</td>
<td>257</td>
</tr>
<tr>
<td>International Studies</td>
<td>274</td>
</tr>
<tr>
<td>Languages (Modern and Classical)</td>
<td>275</td>
</tr>
<tr>
<td>Latin</td>
<td>275</td>
</tr>
<tr>
<td>Mathematics</td>
<td>293</td>
</tr>
<tr>
<td>Music</td>
<td>310</td>
</tr>
<tr>
<td>Natural Science</td>
<td>317</td>
</tr>
<tr>
<td>Norwegian</td>
<td>275</td>
</tr>
<tr>
<td>Peace Studies</td>
<td>323</td>
</tr>
<tr>
<td>Philosophy and Religion</td>
<td>326</td>
</tr>
<tr>
<td>Physical Science</td>
<td>331</td>
</tr>
<tr>
<td>Physics</td>
<td>339</td>
</tr>
<tr>
<td>Plant Sciences</td>
<td>158</td>
</tr>
<tr>
<td>Political Science</td>
<td>342</td>
</tr>
<tr>
<td>Pre-Health Sciences</td>
<td>158</td>
</tr>
<tr>
<td>Psychology</td>
<td>345</td>
</tr>
<tr>
<td>Religion (See Philosophy)</td>
<td>326</td>
</tr>
<tr>
<td>Russian Language</td>
<td>275</td>
</tr>
<tr>
<td>Russian Studies</td>
<td>347</td>
</tr>
<tr>
<td>Scandinavian Studies</td>
<td>348</td>
</tr>
<tr>
<td>Social Science</td>
<td>349</td>
</tr>
<tr>
<td>Sociology</td>
<td>356</td>
</tr>
<tr>
<td>Spanish</td>
<td>275</td>
</tr>
<tr>
<td>Theatre Arts</td>
<td>359</td>
</tr>
<tr>
<td>Visual Arts</td>
<td>361</td>
</tr>
<tr>
<td>Women Studies</td>
<td>370</td>
</tr>
<tr>
<td>Degree Requirements</td>
<td>81</td>
</tr>
<tr>
<td>Astronomy Courses</td>
<td>340</td>
</tr>
<tr>
<td>Athletic Policies</td>
<td>6</td>
</tr>
<tr>
<td>Athletic Coaching Courses</td>
<td>254</td>
</tr>
<tr>
<td>Minor</td>
<td>251</td>
</tr>
<tr>
<td>Athletic Training Courses</td>
<td>233</td>
</tr>
<tr>
<td>Major</td>
<td>233</td>
</tr>
<tr>
<td>Attendance Policy</td>
<td>47</td>
</tr>
<tr>
<td>Audiology (See Communicating Disorders)</td>
<td>198</td>
</tr>
<tr>
<td>Auditors</td>
<td>9</td>
</tr>
<tr>
<td>Arts</td>
<td>16</td>
</tr>
<tr>
<td>Automobile Registration</td>
<td>4</td>
</tr>
<tr>
<td>Aviation Courses</td>
<td>150</td>
</tr>
<tr>
<td>Aviation Administration</td>
<td>139</td>
</tr>
<tr>
<td>Banking and Financial Economics Courses</td>
<td>212</td>
</tr>
<tr>
<td>Major</td>
<td>211</td>
</tr>
<tr>
<td>Biochemistry and Molecular Biology</td>
<td>205</td>
</tr>
<tr>
<td>Biology Courses</td>
<td>155</td>
</tr>
<tr>
<td>Biological and Physical Sciences Major</td>
<td>155</td>
</tr>
<tr>
<td>Biology Courses</td>
<td>161</td>
</tr>
<tr>
<td>Major</td>
<td>157</td>
</tr>
<tr>
<td>Minor</td>
<td>161</td>
</tr>
</tbody>
</table>
University of North Dakota

402

Code of Student Life ....................................................vii
College Level Examination Program (CLEP) .................41
Colleges
Arts and Sciences ..........................................................79
Business and Public Administration .........................85
Center for Aerospace Sciences ...........................................74
Center for Teaching and Learning ....................................14
Engineering and Mines .....................................................90
Fine Arts and Communication ........................................98
Graduate School ................................................................100
Human Resources Development ....................................102
Law .................................................................................106
Medicine ........................................................................109
Nursing ...........................................................................109
University College ............................................................70
Communication, School of .............................................188
Communication Courses ..................................................194
Minor .............................................................................193
Communication Disorders Courses ..................................199
Major .............................................................................198
Communication Research Center .................................84
Communication Studies ....................................................193
Courses .............................................................194
Major .............................................................................195
Minor .............................................................................194
Computer Center ............................................................63
Computer Science Courses .............................................202
Major .............................................................................201
Minor .............................................................................202
Conduct Students .............................................................48
Cheating or Plagiarism ......................................................48
Continuing Education, Division of ..................................122
Cooperative Education ....................................................42
Correspondence Study (See Division of Continuing Education) ..................................................122
Counseling Center ...........................................................54
Counseling Department ...................................................203
Course Numbers, Explained .........................................127
Credit Definition ...............................................................127
Credits, Transfer ...............................................................13
Criminal Justice Studies Comes .....................................205
Major .............................................................................204
Minor .............................................................................205
Cybertechnology Major ....................................................206
Dean of Students .............................................................55
Deficiency Reports ...........................................................46
Degree Granted ...............................................................28
Arts and Science Administration ..................................87
Business and Public Administration ................................87
Center for Aerospace Sciences .................................74
Center for Teaching and Learning .................................114
Conferring of Two Degrees ......................................40
Engineering and Mines ....................................................90
Fine Arts and Communication .........................................98
Graduate School ............................................................100
Human Resources Development ..................................102
Law ................................................................................104
Medicine .........................................................................107
Nursing ..........................................................................109
Residence Requirements .............................................40
Scholarship Requirements ...........................................40
Dean's List Honors ..........................................................49
Departmental Honors ......................................................50
Deviations from Graduation Requirements ..................40
Dietetic Program Courses .............................................230
Major .............................................................................228
Disabled Student Services .............................................35
Disability .................................................................vii
Dismissal for Scholarship .............................................47
Division of Continuing Education ...........................122
Division of Student Affair ..............................................33
Doctoral Degree .............................................................100
Dormitory Reservations ................................................24
Drama (See Theatre Arts) ................................................359
Dropping and Add ...........................................................42
Early Childhood Education ..........................................171
Earth Science Major ......................................................208
Economics Courses .......................................................212
Majors .............................................................................208
Educational Opportunity Grants ..................................22
Education Enrollment (See Center for Teaching and Learning) ..................................................114
Education Courses .........................................................176
Electrical Engineering Courses ...................................216
Major .............................................................................215
Elementary Education ....................................................169
Eligibility for Extra-Curricular Activities ........................5
Emeriti Staff .....................................................................392
Employment of Students .............................................220
Energy/Electronics Technology Minor ........................271
Engineering and Mines, School of .................................90
Academic and Enrollment Policy ..................................92
Accreditation .................................................................90
Admission Policy .............................................................91
Courses ...........................................................................217
Majors
First Year and Second Year .........................................93
Chemical Engineering ....................................................179
Civil Engineering ..........................................................186
Electrical Engineering ..................................................215
Engineering Management .............................................218
Engineering Physics .........................................................221
Environmental Geology and Technology ..................245
Geological Engineering ...............................................245
Mechanical Engineering ...............................................297
nurs.................................................................90
Development Office ........................................................96
Energy and Environmental Research Center ...............7
General Education Requirements ..................................94
Integrated Master of Engineering program ..................95
Mission .................................................................90
Student Instruction and Research ................................97
Student Organizations ....................................................95
Engineering Management Courses ...........................220
Major .............................................................................218
Engineering Physics Courses .......................................222
Major .............................................................................221
### Index

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition (General Education Requirements)</td>
<td>33</td>
</tr>
<tr>
<td>English Courses</td>
<td>226</td>
</tr>
<tr>
<td>Major</td>
<td>224</td>
</tr>
<tr>
<td>Minor</td>
<td>225</td>
</tr>
<tr>
<td>Enrollment Services</td>
<td>56</td>
</tr>
<tr>
<td>Environmental Geology and Technology</td>
<td>245</td>
</tr>
<tr>
<td>Equal Opportunity Policy</td>
<td>viii</td>
</tr>
<tr>
<td>Examinations</td>
<td></td>
</tr>
<tr>
<td>Physical</td>
<td>12</td>
</tr>
<tr>
<td>Semester Final</td>
<td>47</td>
</tr>
<tr>
<td>Special</td>
<td>40</td>
</tr>
<tr>
<td>Exceptions to Graduation Requirements</td>
<td>40</td>
</tr>
<tr>
<td>Expenses</td>
<td>15</td>
</tr>
<tr>
<td>Summary of General Expenses</td>
<td>16</td>
</tr>
<tr>
<td>Extension Classes</td>
<td>122</td>
</tr>
<tr>
<td>Extra-Curricular ProgramEligibility</td>
<td>5</td>
</tr>
<tr>
<td>Faculty</td>
<td>372</td>
</tr>
<tr>
<td>Faculty Emeriti</td>
<td>392</td>
</tr>
<tr>
<td>Failing Grades</td>
<td>44</td>
</tr>
<tr>
<td>Family and Consumer Sciences Courses</td>
<td>230</td>
</tr>
<tr>
<td>Majors</td>
<td>228</td>
</tr>
<tr>
<td>Minors</td>
<td>230</td>
</tr>
<tr>
<td>Family Medicine Courses</td>
<td>232</td>
</tr>
<tr>
<td>Fees and Expenses</td>
<td>15</td>
</tr>
<tr>
<td>Non Resident</td>
<td>16</td>
</tr>
<tr>
<td>Refund of</td>
<td>18</td>
</tr>
<tr>
<td>Regulations Regarding</td>
<td>16</td>
</tr>
<tr>
<td>FERPA</td>
<td>46</td>
</tr>
<tr>
<td>Fields of Study</td>
<td>395</td>
</tr>
<tr>
<td>Finance Courses</td>
<td>296</td>
</tr>
<tr>
<td>Majors</td>
<td>235</td>
</tr>
<tr>
<td>Financial Aid</td>
<td>20</td>
</tr>
<tr>
<td>Financial Management Courses</td>
<td>236</td>
</tr>
<tr>
<td>Major</td>
<td>235</td>
</tr>
<tr>
<td>Fine Arts and Communication, College of</td>
<td>237</td>
</tr>
<tr>
<td>Courses</td>
<td></td>
</tr>
<tr>
<td>Majors</td>
<td></td>
</tr>
<tr>
<td>Advertising</td>
<td>190</td>
</tr>
<tr>
<td>Art (See Visual Arts)</td>
<td>361</td>
</tr>
<tr>
<td>Broadcasting</td>
<td>191</td>
</tr>
<tr>
<td>Communication Studies</td>
<td>193</td>
</tr>
<tr>
<td>Journalism</td>
<td>192</td>
</tr>
<tr>
<td>Music</td>
<td>310</td>
</tr>
<tr>
<td>Public Relations</td>
<td>192</td>
</tr>
<tr>
<td>Theater Arts</td>
<td>359</td>
</tr>
<tr>
<td>Visual Arts</td>
<td>36</td>
</tr>
<tr>
<td>Requirements for Graduation</td>
<td>99</td>
</tr>
<tr>
<td>Teacher Certification Preparation</td>
<td>99</td>
</tr>
<tr>
<td>Graduate Studies</td>
<td></td>
</tr>
<tr>
<td>Fisheries and Wildlife Biology Courses</td>
<td>161</td>
</tr>
<tr>
<td>Major</td>
<td>160</td>
</tr>
<tr>
<td>Fund Service</td>
<td>24</td>
</tr>
<tr>
<td>Foreign Language Major</td>
<td>275</td>
</tr>
<tr>
<td>Foreign Students</td>
<td>56</td>
</tr>
<tr>
<td>French Courses</td>
<td>279</td>
</tr>
<tr>
<td>Major</td>
<td>275</td>
</tr>
<tr>
<td>Minor</td>
<td>275</td>
</tr>
<tr>
<td>Freshman Orientation</td>
<td>15</td>
</tr>
<tr>
<td>Full Time Students</td>
<td>9</td>
</tr>
<tr>
<td>General Education Requirements</td>
<td>33</td>
</tr>
<tr>
<td>General Honors</td>
<td>49</td>
</tr>
<tr>
<td>General Information</td>
<td>1</td>
</tr>
<tr>
<td>Geography Courses</td>
<td>239</td>
</tr>
<tr>
<td>Major</td>
<td>218</td>
</tr>
<tr>
<td>Minor</td>
<td>239</td>
</tr>
<tr>
<td>Geological Engineering Courses</td>
<td>247</td>
</tr>
<tr>
<td>Major</td>
<td>233</td>
</tr>
<tr>
<td>Geological Survey</td>
<td>241</td>
</tr>
<tr>
<td>Geology Courses</td>
<td>247</td>
</tr>
<tr>
<td>Major</td>
<td>32</td>
</tr>
<tr>
<td>Minor</td>
<td>243</td>
</tr>
<tr>
<td>German Courses</td>
<td>280</td>
</tr>
<tr>
<td>Major</td>
<td>275</td>
</tr>
<tr>
<td>Minor</td>
<td>275</td>
</tr>
<tr>
<td>Gerontology Minor</td>
<td>353</td>
</tr>
<tr>
<td>Good Standing</td>
<td>48</td>
</tr>
<tr>
<td>Grade Forgiveness</td>
<td>46</td>
</tr>
<tr>
<td>Grade Point Average</td>
<td>40</td>
</tr>
<tr>
<td>Grade Points</td>
<td>40</td>
</tr>
<tr>
<td>Grade Reports</td>
<td>46</td>
</tr>
<tr>
<td>Grades, Definition</td>
<td>44</td>
</tr>
<tr>
<td>Falling</td>
<td>44</td>
</tr>
<tr>
<td>Incomplete</td>
<td>44</td>
</tr>
<tr>
<td>Repeating of Courses</td>
<td>45</td>
</tr>
<tr>
<td>SU Regulation</td>
<td>45</td>
</tr>
<tr>
<td>Graduate School</td>
<td>100</td>
</tr>
<tr>
<td>Degree Granted</td>
<td>101</td>
</tr>
<tr>
<td>Fees and Expenses</td>
<td>15</td>
</tr>
<tr>
<td>Graduation Requirements</td>
<td>32</td>
</tr>
<tr>
<td>Arts and Humanities</td>
<td>34</td>
</tr>
<tr>
<td>English Composition</td>
<td>33</td>
</tr>
<tr>
<td>Exception to</td>
<td>40</td>
</tr>
<tr>
<td>Mathematics, Science and Technology</td>
<td>38</td>
</tr>
<tr>
<td>Residency Requirements</td>
<td>40</td>
</tr>
<tr>
<td>Scholarship Average</td>
<td>40</td>
</tr>
<tr>
<td>Scholarship Honors</td>
<td>49</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>33</td>
</tr>
<tr>
<td>Upper Level Courses Required</td>
<td>40</td>
</tr>
<tr>
<td>Grand Forks Air Force Baas (See Division of Continuing Education.)</td>
<td>122</td>
</tr>
<tr>
<td>Grants</td>
<td>20</td>
</tr>
<tr>
<td>Graphic Communications Technology</td>
<td></td>
</tr>
<tr>
<td>Minor</td>
<td>210</td>
</tr>
<tr>
<td>Greek Courses</td>
<td>277</td>
</tr>
<tr>
<td>Minor</td>
<td>275</td>
</tr>
<tr>
<td>Health, Physical Education and Recreation Courses</td>
<td>254</td>
</tr>
<tr>
<td>Major</td>
<td>25</td>
</tr>
<tr>
<td>Health Education Minor</td>
<td>252</td>
</tr>
<tr>
<td>Health Service</td>
<td>58</td>
</tr>
<tr>
<td>Hearing (See Speech, Language &amp; Hearing)</td>
<td></td>
</tr>
<tr>
<td>History Courses</td>
<td>258</td>
</tr>
<tr>
<td>Major</td>
<td>257</td>
</tr>
<tr>
<td>Minor</td>
<td>257</td>
</tr>
<tr>
<td>History and Scope of the University</td>
<td>1</td>
</tr>
<tr>
<td>Home Economics (See Family and Consumer Sciences)</td>
<td>228</td>
</tr>
<tr>
<td>Honor Roll, President’s</td>
<td>49</td>
</tr>
<tr>
<td>Honor Societies</td>
<td>31</td>
</tr>
<tr>
<td>Honors Courses</td>
<td>262</td>
</tr>
<tr>
<td>Honors Program</td>
<td>261</td>
</tr>
<tr>
<td>Housing</td>
<td>31</td>
</tr>
<tr>
<td>Apartments</td>
<td>25</td>
</tr>
<tr>
<td>Family Student</td>
<td>25</td>
</tr>
<tr>
<td>Fraternities</td>
<td>26</td>
</tr>
</tbody>
</table>
### University of North Dakota

- **Libraries**: 
  - Library Science and Audiovisual Instruction Courses: 285
  - Major: 284
  - Minor: 285
  - Linguistics Courses: 283
  - Living Expenses: 15
  - Load, Student: 43
  - Loan Funds for Students: 20
  - Location of University: 1
  - Management Courses: 209
  - Major: 208
  - Manufacturing Technology Minor: 271
  - Marketing Courses: 291
  - Major: 291
  - Master’s Degree: 100
  - Mathematics Courses: 295
  - Major: 293
  - Minor: 294
  - Statistics Minor: 294
  - Mathematics, Science and Technology (General Education Requirements): 38
  - Mathematics Placement Tests: 293
  - Measles/Rubella Policy: 4
  - Mechanical Engineering Courses: 299
  - Major: 297
  - Medical Care: 58
  - Medical Technology Courses: 303
  - Major: 302
  - Medicine, School of: 106
  - Athletic Training: 233
  - Medical Curriculum: 107
  - Medical Rehabilitation Center: 65
  - Medical Technology: 302
  - North Dakota State Medical Center: 108
  - Physician Assistant Program: 108
  - Physical Therapy: 322
  - Minor: 57
  - Meteorological Studies Courses: 305
  - Major: 304
  - Microbiology and Immunology Courses: 306
  - Middle/Junior High School Education: 177
  - Military Science Courses: 308
  - Minors, Awarding of: 40
  - Modern and Classical Language Courses: 275
  - Mortuary Science: 72
  - Motor Vehicle Registration: 4
  - Music Courses: 314
  - Majors: 310
  - Minors: 312
  - Native American Programs: 57
  - Natural Science Major: 317
  - Non-Resident Fee: 15
  - North Dakota State Medical Center: 108
  - Norwegian Courses: 281
  - Major: 215
  - Minor: 275
  - Nursing, College of: 109
  - Academic Requirements: 112
  - Admission: 111

- **Human Resources Development**, College of: 102
- **Admission**: 102
- **Courses**: 262
- **Majors**
  - Family and Consumer Sciences: 228
  - Health, Physical Education
  - and Recreation: 250
  - Library Science and Audiovisual Instruction: 284
  - Occupational Therapy: 320
  - Social Work: 350
  - Degree Requirements for Graduation: 103
- **Humansities Courses**: 263
- **Major**: 263
- **Humanities and Arts Requirements**
  - (General Education Requirements): 34
  - Incomplete Grades (and removal of): 44
  - Indian Studies Courses: 265
  - Major: 264
  - Minor: 265
  - Industrial Technology Courses: 271
  - Major: 26
  - Minor: 26
  - Information General: 1
  - Information Management Courses: 167
  - Major: 166
  - INMED program: 107
  - Institutional Credit: 40
  - Institutional Research Office: 63
  - Institutional Diversity and Pluralism: vii
  - Instructional Development Office: 64
  - Instructor’s Drop Policy: 43
  - Insurance Courses: 236
  - Integrated Studies: 83
  - Intellectual History Minor: 257
  - Intercollegiate Athletics and Intramurals: 6
  - International Baccalaureate Diploma: 11
  - International Students: 56
  - International Studies
    - Major: 274
    - Minor: 275
  - Ireland Research Laboratory: 108
  - Italian Courses: 261
  - Journalism Courses: 194
  - Major: 192
  - Kindergarten Teaching Endorsement: 172
  - KFIM-AM and FM Radio: 67
  - Language Placement Tests: 276
  - Languages: 276
  - Latin Courses: 278
  - Major: 275
  - Minor: 275
  - Law, School of: 104
  - Admission: 104
  - Expenses: 15
  - Pre-Law Studies: 104
  - Learning After Hours: 122
  - Legal Counsel: 64

- **Off-Campus**: 26
- **Residence Halls**: 24
- **Sororities**: 26

---

**Languages**

- **Latin Courses**: 278
- **Languages**: 276
- **Major**: 275
- **Minor**: 275

**Laws, School of**

- **Admission**: 104
- **Expenses**: 15
- **Pre-Law Studies**: 104
- **Learning After Hours**: 122
- **Legal Counsel**: 64

**Liberals**

- **Library Science and Audiovisual Instruction Courses**: 285
- **Major**: 284
- **Minor**: 285
- **Linguistics Courses**: 283
- **Living Expenses**: 15
- **Load, Student**: 43
- **Loan Funds for Students**: 20
- **Location of University**: 1
- **Management Courses**: 299
- **Major**: 208
- **Manufacturing Technology Minor**: 271
- **Marketing Courses**: 291
- **Major**: 291
- **Master’s Degree**: 100
- **Mathematics Courses**: 295
- **Major**: 293
- **Minor**: 294
- **Statistics Minor**: 294
- **Mathematics, Science and Technology (General Education Requirements)**: 38
- **Mathematics Placement Tests**: 293
- **Measles/Rubella Policy**: 4
- **Mechanical Engineering Courses**: 299
- **Major**: 297
- **Medical Care**: 58
- **Medical Technology Courses**: 303
- **Major**: 302
- **Medicine, School of**: 106
- **Athletic Training**: 233
- **Medical Curriculum**: 107
- **Medical Rehabilitation Center**: 65
- **Medical Technology**: 302
- **North Dakota State Medical Center**: 108
- **Physician Assistant Program**: 108
- **Physical Therapy**: 322
- **Minor**: 57
- **Meteorological Studies Courses**: 305
- **Major**: 304
- **Microbiology and Immunology Courses**: 306
- **Middle/Junior High School Education**: 177
- **Military Science Courses**: 308
- **Minors, Awarding of**: 40
- **Modern and Classical Language Courses**: 275
- **Mortuary Science**: 72
- **Motor Vehicle Registration**: 4
- **Music Courses**: 314
- **Majors**: 310
- **Minors**: 312
- **Native American Programs**: 57
- **Natural Science Major**: 317
- **Non-Resident Fee**: 15
- **North Dakota State Medical Center**: 108
- **Norwegian Courses**: 281
- **Major**: 215
- **Minor**: 275
- **Nursing, College of**: 109
- **Academic Requirements**: 112
- **Admission**: 111
Index

Courses..........................................................319
Curriculum......................................................317
Degree..........................................................112
Expenses and Awards.......................................113
Graduate Studies.............................................113
Minor............................................................109
Objectives......................................................110
Philosophy......................................................109
Probation and Dismissal.................................112
Nutrition (See Community Dietetics)....................228
Occupational Therapy Courses............................322
Major............................................................221
Off-Campus Housing........................................26
Off-Campus Trips Regulations............................7
Office Administration Minor.............................366
Opnerty..........................................................72
Orientation for New Students.............................15
Parking Fee.....................................................16
Parking Regulations..........................................4
Part-Time Student............................................9
Pathology Courses (See Medical Technology or Cytotechnology)...206,303
Peace Studies Courses.......................................324
Major............................................................221
Personal Office.................................................66
Pharmacology and Toxicology Courses................326
Minor............................................................325
Philosophy and Religion Courses.......................328
Major............................................................326
Minors...........................................................327
Physical Education Courses..............................254
Major............................................................251
Physical Science Major.....................................331
Physical Therapy Courses................................336
Major............................................................332
Physician Assistant Program............................108
Physics Courses..............................................340
Major............................................................339
Minor............................................................340
Physiology Courses.........................................341
Placent Center................................................53
Plutatism.........................................................48
Plant Science...................................................158
Political Science Courses................................344
Major............................................................342
Minor............................................................342
Pre-Dentistry...................................................72
Pre-Health Sciences.........................................158
Pre-Law..........................................................104
Pre-Medical......................................................107
Pre-Mortuary Science........................................72
Pre-Nursing (See Nursing, College of)................109
Pre-Optometry Curriculum................................72
Pre-Veterinary Medicine...................................73
President’s Honor Roll......................................49
Probation and Dismissal..................................47
Professional Pilot Major....................................142
Psychology Courses.........................................346
Major............................................................346
Minor............................................................346
Public Administration Courses..........................346
Major............................................................343
Minor............................................................343
Public Relations Courses..................................194
Major............................................................192
Radio KFJM-AM and FM......................................67
Readmission of Former Students........................14
Real Estate Courses..........................................236
Reciprocity, Minnesota......................................17
Recreation and Leisure Services Courses..............254
Major............................................................252
Minor............................................................253
Recreational Opportunities..............................16
Re-Examination.................................................46
Refund of Fees.................................................18
Registration.....................................................42
Canceulation....................................................43
Fee.................................................................15
Procedure.......................................................42
Regular Students, Definition..............................9
Rehabilitation Hospital......................................65
Rehabilitation Services Minor............................352
Religion Courses..............................................328
Religious Organizations.....................................6
Repeating Courses..........................................110
Reports on Scholarship.....................................46
Research Agencies..........................................110
Research and Program Development Office............66
Residence Halls................................................24
Resident Center...............................................124
Residence Requirements...................................38
Room and Board..............................................24
ROTC Courses................................................38
Russian Language Courses...............................282
Major............................................................275
Minor............................................................275
Russian Studies Major.....................................347
Minor............................................................348
S/U Grade........................................................45
Satisfactory Progress........................................vii
Scandinavian Languages Courses........................279
Scandinavian Studies Minor.............................348
Scholarship Honors.........................................49
Scholarship probation.......................................47
Scholarships....................................................21
Scholastic Average Required for Graduating...........40
Second Baccalaureate Degree, Confering of...........40
Secondary Education (See Center for Teaching and l-earning, Student)........................................175
Secretarial Administration Minor........................166
Semester Grade Reports.....................................46
Senior Honors..................................................49
Small Business Institute....................................88
Social Science Major.........................................349
Social Science Requirements
   (General Education Requirements).....................33
Social Work Courses.........................................354
Major............................................................350
Minor............................................................352
Sociology Courses............................................356
Major............................................................350
Minor............................................................350
Space Studies Courses.....................................358
University of North Dakota

Minor ................................................................. 358
Spanish Courses .................................................. 262
Major .................................................................. 257

Minor ................................................................. 275

Special Education Courses ................................. 177
Minor ................................................................. 175

Special Examinations Fee ................................... 16
Special Examination for Credit ............................ 40
Speech, Language and Hearing Clinic .................. 67
Speech, Pathology and Audiology Courses
(See Communication Disorders) ......................... 198
State Board of Higher Education ....................... 372
Statistics Minor .................................................... 294
Student Affairs Division ....................................... 53

Student Financial Aid ............................................ 20
Student Records ................................................... 5
Student Support Services .................................... 59
Summer Institute of Linguistics ............................ 286
Summer Early Registration .................................. 71
Summer Session ................................................... 120
Talent Search ......................................................... 59
Teacher Certification ........................................... 116
Teacher Certification ........................................... 116
Technology Education Minor ............................ 268
Television Production Center ............................... 68
Textiles, Clothing, and Merchandising Major ....... 229
Theatre Arts Courses ............................................ 363
Major ................................................................. 392
Minor ................................................................. 392

Tours of Campus (Prospective Students) .............. 4
Toxicology (See Pharmacology and Toxicology) .... 325
Transient Student ................................................ 9
Transcripts .......................................................... 46

Transfer Credit ...................................................... 13
Transfer Students ............................................... 12
TRIO Program .................................................... 59
Trips, Off Campus ............................................... 7
Two Degrees, Conferring of ............................... 40
University Children’s Center ............................. 62
University College ............................................... 70
Academic Advising ............................................. 70
Admissions ......................................................... 70
Pre-Professional Programs .................................. 72
University Relations .......................................... 68
University Services ............................................. 53
Upper Division Requirements ............................. 38
Upward Bound ..................................................... 9
Validating Examinations .................................... 40
Veteran Information ............................................ 60
Visual Arts Courses ............................................. 368
Women ............................................................. 76

Minors .............................................................. 367

Vocational Education (See Business and Vocational Education) .................. 164
Vocational Marketing Education Major ............... 165
Minor ................................................................. 166
Weekend College/Learning After Hours,
(See Division of Continuing Education) .............. 122
Western Undergraduate Exchange Program ......... 18
Wildlife Biology .................................................... 160
Withdrawal from Class ....................................... 42
Withdrawal from the University ........................... 43
Women’s Center .................................................. 43
Women Studies Minor ........................................ 370

Work Study Program .......................................... 20
DISCOVER THE ADVANTAGES!

Considering college means comparing institutions. We think you’ll be impressed when you look over these advantages offered by the University of North Dakota at Grand Forks.

- **A reputation for excellence** that is recognized throughout the United States by accreditation agencies, as well as in the national job market and among graduate and professional education programs.

- **The size** (over 11,000 students) that gives UND diversity and a vigorous, exciting environment, but which still offers its students the individual attention that sometimes is lacking at giant institutions.

- **A record of success** among alumni, both in North Dakota and throughout the nation and world.

- **A convenient location**, giving North Dakota and Minnesota students easy access to an institution of national standing.

- **Unmatched features and facilities** in the region, such as the most fields of study, the largest library, wide computer access, an outstanding performing arts auditorium, and handsome new facilities for physical education and recreation, just to name a few.

- **Reasonable costs**, both for North Dakotans and Minnesotans (who benefit from tuition reciprocity), and for non-resident students as well. Tuition and fees, and room and board are in line with the national median for comparable institutions.

More information about UND is available from the Office of Enrollment Services, P.O. Box 8135, University of North Dakota, Grand Forks, ND 58202-8135. Prospective students may call (701) 777-4463.