AMS Atmospheric Science
Degree Statement

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AMS Board on Higher Education
Unidata/UCAR

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AMS and AGU Heads and Chairs Meeting
Boulder, CO
Ad-hoc Working Group

- Dr. Mohan Ramamurthy, Board on Higher Education
- Dr. Pat Pauley, Chair of Board on Higher Education
- Ms. Donna Charlevoix, UIUC, Board on Higher Education
- Laura Furgione, NWS, Board on Higher Education
- Ms. Reggina Cabrera Garza, NWS, Board of Operational Government Meteorologists
- Dr. Gary Lackmann, NC State University
- Ms. Kathy Lucas, Board of Private Sector Meteorology
- Dr. Rajul Pandya, Board on Outreach and Pre-college Education
- Prof. Julie Winkler, AMS Commissioner, Education and Human Resources

My sincere thanks to all for their generous help.
Purpose of the Statement

• The primary purpose of the statement is to provide *guidance* to university faculty and administrators who are seeking to establish and maintain undergraduate programs in atmospheric science.

• It also provides helpful information to prospective students who are exploring educational alternatives in atmospheric science.

• The focus of the statement is deliberately on curricular composition and course offerings.
The Process

• The Bachelor’s Degree Statement is revised about every 5 years;
• The Statement is prepared by the Board on Higher Education;
• It is then submitted to the AMS Council by EHR Commissioner, who oversees the BHE.
• There is a 30-day Comment Period before Council vote;
• The Council approves and disseminates the Statement.
Who all provided input?

- Public sector employees (mostly in NWS);
- Private sector people;
- Faculty;
- Several members of AMS Boards;

- Over 250 people were given an opportunity to provide input;

- Over 25 people provided input toward the revision of the Statement.
Federal Requirements: GS-1340

• See Appendix B of the Statement;
• Five years ago a decision was made to “detach” the Statement somewhat from the Federal Requirements;
• It was done in acknowledgement of the broader range of careers now available to atmospheric science students.
Key Issues and Trends

• A large number of respondents felt that the current statement was very good and it did not need a major rewrite.

• There is a critical need for increased emphasis on information technology and related skills in course work.
  – The greatest educational gap we observe with new employees is a lack of background or understanding of modern automated weather systems.

• There is a need for emphasis on applied statistics and decision theory;

• Three examples of career choices in the current statement appear to be far too limited.

• In recent years, climate, climate change, and the interdisciplinary nature of atmospheric sciences has come to the forefront.

• There is a lack of simple knowledge of where things are around the planet, namely, geography.
Some of the key changes in the revised statement

- The need for and emphasis on IT and programming skills in course work;
  - FORTRAN is mentioned explicitly;
- The importance of education in applied statistics and decision making is stressed;
- Several new career track examples added;
- Statements on diversity have been strengthened;
More Career Tracks in the Statement

- Media careers, including those in Broadcast Meteorology
- Hydrometeorology careers
- Environmental monitoring careers
- Aviation Meteorology careers
- Continuation to graduate study or a scientist track
Media careers, including those in Broadcast Meteorology

• Students intending to enter this career field should seriously consider including the following course work or types of experiences in their program of study:

• 1) a course in operational weather analysis and forecasting techniques;
• 2) one or more courses in communication, journalism, writing, and speech; and
• 3) one or more courses in publishing or broadcast media and broadcasting
Hydrometeorology careers

Students intending to enter this career field should seriously consider including the following course work or types of experiences in their program of study:

- a course in hydrology, fluid mechanics or fluid dynamics;
- a course in hydrometeorology or precipitation processes;
- a course in radar meteorology that includes radar observations of meteorological phenomena; and
- a course in Geographic Information Systems
Continuation to graduate study

Students intending to continue their academic careers with a graduate degree (MS or PhD) before pursuing a career should seriously consider including the following coursework or types of experiences in their program of study:

1) additional mathematics courses, such as advanced calculus, partial differential equations, and linear algebra;
2) additional atmospheric science courses in dynamics, physical meteorology, mesoscale and synoptic meteorology, climate change, or remote sensing;
3) a course in numerical methods or computational fluid dynamics;
4) a course in statistics and probability theory; and
5) additional computer programming courses.
Comments?

• Please share the statement with your colleagues;
• We invite your comments on the revised statement.
• Please talk to me or Prof. Julie Winkler during the breaks at this meeting;
• Please send your feedback/input to: mohan@ucar.edu

Deadline for providing comments: November 15, 2004