UNIVERSITY OF NORTH DAKOTA
JOHN D. ODEGARD SCHOOL OF AEROSPACE SCIENCES
DEPARTMENT OF SPACE STUDIES

PLAN FOR ASSESSMENT
OF
STUDENT LEARNING

April 2012
SECTION 1: INTRODUCTION

Assessment of student learning in the Department of Space Studies is a continuous process that is an integral part of program assessment. Due to our focus on graduate education, there is a strong focus on individual progress and we place a very strong emphasis on student/advisor/committee communication and interaction to ensure achievement of the desired outcomes.

The intent of this Assessment Plan is to outline the systematic process by which progress toward achievement and sustainment of the learning goals of the UND Space Studies department can be measured.

It should be noted that both informal and formal assessments are made. Informally, student learning is continuously assessed as the following data are collected throughout a student’s tenure:

- Advisor-student meetings
- Committee assessment of student progress
- Independent survey of all students enrolled in the Capstone project
- Assessment through Capstone project performance and Comprehensive Examination
- Peer-reviews
- Departmental on-line chats with students
- Thesis presentations
- Exit interviews with Capstone students

Student deliverables include:

- Individual course papers, homework submissions, presentations, and examinations
- Comprehensive examination
- Individual course, e.g., SPST 502, peer-reviews
- Thesis and its associated proposal and defense
- Capstone paper and presentation
- Colloquium reviews
- Informal in-house seminars, i.e., Brown-bag lunch presentations

Review of these informal data occurs at thesis defenses, Comprehensive Examinations, Capstone feedback, course evaluations (typically between Chair and faculty), and advisory committee discussions. Often, the data gathered are discussed and analyzed at faculty meetings. However, these informal methods, while useful, do not in themselves provide sufficient rigor and information upon which to make informed decisions on program changes to improve student learning outcomes.

In that regard, Sections 2 and 3 discuss the graduate and undergraduate programs, respectively. Each of these sections outline the respective learning goals and identify the broad regimes, or
program elements, in which these goals are expected to be exhibited. Within each regime, measures are identified to capture and aggregate student performance relative to the identified goals.

Most of these measures have not been captured in the past and are not typically captured in established grading systems. Consequently, several worksheets are provided for instructor use. A web-based input system is envisioned in the future to automate this process.

The Plan envisions the establishment of a standing Assessment Committee to periodically collect data from the various sources at the end of each semester. Annually, the Committee will compile the data and will analyze and report on the findings. The annual report will combine annual performance with historical data to also provide a trend analysis. Recommendations for corrections to the two programs will be provided to the Department Chair.
SECTION 2: ASSESSMENT OF STUDENT LEARNING IN GRADUATE PROGRAMS

Student Learning Goals

Appropriate outcomes for each student are determined individually through consultation and collaboration with the primary advisor who directs the student’s program. Within the context of our program goals, appropriate outcomes are determined based on student background, career goals, availability of resources, and appropriate focus. The desired student learning outcomes fall into two general categories: (1) multidisciplinary knowledge and interdisciplinary knowledge and understanding provided within the core curriculum and within the non-thesis option and (2) disciplinary depth provided through electives and within the thesis option. The graduate student learning goals are that the student:

a. Understands the interrelationships between technical and social aspects of space enterprises and can effectively apply these to problem-solving.

b. Can correctly and effectively use the terminology and concepts of a broad range of space-related fields, to include social sciences, as well as technical disciplines.

c. Can effectively demonstrate critical thinking and problem-solving in space-related fields through oral and written communication.

d. Can successfully apply experiential learning in the space community.

e. Is able to effectively participate in faculty research projects to advance the body of knowledge of space enterprise.

f. Is able to effectively contribute to problem-solving and decision-making in an interdisciplinary team environment.

Assessment Elements

Assessment of student learning in the Department of Space Studies is a continuous process that is an integral part of program assessment. In general, assessment of outcomes is done through:

a. Assessment within individual courses for multidisciplinary understanding (Goals a, b, c)

b. Assessment through Independent Study design and execution (Goals a, b, c), Capstone project performance (Goals a, b, c, e, f), Comprehensive Examination performance with a multidisciplinary focus (Goals a, b, c, e), and Thesis design and execution (Goals b, c, e)

c. Placement of students in the industry work place through internships and post-graduate placement (Goals d, f)
These learning goals and assessment elements are presented in Table 1. Each assessment element addresses one, or more, of the learning goals with one or more specific measures. Twenty-four assessment parameters are identified. Each measure is described more fully in Table 2 with the source of the parameter, a concise description of the data gathering process for that parameter, and the standard, i.e., threshold for success, for the parameter. Note that the source column refers the reader to a series of worksheets (Tables 3 through 7) provided for faculty use at the end of each semester.
SECTION 3: ASSESSMENT OF STUDENT LEARNING IN UNDERGRADUATE PROGRAMS

Student Learning Goals

The Department of Space Studies has only an undergraduate minor program at this time. The desired student learning outcomes fall into two general categories: (1) multidisciplinary knowledge and interdisciplinary knowledge and understanding and (2) disciplinary depth provided through electives. The undergraduate student learning goals are that the student:

a. Understands the interrelationships between technical and social aspects of space enterprises and can effectively apply these to problem-solving.

b. Can correctly and effectively use the terminology and concepts of a broad range of space-related fields, to include social sciences, as well as technical disciplines.

Assessment Elements

Assessment of student learning is a continuous process that is an integral part of program assessment. In general, assessment of undergraduate outcomes is done through assessment within individual courses for multidisciplinary understanding (Goals a and b). Student deliverables include individual course papers, homework submissions, presentations, and examinations.

The learning goals and assessment elements for the undergraduate program are presented in Table 8. Two specific measures are identified and described. The data are gathered from the average GPA for SPST 200, as well as from the worksheet presented in Table 9 for the remaining undergraduate courses.
APPENDICES:

I. Measurement of Graduate Program Learning Goals

II. Procedures and Standards for Graduate Program Assessment Measures

III. Graduate Program Assessment Worksheets
   a. Course Assessment Worksheet
   b. Independent Study Assessment Worksheet
   c. Capstone Team Score Sheet
   d. Comprehensive Examination Grade and Assessment Worksheet
   e. Thesis Committee Assessment Worksheet

IV. Measures, Procedures, and Standards for Undergraduate Program Assessment

V. Undergraduate Program Assessment Worksheet
# Table 1: Measurement of Graduate Program Learning Goals

<table>
<thead>
<tr>
<th>Assessment Element</th>
<th>Graduate Program Learning Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. Understands the interrelationships between technical and social aspects of space enterprises and can effectively apply these to problem-solving.</td>
</tr>
<tr>
<td></td>
<td>b. Can correctly and effectively use the terminology and concepts of a broad range of space-related fields, to include social sciences, as well as technical disciplines.</td>
</tr>
<tr>
<td></td>
<td>c. Can effectively demonstrate critical thinking and problem-solving in space-related fields through oral and written communication.</td>
</tr>
<tr>
<td></td>
<td>d. Can successfully apply experiential learning in the space community.</td>
</tr>
<tr>
<td></td>
<td>e. Is able to effectively participate in faculty research projects to advance the body of knowledge of space enterprise.</td>
</tr>
<tr>
<td></td>
<td>f. Is able to effectively contribute to problem-solving and decision-making in an interdisciplinary team environment.</td>
</tr>
</tbody>
</table>

**Assessment within individual courses for multidisciplinary understanding (Goals a, b, c,f)**

- Combined GPA for substantially interdisciplinary courses, i.e., 501, 502, 590.
  - See Table 2, note 1
- Department-wide rating for conceptual understanding in all courses, except 501, 502, 590, 593, 595, 997, 998.
  - See Table 2, note 2
- Department-wide rating for critical thinking & problem-solving in all courses, except 501, 502, 590, 593, 595, 997, 998.
  - See Table 2, note 3
- Combined team rating for problem-solving and decision-making in 502.
  - See Table 2, note 4

**Assessment through Independent Study design and execution (Goals a, b, c)**

- Department-wide rating for interdisciplinary understanding in independent studies, i.e., 593 & 997.
  - See Table 2, note 5
- Department-wide rating for conceptual understanding in independent studies, i.e., 593 & 997.
  - See Table 2, note 6
- Department-wide rating for critical thinking & problem-solving in independent studies, i.e., 593 & 997.
  - See Table 2, note 7
- Combined team rating for problem-solving and decision-making in an interdisciplinary team environment.
### Graduate Program Learning Goals

<table>
<thead>
<tr>
<th>Assessment Element</th>
<th>a. Understands the interrelationships between technical and social aspects of space enterprises and can effectively apply these to problem-solving.</th>
<th>b. Can correctly and effectively use the terminology and concepts of a broad range of space-related fields, to include social sciences, as well as technical disciplines.</th>
<th>c. Can effectively demonstrate critical thinking and problem-solving in space-related fields through oral and written communication.</th>
<th>d. Can successfully apply experiential learning in the space community.</th>
<th>e. Is able to effectively participate in faculty research projects to advance the body of knowledge of space enterprise.</th>
<th>f. Is able to effectively contribute to problem-solving and decision-making in an interdisciplinary team environment.</th>
</tr>
</thead>
</table>
| Assessment through Capstone project performance (Goals a, b, c, f) | • Combined team rating for interdisciplinary understanding.  
• See Table 2, note 8 | • Combined team rating for conceptual understanding.  
• See Table 2, note 9 | • Combined team rating for critical thinking and problem solving.  
• See Table 2, note 10 |  |  | • Combined team rating for problem-solving and decision-making in an interdisciplinary team environment.  
• See Table 2, note 11 |
| Assessment through Comprehensive Examination performance with a multidisciplinary focus (Goals a, b, c,) | • Combined participants’ score for interdisciplinary understanding.  
• See Table 2, note 12 | • Combined participants’ score for conceptual understanding.  
• See Table 2, note 13 | • Combined participants’ score for critical thinking & problem solving.  
• See Table 2, note 14 |  |  |  |
<table>
<thead>
<tr>
<th>Assessment Element</th>
<th>a. Understands the interrelationships between technical and social aspects of space enterprises and can effectively apply these to problem-solving.</th>
<th>b. Can correctly and effectively use the terminology and concepts of a broad range of space-related fields, to include social sciences, as well as technical disciplines.</th>
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<th>e. Is able to effectively participate in faculty research projects to advance the body of knowledge of space enterprise.</th>
<th>f. Is able to effectively contribute to problem-solving and decision-making in an interdisciplinary team environment.</th>
</tr>
</thead>
</table>
| Assessment through Thesis design and execution (Goals b, c, e) | • Combined committee ratings for conceptual understanding.  
• See Table 2, note 15 | • Combined committee ratings for critical thinking & problem solving.  
• See Table 2, note 16 |  |  |  |  |
| Placement of students in the industry workplace through internships and post-graduate placement (Goals d, f) |  |  | • Percentage of alumni employed in space-related work  
• See Table 2, note 18 |  |  |  |
|  |  |  |  |  |  |  |

<p>| | | | | | | |
|  |  |  |  |  |  |  |</p>
<table>
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<tr>
<th>Assessment Element</th>
<th>Graduate Program Learning Goals</th>
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<td>e. Is able to effectively participate in faculty research projects to advance the body of knowledge of space enterprise.</td>
<td>f. Is able to effectively contribute to problem-solving and decision-making in an interdisciplinary team environment.</td>
</tr>
</tbody>
</table>

Student assessment (Goals a, b, c, e, f)
- Combined student self-assessment of own interdisciplinary understanding.  
  - See Table 2, note 20
- Combined student assessment of own conceptual understanding.  
  - See Table 2, note 21
- Combined student assessment of own critical thinking and problem solving.  
  - See Table 2, note 22
- Of GRA and 998 completions, combined student assessment of effectiveness of own participation in faculty research projects.  
  - See Table 2, note 23
- Combined student assessment of own contribution to problem solving and decision-making in an interdisciplinary environment.  
  - See Table 2, note 24
<table>
<thead>
<tr>
<th>Note</th>
<th>Measure</th>
<th>Source</th>
<th>Procedure</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Average GPA for 501, 502, 590</td>
<td>Respective instructors</td>
<td>1. Record all 501, 502, 590 final grades in calendar year  2. Calculate arithmetic mean</td>
<td>&gt; 3.0</td>
</tr>
<tr>
<td>2</td>
<td>Department-wide rating for conceptual understanding in all courses, except 501, 502, 590, 595, 997, 998</td>
<td>Table 3</td>
<td>1. At completion of each course in calendar year, rate and record each student’s understanding of terminology and concepts on a scale of 0-4  2. Calculate arithmetic mean</td>
<td>&gt; 3.0</td>
</tr>
<tr>
<td>3</td>
<td>Department-wide rating for critical thinking and problem-solving in all courses, except 501, 502, 590, 593, 997, 998</td>
<td>Table 3</td>
<td>1. At completion of each course in calendar year, rate and record each student’s critical thinking and problem-solving on a scale of 0-4  2. Calculate arithmetic mean</td>
<td>&gt; 3.0</td>
</tr>
<tr>
<td>4</td>
<td>Combined team rating for problem-solving and decision making in 502</td>
<td>Component of 502 team grade</td>
<td>1. At completion of annual 502 offering, rate and record each team’s problem-solving and decision-making on a scale of 0-4  2. Calculate arithmetic mean for teams</td>
<td>&gt; 3.0</td>
</tr>
<tr>
<td>5</td>
<td>Department-wide rating for interdisciplinary understanding in 593, 997</td>
<td>Table 4</td>
<td>1. At completion of each study, rate and record each student’s interdisciplinary understanding on a 0-4 scale  2. Across department, calculate arithmetic mean for calendar year</td>
<td>&gt; 3.0</td>
</tr>
<tr>
<td>6</td>
<td>Department-wide rating for conceptual understanding in independent studies in 593 &amp; 997.</td>
<td>Table 4</td>
<td>1. At completion of each course in calendar year, rate and record each student’s understanding of terminology and concepts on a scale of 0-4  2. Calculate arithmetic mean</td>
<td>&gt; 3.0</td>
</tr>
<tr>
<td>7</td>
<td>Department-wide rating for critical thinking &amp; problem-solving in independent studies, i.e., 593 &amp; 997.</td>
<td>Table 4</td>
<td>1. At completion of each course in calendar year, rate and record each student’s critical thinking and problem-solving on a scale of 0-4  2. Calculate arithmetic mean</td>
<td>&gt; 3.0</td>
</tr>
<tr>
<td>8</td>
<td>Combined Capstone team rating for interdisciplinary understanding</td>
<td>Table 5</td>
<td>1. At completion of Capstone course, rate and record each team’s interdisciplinary understanding on a scale of 0-4  2. Calculate arithmetic mean for teams</td>
<td>&gt; 3.0</td>
</tr>
<tr>
<td>9</td>
<td>Combined Capstone team rating for conceptual understanding.</td>
<td>Table 5</td>
<td>1. At completion of Capstone course, rate and record each team’s understanding of terminology and concepts on a scale of 0-4  2. Calculate arithmetic mean for teams</td>
<td>&gt; 3.0</td>
</tr>
<tr>
<td>10</td>
<td>Combined Capstone team rating for critical thinking and problem solving.</td>
<td>Table 5</td>
<td>1. At completion of Capstone course, rate and record each team’s critical thinking and problem-solving on a scale of 0-4  2. Calculate arithmetic mean for teams</td>
<td>&gt; 3.0</td>
</tr>
<tr>
<td>11</td>
<td>Combined Capstone team rating for problem-solving and decision-making in an interdisciplinary team environment.</td>
<td>Table 5</td>
<td>1. At completion of Capstone course, rate and record each team’s problem-solving and decision-making on a scale of 0-4  2. Calculate arithmetic mean for teams</td>
<td>&gt; 3.0</td>
</tr>
<tr>
<td></td>
<td>Activity Description</td>
<td>Table</td>
<td>Steps</td>
<td>Goal</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------------------</td>
<td>-------</td>
<td>----------------------------------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
</tbody>
</table>
| 12 | Combined Comprehensive Examination participants’ score for interdisciplinary understanding. | Table 6 | 1. At completion of each Comprehensive Examination period, rate and record each examinee’s interdisciplinary understanding on a scale of 0-4  
2. Calculate arithmetic mean across all examinees in calendar year | > 3.0 |
| 13 | Combined Comprehensive Examination participants’ score for conceptual understanding.   | Table 6 | 1. At completion of each Comprehensive Examination period, rate and record each examinee’s conceptual understanding on a scale of 0-4  
2. Calculate arithmetic mean across all examinees in calendar year | > 3.0 |
| 14 | Combined Comprehensive Examination participants’ score for critical thinking and problem solving. | Table 6 | 1. At completion of each Comprehensive Examination period, rate and record each examinee’s critical thinking and problem-solving on a scale of 0-4  
2. Calculate arithmetic mean across all examinees in calendar year | > 3.0 |
| 15 | Combined thesis committee ratings for conceptual understanding.                       | Table 7 | 1. At each thesis defense, rate and record each student’s conceptual understanding on a scale of 0-4  
2. Calculate arithmetic mean across all thesis defenses for calendar year | > 3.0 |
| 16 | Combined thesis committee ratings for critical thinking and problem solving.          | Table 7 | 1. At each thesis defense, rate and record each student’s critical thinking and problem-solving on a scale of 0-4  
2. Calculate arithmetic mean across all thesis defenses for calendar year | > 3.0 |
| 17 | Combined thesis committee ratings for effective participation in faculty research projects. | Table 7 | 1. At each thesis defense, rate and record each student’s participation in faculty research on a scale of 0-4  
2. Calculate arithmetic mean across all thesis defenses for calendar year | > 3.0 |
| 18 | Percentage of alumni employed in space-related work.                                 | To be developed (Spring 2013) | 1. Annually survey all alumni as to place of employment  
2. Calculate percentage of alumni employed in space-related work | > 50% |
| 19 | Self-rating by alumni of ability to effectively contribute to problem-solving and decision-making in an interdisciplinary team environment. | To be developed (Spring 2013) | 1. Annually survey first-year graduates of own ability to contribute to problem-solving and decision-making in an interdisciplinary team environment on a scale of 0-4  
2. Calculate arithmetic mean across all returned surveys. | > 3.0 |
| 20 | Combined student self-assessment of own interdisciplinary understanding.                | To be developed (Spring 2013) | 1. In last semester prior to graduation, survey each graduating student of own level of interdisciplinary understanding on a scale of 0-4  
2. Calculate arithmetic mean across all graduates for calendar year | > 3.0 |
|   | Combined student assessment of own conceptual understanding. | To be developed (Spring 2013) | 1. In last semester prior to graduation, survey each graduating student of own level of conceptual understanding on a scale of 0-4  
2. Calculate arithmetic mean across all graduates for calendar year | > 3.0 |
|---|----------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| 22 | Combined student assessment of own critical thinking and problem solving. | To be developed (Spring 2013) | 1. In last semester prior to graduation, survey each graduating student of own level of critical thinking and problem-solving on a scale of 0-4  
2. Calculate arithmetic mean across all graduates for calendar year | > 3.0 |
| 23 | Of GRA and 998 completions, combined student assessment of effectiveness of own participation in faculty research projects. | To be developed (Spring 2013) | 1. In last semester prior to graduation, survey each graduating student of effectiveness of own participation in faculty research projects.  
2. Calculate arithmetic mean across all graduates for calendar year | > 3.0 |
| 24 | Combined student assessment of own contribution to problem solving and decision-making in an interdisciplinary environment. | To be developed | 1. In last semester prior to graduation, survey each graduating student of own contribution to problem solving and decision-making in an interdisciplinary environment.  
2. Calculate arithmetic mean across all graduates for calendar year | > 3.0 |
Table 3: COURSE ASSESSMENT WORKSHEET

<table>
<thead>
<tr>
<th>Semester:</th>
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</thead>
<tbody>
<tr>
<td>Course:</td>
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<tr>
<td>Instructor:</td>
<td></td>
</tr>
<tr>
<td>e-mail:</td>
<td></td>
</tr>
<tr>
<td>Number of students completing course:</td>
<td></td>
</tr>
</tbody>
</table>

Assessment of individual student mastery of graduate program learning goals

<table>
<thead>
<tr>
<th>Student</th>
<th>Assessment of student mastery of:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Score: 0 – 4)*</td>
</tr>
<tr>
<td></td>
<td>Conceptual understanding</td>
</tr>
<tr>
<td></td>
<td>Critical thinking &amp; problem-solving</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td>Class total</td>
</tr>
<tr>
<td></td>
<td>Class average</td>
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</tbody>
</table>

*Qualitative Rating Scale

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>4</td>
<td>Noteworthy</td>
</tr>
<tr>
<td>3</td>
<td>Good</td>
</tr>
<tr>
<td>2</td>
<td>Acceptable</td>
</tr>
<tr>
<td>1</td>
<td>Unacceptable</td>
</tr>
<tr>
<td>0</td>
<td>Substantially unacceptable</td>
</tr>
</tbody>
</table>
Table 4: INDEPENDENT STUDY ASSESSMENT WORKSHEET

Semester:  

Independent Study:  
(SPST 593/997)  

Instructor:  

e-mail:  

Assessment of individual student mastery of graduate program learning goals

<table>
<thead>
<tr>
<th>Student</th>
<th>Assessment of student mastery of: (Score: 0 – 4)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Interdisciplinary understanding</td>
</tr>
</tbody>
</table>

* Qualitative Rating Scale

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
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</tr>
<tr>
<td>1</td>
<td>Unacceptable</td>
</tr>
<tr>
<td>0</td>
<td>Substantially unacceptable</td>
</tr>
</tbody>
</table>
Table 5: CAPSTONE TEAM SCORE SHEET

Team: ______________________________________________

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>SCORE (0 to 4)</th>
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<tbody>
<tr>
<td>1.0 GENERAL</td>
<td></td>
</tr>
<tr>
<td>1.1 Overall impression</td>
<td></td>
</tr>
<tr>
<td>1.2 Team enthusiasm and communication</td>
<td></td>
</tr>
<tr>
<td>1.3 Demonstration of team approach</td>
<td></td>
</tr>
<tr>
<td>1.4 Integration of disciplines(^1)</td>
<td></td>
</tr>
<tr>
<td>Comments</td>
<td></td>
</tr>
</tbody>
</table>

| 2.0 PRESENTATION MECHANICS |               |
| 2.1 Use of language and grammar |   |
| 2.2 Appearance of slides |   |
| 2.3 Use of graphics |   |
| 2.4 Coordination among speakers |   |
| 2.5 Use of presentation technology |   |
| 2.6 Adherence to time constraints |   |
| 2.7 Presentation style and organization |   |
| Comments |               |

| 3.0 SUBJECT MATTER ACCURACY & COMPLETENESS |               |
| 3.1 Comprehensiveness of coverage |   |
| 3.2 Use and citation of sources |   |
| 3.3 Accuracy of subject matter\(^2\) |   |
| Comments |               |

| 4.0 ANALYSIS & CONCLUSIONS |               |
| 4.1 Demonstrated critical thinking\(^3\) |   |
| 4.2 Demonstrated creative thinking |   |
| 4.3 Analytical development and problem-solving\(^4\) |   |
| 4.4 Appropriateness of conclusion (to include decision-making)\(^4\) |   |
| Comments |               |

| TOTAL SCORE |               |

Notes:

1. Responds to Graduate Program Assessment Goal a
2. Responds to Graduate Program Assessment Goal b
3. Responds to Graduate Program Assessment Goal c
4. Responds to Graduate Program Assessment Goal d
Table 6: COMPREHENSIVE EXAMINATION GRADE AND ASSESSMENT WORKSHEET

Semester: 
Instructor: 

<table>
<thead>
<tr>
<th>Exam</th>
<th>Word Number</th>
<th>Time Elapsed</th>
<th>Exam Grade</th>
<th>Assessment of individual student mastery of:</th>
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<tr>
<td></td>
<td></td>
<td></td>
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<td>Interdisciplinary understanding</td>
</tr>
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Rating Scale

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>4</td>
<td>Pass</td>
</tr>
<tr>
<td>3</td>
<td>Pass – Low Pass</td>
</tr>
<tr>
<td>2</td>
<td>Low Pass</td>
</tr>
<tr>
<td>1</td>
<td>Low Pass - Fail</td>
</tr>
<tr>
<td>0</td>
<td>Fail</td>
</tr>
</tbody>
</table>
Table 7: THESIS COMMITTEE ASSESSMENT WORKSHEET

Defense Semester: ______________________

Assessment of individual student mastery of graduate program learning goals

<table>
<thead>
<tr>
<th>Student</th>
<th>Assessment of student mastery of: (Score: 0 – 4)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conceptual understanding</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Qualitative Rating Scale

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Noteworthy</td>
</tr>
<tr>
<td>3</td>
<td>Good</td>
</tr>
<tr>
<td>2</td>
<td>Acceptable</td>
</tr>
<tr>
<td>1</td>
<td>Unacceptable</td>
</tr>
<tr>
<td>0</td>
<td>Substantially unacceptabe</td>
</tr>
</tbody>
</table>
### Table 8: Measures, Procedures, and Standards for Undergraduate Program Assessment

<table>
<thead>
<tr>
<th>Assessment Method</th>
<th>Undergraduate Program Learning Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. Understands the interrelationships between technical and social aspects of space enterprises and can effectively apply these to problem-solving.</td>
</tr>
<tr>
<td></td>
<td>b. Can correctly and effectively use the terminology and concepts of a broad range of space-related fields, to include social sciences, as well as technical disciplines.</td>
</tr>
</tbody>
</table>

**Assessment within individual courses for multidisciplinary understanding (Goals a & b)**
- Combined GPA for substantially interdisciplinary courses, i.e., 200.
- See Note 1

**Note Measure Status Procedure Standard**

<table>
<thead>
<tr>
<th>Note</th>
<th>Measure</th>
<th>Status</th>
<th>Procedure</th>
<th>Standard</th>
</tr>
</thead>
</table>
| 1    | Average GPA for 200                         | Current | 1. Record all 200 final grades in calendar year  
2. Calculate arithmetic mean | > 3.0    |
| 2    | Department-wide rating for conceptual understanding in all courses, except 200 | To be developed | 1. At completion of each course in calendar year, rate and record each student’s understanding of terminology and concepts on a scale of 0-4  
2. Calculate arithmetic mean | > 3.0    |
Table 9: UNDERGRADUATE COURSE ASSESSMENT WORKSHEET

Semester: 
Course: 
Instructor: 
e-mail: 
Number of students completing course: 

Assessment of individual student mastery of graduate program learning goals

<table>
<thead>
<tr>
<th>Student</th>
<th>Assessment of student mastery of: (Score: 0 – 4)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conceptual understanding</td>
</tr>
</tbody>
</table>

* Qualitative Rating Scale

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</tr>
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<tr>
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</tr>
<tr>
<td>1</td>
<td>Unacceptable</td>
</tr>
<tr>
<td>0</td>
<td>Substantially unacceptable</td>
</tr>
</tbody>
</table>

Class total
Class average
Department of Space Studies
Assessment of Student Learning

The Department of Space Studies is one of four academic departments in the John D. Odegard School of Aerospace Sciences. The academic program is focused on a Master of Science degree in Space Studies. This is a unique program to the region and nation and is the model of innovation and excellence in graduate studies. The hallmarks are interdisciplinary context and disciplinary content. Three (3) degree options are available: thesis, non-thesis, and a distance non-thesis option. Student outcomes for the program are identified in our mission statement “…to provide a comprehensive world-class education in the academic area of Space. Key elements of this education are interdisciplinary and multidisciplinary breadth and disciplinary depth, delivered on-campus and through innovative distance delivery methods.” Assessment of student learning in the Department of Space Studies is a continuous process that is an integral part of program assessment. Due to our focus on graduate education, there is a strong focus on progress of individuals and we place a very strong emphasis on student/advisor/committee communication and interaction to ensure achievement of outcomes.

The Assessment Program

As a graduate program, assessment of student learning in the Department of Space Studies is conducted at two levels that are aligned with individual goals (student-driven) and programmatic goals (faculty/student driven). The former is contained within the latter.

Figure 1 – Context of Assessment of Student Learning in the Department of Space Studies

Assessment of Student Learning – Individual Focus
The appropriate outcomes for each student are determined individually through consultation and collaboration with a primary advisor who directs the students program. Within the context of our program goals, appropriate outcomes are determined based on
Student background
Career goals
Availability of resources
Appropriate focus.

- A program of study is designed to ensure that individual goals and program goals are aligned.
- Progress is monitored through regular meetings with primary advisor and if appropriate a committee of advisors (typically for the thesis option)

Assessment of Student Learning – Program Focus
Our assessment program consists of several stages

1. Identification of student learning outcomes/expectations/anticipated results
   These are broadly contained within the departmental mission statement.

   Desired student learning outcomes in our program fall into two main categories:
   - Multidisciplinary and interdisciplinary knowledge and understanding is provided within a non-thesis option
   - Disciplinary depth is provided within thesis option

2. Assessment of Outcomes
   - Design of Program of Study to ensure alignment with Program goals
   - Assessment within individual courses particular for multidisciplinary understanding
   - Assessment of learning built into a portfolio of program elements
     - Independent study design with a multidisciplinary focus
     - Comprehensive exams to assess multidisciplinary understanding
     - Multidisciplinary Capstone project
     - Thesis quality and depth ensured by constant communication between student/advisor/committee
   - A measure of the success of methods of student preparation comes from placement of our students. Several NASA centers recognize the Space Studies program for its well and uniquely prepared students. The list of industry and educational institution placements is growing.

3. Data collection
   - Advisor student meetings/consultations
   - Committee assessment of student progress
   - Independent survey of all students enrolled in the Capstone course (program and course evaluation). The survey forms are appended.
   - Assessment during Capstone and Comprehensive exams
     - The Capstone course and the comprehensive exams are the culminating experiences in the programs. They are designed with assessment of the interdisciplinary and multidisciplinary goals of the program in mind. They are key elements of our assessment program.
   - Course evaluations
• Departmental chats – open forum discussion face to face and on-line to address issues including learning outcomes.

4. Review and Analysis

• Independent analysis of Capstone Survey by Continuing Education
  o Reports distributed to the Administration.
• Departmental review and analysis of all major program assessment instruments.
  o Capstone Survey
  o Departmental Chats
• Student/Advisor/Committee discussions

5. Reaction/Implementation

We are constantly assessing our program and student learning outcomes and have implemented several changes (2002 to 2005) in response to feedback from our various assessment instruments.

• New and updated graduate student handbook that clearly states program goals and expectations
• Revised entrance requirements to ensure success in the program
• Updating our webpage to include more advisory content
• Emphasis on advisor role and proactive advisement
• Revised and strengthened guidelines for independent study requiring early formation of relationship with an advisor
• Revised and strengthened guidelines and learning outcomes for Capstone
• Nature of the Comprehensive exams have been changed to better assess multidisciplinary learning
• Enhanced communication between faculty and students. All campus students are assigned to a primary advisor from day 1.
• Student involvement in the learning and outcome process enhanced through
  o Required faculty relationship
  o Class review process
  o Independent capstone survey
  o Exit interviews
  o Regular communication
• New degree options (thesis) implemented in line with student demand
• Revised the Survey of Space Studies course (required of all new graduate students) in format and content to provide a better gateway to the program. Key elements include
  o An introduction to the nature of the program its mission and expectations
  o Introduction to the faculty and their expertise
  o Discipline content and key methodologies taught by each of the responsible faculty
- Project that emphasizes teamwork and facilitates cohort development, introduces project management and the interdisciplinary nature of Space Studies
- Paper writing and presentation skill development
  - Introduced new courses and restructured course offerings to present a tiered sequence of fundamental, intermediate, and advanced courses to allow more depth.
  - New team taught courses developed to provide interdisciplinary content and thought
  - Implementation of prerequisites to ensure better preparation

6. *Adjustment of assessment procedure*
   
   We are constantly revising our assessment instruments based on feedback from all internal and external constituencies. Examples include yearly updates of the Capstone survey and plans to form a student representative committee.

7. *Continuous Assessment Activity*
   
   The various assessment components/instruments occur regularly at different intervals
   - Continuous – student/advisor/committee communication
   - Semester - individual courses within Program of Study
   - Program – Comprehensive exams, Capstone, thesis, or independent study
Space Studies Program Assessment
Distance Degree Programs
Summer 2005

Please submit by: August 1, 2005

The intent of this survey is to assess the overall Space Studies program, including the service and administrative areas, that you have encountered during your participation in the program. Your candid responses will assist in improving both the program and student services for Space Studies students. All responses will be kept confidential. You will note that questions regarding the Capstone experience are not included in this survey. An additional assessment tool has been developed to cover the Capstone experience and will be administered while you are on campus the first week of August. Please take time to complete the survey as your feedback is important. Thank you for taking time to respond.

1. What were your expectations and goals for your course of study in the Space Studies program.

Indicate the extent to which you agree or disagree with each statement:

2. The graduate curriculum in the Space Studies program met my expectations.
   - ○ strongly agree ○ agree ○ undecided ○ disagree ○ strongly disagree ○ not applicable

3. Courses in the program covered appropriate space topics.
   - ○ strongly agree ○ agree ○ undecided ○ disagree ○ strongly disagree ○ not applicable

4. The multi- and inter-disciplinary approaches I was exposed to in the program added value.
   - ○ strongly agree ○ agree ○ undecided ○ disagree ○ strongly disagree ○ not applicable

5. The research component of the program met my needs.
   - ○ strongly agree ○ agree ○ undecided ○ disagree ○ strongly disagree ○ not applicable

6. The number of academic credits (32) required for program completion is appropriate.
   - ○ strongly agree ○ agree ○ undecided ○ disagree ○ strongly disagree ○ not applicable

7. Additional comments on questions 2-6:
8. **Course work expectations are consistent with those at the graduate level.**
   - [ ] strongly agree
   - [ ] agree
   - [ ] undecided
   - [ ] disagree
   - [ ] strongly disagree
   - [ ] not applicable

9. **Internet chat sessions were helpful.**
   - [ ] strongly agree
   - [ ] agree
   - [ ] undecided
   - [ ] disagree
   - [ ] strongly disagree
   - [ ] not applicable

10. **When technical problems arose during chat sessions they were resolved in a timely manner.**
    - [ ] strongly agree
    - [ ] agree
    - [ ] undecided
    - [ ] disagree
    - [ ] strongly disagree
    - [ ] not applicable

11. **Videotaped classes are an effective teaching method.**
    - [ ] strongly agree
    - [ ] agree
    - [ ] undecided
    - [ ] disagree
    - [ ] strongly disagree
    - [ ] not applicable

12. **Communication with faculty was sufficient.**
    - [ ] strongly agree
    - [ ] agree
    - [ ] undecided
    - [ ] disagree
    - [ ] strongly disagree
    - [ ] not applicable

13. **Communication with Space Studies staff was sufficient.**
    - [ ] strongly agree
    - [ ] agree
    - [ ] undecided
    - [ ] disagree
    - [ ] strongly disagree
    - [ ] not applicable

14. **Additional comments on questions 8-13:**

15. **The space.edu site provided easy access to program information.**
    - [ ] strongly agree
    - [ ] agree
    - [ ] undecided
    - [ ] disagree
    - [ ] strongly disagree
    - [ ] not applicable

16. **The space.edu site provided easy access to course information.**
    - [ ] strongly agree
    - [ ] agree
    - [ ] undecided
    - [ ] disagree
    - [ ] strongly disagree
    - [ ] not applicable

17. **Written communication from faculty was sufficient.**
    - [ ] strongly agree
    - [ ] agree
    - [ ] undecided
    - [ ] disagree
    - [ ] strongly disagree
    - [ ] not applicable

18. **My advisor was accessible when needed.**
    - [ ] strongly agree
    - [ ] agree
    - [ ] undecided
    - [ ] disagree
    - [ ] strongly disagree
    - [ ] not applicable

19. **My advisor provided quality academic advising.**
    - [ ] strongly agree
    - [ ] agree
    - [ ] undecided
    - [ ] disagree
    - [ ] strongly disagree
    - [ ] not applicable

20. **Verbal communication with faculty occurred frequently enough.**
    - [ ] strongly agree
    - [ ] agree
    - [ ] undecided
    - [ ] disagree
    - [ ] strongly disagree
    - [ ] not applicable

21. **Information on potential jobs after program completion was adequate.**
    - [ ] strongly agree
    - [ ] agree
    - [ ] undecided
    - [ ] disagree
    - [ ] strongly disagree
    - [ ] not applicable

22. **Additional comments on questions 15-21:**
23. The graduate education I received was rigorous.
   - strongly agree  - agree  - undecided  - disagree  - strongly disagree  - not applicable

24. Course expectations were clearly defined.
   - strongly agree  - agree  - undecided  - disagree  - strongly disagree  - not applicable

25. Space Studies program requirements were clear to me.
   - strongly agree  - agree  - undecided  - disagree  - strongly disagree  - not applicable

26. Feedback on assignments and writing projects were timely and useful.
   - strongly agree  - agree  - undecided  - disagree  - strongly disagree  - not applicable

27. Deadlines for courses and the program were clearly defined.
   - strongly agree  - agree  - undecided  - disagree  - strongly disagree  - not applicable

28. Graduation requirements were clearly explained.
   - strongly agree  - agree  - undecided  - disagree  - strongly disagree  - not applicable

29. Additional comments on questions 23-28:


30. Individual course evaluation was adequate.
   - strongly agree  - agree  - undecided  - disagree  - strongly disagree  - not applicable

31. Group project work was an effective learning strategy.
   - strongly agree  - agree  - undecided  - disagree  - strongly disagree  - not applicable

32. Changes to program/course schedule were relayed in a timely manner.
   - strongly agree  - agree  - undecided  - disagree  - strongly disagree  - not applicable

33. Faculty incorporated current events and materials into courses.
   - strongly agree  - agree  - undecided  - disagree  - strongly disagree  - not applicable

34. Grades were posted by faculty in a timely manner.
   - strongly agree  - agree  - undecided  - disagree  - strongly disagree  - not applicable

35. Level of teaching and expectations/requirements of students was consistent throughout the program.
   - strongly agree  - agree  - undecided  - disagree  - strongly disagree  - not applicable

36. Quality of instruction was consistent throughout the program.
   - strongly agree  - agree  - undecided  - disagree  - strongly disagree  - not applicable

37. Additional comments on questions 30-36:
38. What suggestions do you have for improving the Space Studies Program (be specific).

39. Overall, what value and impact has the Space Studies program had on your education and/or career goals.

Technology Logistics

40. The course videotapes were of professional quality.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable

41. The audio portion of the course videotapes were clear.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable

42. The video portion of the course videotapes was clear.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable

43. The videotapes arrived in a timely manner.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable

44. When technical problems arose they were handled efficiently.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable

45. Videotapes were correctly labeled when received.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable

46. Additional comments on questions 40-45:

47. Please describe the hardware and software that you use in completing the Space Studies program requirements.

48. The Space Studies webmasters provided timely/helpful technical assistance.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable
49. **Online software tools and programs required by Space Studies were useful and appropriate.**
   ○ strongly agree ○ agree ○ undecided ○ disagree ○ strongly disagree ○ not applicable

50. **Space Studies web pages functioned properly with my hardware and software.**
   ○ strongly agree ○ agree ○ undecided ○ disagree ○ strongly disagree ○ not applicable

51. **The space.edu web site was easy to use.**
   ○ strongly agree ○ agree ○ undecided ○ disagree ○ strongly disagree ○ not applicable

52. **Test-taking tools such as SmartExam worked properly.**
   ○ strongly agree ○ agree ○ undecided ○ disagree ○ strongly disagree ○ not applicable

53. **Web connectivity between my computer and UND was reliable.**
   ○ strongly agree ○ agree ○ undecided ○ disagree ○ strongly disagree ○ not applicable

54. **Additional comments on questions 48-53:**

55. **What suggestions can you provide to improve the logistical aspects of videotape or computer use and/or delivery (be specific)?**

56. **Did you use the resources or services of the University of North Dakota Chester Fritz Library?**
   ○ Yes (if yes, proceed to next question)
   ○ No (if no, proceed to question 66)
   ○ Does not apply

57. **Have you applied for a Chester Fritz Library Card?**
   ○ Yes
   ○ No
   ○ Does not apply

58. **How did you find out about the Chester Fritz Library resources and services?**
   ○ Does not apply
   □ Chester Fritz Library Homepage
   □ University of North Dakota Homepage
   □ Professor/Instructor
   □ Other (please specify)

59. **What resources/services are you familiar with at the Chester Fritz Library or have you used for assistance?**
(check all boxes you are familiar with or have actually used the resource/service)

☐ Does not apply
☐ Articles indexes and databases (such as those with full-text articles to download)
☐ ODIN library catalog (that lists available library resources)
☐ Chester Fritz Library interlibrary loan services
☐ Chester Fritz Library reference service (“Ask Us” button on CFL Homepage)
☐ Chester Fritz Library Coordinator of Distance Education (librarian – for assistance)
☐ Space Studies Specialist (librarian – for assistance)
☐ Resources by Subject–Space Studies web page
☐ Other (please specify)

Please respond to the following questions regarding use of the Chester Fritz Library in completing research:

60. Library resources were easy to acquire.
   ☐ Yes
   ☐ Some
   ☐ No
   ☐ Does not apply

61. Library resources met my needs.
   ☐ Yes
   ☐ Some
   ☐ No
   ☐ Does not apply

62. Library forms were easy to complete.
   ☐ Yes
   ☐ Some
   ☐ No
   ☐ Does not apply

63. Interlibrary loan materials arrived in a timely manner.
   ☐ Yes
   ☐ Some
   ☐ No
   ☐ Does not apply

64. What other resources/services have you used to acquire information or complete research projects in the Space Studies program (check all that apply)
   ☐ Does not apply
   ☐ Internet materials supplied by other libraries.
   Please list the libraries:

http://www.conted.und.edu/ddpevals/spst/spstsurvey.html
Internet materials supplied by non-library sources. 
Please list non-library sources:

Other libraries that were visited
Please list other libraries that were visited:

65. What Chester Fritz Library resources/services would have been helpful to you in completion of the Space Studies Program?

66. The admission process for UND's graduate school was easy to complete.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable

67. The materials requested from the Graduate School were received in a timely manner.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable

68. The Graduate School web site was helpful.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable

69. The Graduate School staff were helpful when contacted.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable

70. Additional comments on questions 66-69:

71. What suggestions can you provide to the Graduate School to improve its services? (Be specific)

72. The on-line course registration was easy to accomplish.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable

73. Payment of tuition and fees went smoothly.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable

74. Ordering textbooks through MBS was convenient.
   - strongly agree
   - agree
   - undecided
   - disagree
   - strongly disagree
   - not applicable
75. **Textbooks ordered through MBS arrived in a timely manner.**
   - [ ] strongly agree  [ ] agree   [ ] undecided  [ ] disagree  [ ] strongly disagree
   - [ ] not applicable

76. **The add/drop/withdrawal process was easy.**
   - [ ] strongly agree  [ ] agree   [ ] undecided  [ ] disagree  [ ] strongly disagree
   - [ ] not applicable

77. **Additional comments on questions 72-76**

78. **Specific issues were handled in a timely manner by Continuing Education staff.**
   - [ ] strongly agree  [ ] agree   [ ] undecided  [ ] disagree  [ ] strongly disagree
   - [ ] not applicable

79. **The cost of the Space Studies program was reasonable.**
   - [ ] strongly agree  [ ] agree   [ ] undecided  [ ] disagree  [ ] strongly disagree
   - [ ] not applicable

80. **Student fees associated with tuition were reasonable.**
   - [ ] strongly agree  [ ] agree   [ ] undecided  [ ] disagree  [ ] strongly disagree
   - [ ] not applicable

81. **A transcript of grades was received in a timely manner.**
   - [ ] strongly agree  [ ] agree   [ ] undecided  [ ] disagree  [ ] strongly disagree
   - [ ] not applicable

82. **I felt a part of the University of North Dakota.**
   - [ ] strongly agree  [ ] agree   [ ] undecided  [ ] disagree  [ ] strongly disagree
   - [ ] not applicable

83. **Additional comments on questions 78-82:**

84. **Several offices on the University of North Dakota campus provide services to Space Studies students. Please rank the level of satisfaction of interactions with staff in the offices listed below:**

84. **Space Studies**
   - [ ] strongly agree  [ ] agree   [ ] undecided  [ ] disagree  [ ] strongly disagree
   - [ ] not applicable

85. **Continuing Education**
   - [ ] strongly agree  [ ] agree   [ ] undecided  [ ] disagree  [ ] strongly disagree
   - [ ] not applicable

86. **Business Office**
   - [ ] strongly agree  [ ] agree   [ ] undecided  [ ] disagree  [ ] strongly disagree
   - [ ] not applicable

87. **Registrar Office**
   - [ ] strongly agree  [ ] agree   [ ] undecided  [ ] disagree  [ ] strongly disagree
   - [ ] not applicable

88. **Financial Aid Office**
   - [ ] strongly agree  [ ] agree   [ ] undecided  [ ] disagree  [ ] strongly disagree
   - [ ] not applicable
89. Chester Fritz Library
    [ ] strongly agree  [ ] agree  [ ] undecided  [ ] disagree  [ ] strongly disagree  [ ] not applicable

90. Graduate School Office
    [ ] strongly agree  [ ] agree  [ ] undecided  [ ] disagree  [ ] strongly disagree  [ ] not applicable

91. Additional comments on questions 84-90:

92. What suggestions can you provide the above offices to improve services for Space Studies students? (be specific):

93. Please write any other comments, suggestions, recommendations, accolades, that you may have regarding the Space Studies program, student services, the University of North Dakota, faculty or staff, curriculum, or other related topic.

We appreciate you taking the time to complete this survey. Your survey results will be compiled with all the other submitted surveys and a report will be developed. The report will be shared with faculty of the Space Studies Department. Thank you.

Submit Space Studies Assessment Survey  Clear all fields
Space Studies Capstone Experience Assessment Tool

Distance Degree Programs
Summer 2005

Please complete the following survey related to Space Studies 595 (Capstone Experience) by selecting an answer for each question indicating the extent to which you agree or disagree with each statement. Please add comments after the group of questions for clarification. All answers will be kept confidential and the faculty will receive only a summarized copy of the results.

1. The Capstone Experience has provided a valuable closure to the Space Studies Program.
   - [ ] strongly agree
   - [ ] agree
   - [ ] undecided
   - [ ] disagree
   - [ ] strongly disagree
   - [ ] not applicable

2. Meeting the students and faculty face-to-face earlier in the program would have been more beneficial than at the end of the program.
   - [ ] strongly agree
   - [ ] agree
   - [ ] undecided
   - [ ] disagree
   - [ ] strongly disagree
   - [ ] not applicable

3. Requirements for the Capstone Experience were clearly defined.
   - [ ] strongly agree
   - [ ] agree
   - [ ] undecided
   - [ ] disagree
   - [ ] strongly disagree
   - [ ] not applicable

4. The Capstone Experience provided some "real life" insight into dealing with space related issues.
   - [ ] strongly agree
   - [ ] agree
   - [ ] undecided
   - [ ] disagree
   - [ ] strongly disagree
   - [ ] not applicable

Additional comments on questions 1-4:


5. The Capstone Experience provided a way to investigate problems and develop interdisciplinary solutions to current issues.
   - [ ] strongly agree
   - [ ] agree
   - [ ] undecided
   - [ ] disagree
   - [ ] strongly disagree
   - [ ] not applicable

6. I enjoyed the opportunity to work in a group as part of the Capstone Experience.
7. The "team" aspect of the Capstone Experience was useful.

8. I felt my group's project was on the cutting edge of space studies.

9. Communications with and from faculty about the Capstone Experience were sufficient.

Additional comments on questions 5-9:

10. Faculty provided adequate direction on the Capstone Experience.

11. The faculty advising scheme used for the Capstone Experience was useful and appropriate.

12. Grading method for the Capstone course was satisfactory.

13. Grading scheme was well explained, fair and transparent.

14. Assessment information was sufficiently anonymous.

15. Opinions about the course and instructors could be expressed without fear of retribution.

Additional comments on questions 10-15:

16. While on campus, satisfactory space was available to meet with my group members.
17. While on campus, satisfactory equipment was available to the groups (i.e., computer, printer, telephone, fax, copier).

- strongly agree - agree - undecided - disagree - strongly disagree - not applicable

18. Food provided during the Capstone week was satisfactory.

- strongly agree - agree - undecided - disagree - strongly disagree - not applicable

19. There were enough "fun" activities provided during the Capstone week.

- strongly agree - agree - undecided - disagree - strongly disagree - not applicable

20. Access to University facilities was satisfactory (i.e., gym, library, student center)

- strongly agree - agree - undecided - disagree - strongly disagree - not applicable

21. Housing accommodations during the Capstone week were satisfactory.

- strongly agree - agree - undecided - disagree - strongly disagree - not applicable

Additional comments on questions 16-21:

[Blank space for comments]

22. What were the most valuable aspects of the Capstone Experience?

[Blank space for comments]

23. What suggestions do you have for improving the Capstone Experience?

[Blank space for comments]