DEPARTMENTAL PLAN FOR ASSESSMENT OF STUDENT LEARNING
2004-2005 ACADEMIC YEAR

Department: Atmospheric Sciences
Program: Master of Science

Mission Statement
The mission of the Department of Atmospheric Sciences graduate program is to provide quality educational experiences to students to promote critical thinking and foster an intellectual environment conducive to exemplary research, scholarship and creativity among graduate students and faculty. Our vision is to become a premier atmospheric sciences graduate program serving our students and the broader scientific community. In striving to achieve this distinction, the Department of Atmospheric Sciences maintains a graduate program offering that is socially relevant, serves as an advocate for graduate education campus-wide, provides resources that support graduate student research, and fosters interdisciplinary programs. Within the context of the broader university community, the Department of Atmospheric Sciences serves to create an academic and intellectual climate that appreciates and respects diversity, values creativity and supports the academic potential of each graduate student.

Student Learning Goals
Student Learning Goal 1: Students will develop a comprehensive understanding of atmospheric sciences in a changing world
Objective 1.1: Students will complete at least one course in each of four core areas including:

- Dynamic meteorology,
- Climate systems,
- Physical meteorology, and
- Scientific tools.

Objective 1.2: Students will participate in two semesters of graduate seminar.

Objective 1.3: Students will present a graduate seminar that demonstrates their understanding of the role of atmospheric sciences within modern society.

Student Learning Goal 2: Students will develop critical thinking skills through research activities or focused project activities.

Objective 2.1: Students will apply their critical thinking skills through conducting research activities under the supervision of graduate faculty.

Objective 2.2: Students will demonstrate a broad knowledge of concepts, issues, facts and theories of the atmospheric sciences derived from their research activities.

Student Learning Goal 3: Students will develop skills to analyze, interpret and synthesize scientific data and communicate the results in an effective and professional manner.

Objective 3.1: Students will demonstrate mastery of analytical skills to prepare data for scientific analysis utilizing acceptable research tools, instrumentation, and computer programs/tools.

Objective 3.2: Students will demonstrate an ability to apply technical skills to critically interpret data and identify assumptions.

Objective 3.3: Students will demonstrate an ability to communicate results of scientific investigation through written and oral communications in an acceptable professional manner.
## Assessment Plan Matrix

<table>
<thead>
<tr>
<th>Student Learning Goals &amp; Objectives</th>
<th>Educational Experiences</th>
<th>Assessment Methods</th>
<th>Timeline</th>
<th>Responsibilities</th>
<th>Use of Results and Process for Documentation &amp; Decision-Making</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal 1:</strong> Students will develop a comprehensive understanding of atmospheric sciences in a changing world.</td>
<td>Core Areas: Dynamic Meteorology, Climate Systems, Physical Meteorology, and Scientific Tools. AtSc 570: Graduate Seminar Seminar presentation Written and oral presentations</td>
<td>Course examinations Student written work – course exams, research papers, evaluation of research topic Successful delivery of graduate seminar Attendance at seminars Student course evaluation surveys</td>
<td>Data will be collected in semesters when courses are offered and analyzed the following semester. Data will be collected and analyzed for this goal every year.</td>
<td>The Graduate Program Director will meet with faculty members having specific responsibilities in data collection and analysis to make sure the graduate committee is on task to have information to discuss and, if necessary, act on, at the annual Department Retreat.</td>
<td>Results will be communicated in writing to the Graduate Program Director and will become a part of the agenda for discussion at the Annual Department Retreat. Decisions on curricular or program changes will be made by the faculty based on the data.</td>
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</tbody>
</table>
### Objective 1.3:
Students will provide a graduate seminar that demonstrates their understanding of the role of atmospheric sciences within modern society.

- Summaries of assessment activities and decisions made (if any) will be included in the Departmental Annual Report due October 15.
- Department files with all data and documentation will be maintained in the office of the Graduate Program Director and available for reference.

### Goal 2:
Students will develop critical thinking skills through research activities or focused project activities.

#### Objective 2.1:
Students will

<table>
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<tr>
<th>Research Activities or Focused Project Activities</th>
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<tr>
<td>Student independent research</td>
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<tr>
<td>Conference and/or journal articles/abstracts/posters</td>
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- Thesis Students
- Successful thesis progress or completion (AtSc 998)
- Oral Thesis defense

- Data will be collected in semesters thesis research is completed or annually each spring when the comprehensive examination?

- Graduate faculty supervising graduate thesis research will meet annually with the Graduate Program Director, to review the

- Results will be communicated in writing to the Graduate Program Director and will become a part of the agenda for discussion at the Annual
apply their critical thinking skills through conducting research activities under graduate faculty supervision.

**Objective 2.2:** Students will demonstrate a broad knowledge of concepts, issues, facts and theories of the atmospheric sciences derived from their research activities.

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<th>Objective 2.2: Students will demonstrate a broad knowledge of concepts, issues, facts and theories of the atmospheric sciences derived from their research activities.</th>
<th>Non-Thesis Students Successful progress on non-thesis project (AtSc 997)</th>
<th>is administered.</th>
<th>progress of thesis research as it relates to the student’s thesis proposal. The Graduate Program Director will meet with faculty members to evaluate the results of comprehensive examination results and to review with graduate advisors to make sure that student graduate course plans are current and being followed properly.</th>
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<td></td>
<td>Comprehensive Examination</td>
<td></td>
<td>Department Retreat. Decisions on curricular or program changes will be made by the faculty based on the data. Summaries of assessment activities and decisions made (if any) will be included in the Departmental Annual Report due October 15.</td>
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<td>All Graduates Exit interviews</td>
<td></td>
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</table>
**Goal 3:**
Students will develop skills to analyze, interpret and synthesize scientific data and communicate the results in an effective and professional manner.

**Objective 3.1:**
Students will demonstrate mastery of analytical skills to prepare data for scientific analysis utilizing acceptable research tools and computer programs/tools.

**Objective 3.2:**
Students will demonstrate an ability to apply technical skills to critically interpret data

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<th>Course/Method</th>
<th>Description</th>
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<tr>
<td>AtSc 441: Radar Meteorology</td>
<td>Course examinations</td>
</tr>
<tr>
<td>AtSc 450: Introduction to Cloud Physics Meteorology</td>
<td>Quality of computer programs developed</td>
</tr>
<tr>
<td>AtSc 528: Atmospheric Data Analysis</td>
<td>Demonstrated mastery of data analysis tools</td>
</tr>
<tr>
<td>AtSc 535: Measurement Systems</td>
<td>Student written work – course exams, research papers, evaluation of research topic</td>
</tr>
<tr>
<td>AtSc 540: Statistical Methods in Atmospheric Science</td>
<td>Student course evaluation surveys</td>
</tr>
<tr>
<td>Conference and journal style of written articles</td>
<td>Use of data collection and analysis tools</td>
</tr>
<tr>
<td>Oral presentations</td>
<td>Data will be collected in semesters when courses are offered and analyzed the following semester.</td>
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<tr>
<td>Computer programs developed</td>
<td>Data will be collected and analyzed for this goal every year.</td>
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Results will be communicated in writing to the Graduate Program Director and will become a part of the agenda for discussion at the Annual Department Retreat.

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Department
and identify assumptions.

**Objective 3.3:**
Students will demonstrate an ability to communicate results of scientific investigation through written and oral communications in an acceptable professional manner.

|     |     |     | files with all data and documentation will be maintained in the office of the Graduate Program Director and available for reference. |