ATMOSPHERIC AND OCEANIC SCIENCES, M.S.

The majority of graduate students get an M.S. degree, which can be earned as part of the path toward a Ph.D. degree or earned as a terminal degree opening significant opportunities within the public and private sectors. For both the thesis and the nonthesis options, a set of six core courses is highly recommended as a good foundation for a graduate degree in the Department of Atmospheric and Oceanic Sciences.

REQUIREMENTS

MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (http://guide.wisc.edu/graduate/#policiesandrequirementstext) in addition to the requirements of the program.

MASTER’S DEGREES

M.S., with available thesis and non-thesis tracks

MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

M.S.—thesis tract: 30 credits
M.S.—non-thesis track: 36 credits

MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

M.S.—thesis tract: 16 credits
M.S.—non-thesis track: 19 credits

MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

M.S.—thesis tract: Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide (http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle).

M.S.—non-thesis tract: Half of degree coursework (18 credits out of 36 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide (http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle).

PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.S.—thesis tract: With program approval, students are allowed to count no more than 14 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

M.S.—non-thesis track: With program approval, students are allowed to count no more than 17 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree or earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

With program approval, students are allowed to count no more than 7 credits of graduate coursework taken as an undergraduate at UW-Madison, as long as those credits were not applied toward an undergraduate degree. Coursework earned five or more years prior to admission to a master’s degree is not allowed to satisfy requirements.

PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned five or more years prior to admission to a master’s is not allowed to satisfy requirements.

CREDITS PER TERM ALLOWED

15 credits

PROGRAM-SPECIFIC COURSES REQUIRED

M.S.—thesis tract:

• 12 of the credits must be taken in the department as lecture courses numbered 400 or above. Seminars, research, independent study or directed reading courses do not satisfy this requirement. A grade of B or greater is required for these 12 credits.
• An additional 12 (at least) credits may be taken in or out of the department. These credits can include seminars, core courses, and other courses taken as a graduate student. Research credits do not count toward this requirement.
• Up to 6 research credits in the department can be counted (but are not required) toward the 30 credit requirement.

M.S.—non-thesis track:

• At least 18 credits must be from courses numbered 400 or above in the department. Seminars, research, independent study or directed reading courses do not satisfy this requirement.
• An additional 6 (at least) credits must be from courses outside of the department. Seminars and research credits do not satisfy this requirement.
• A total of 30 credits must be taken from nonseminar courses. Research credits do not contribute to this requirement.
• Up to 6 credits can be from seminar courses in any department, from research in the atmospheric and oceanic sciences department only if approved by the student’s advisor, or from independent study or directed reading in any department. Up to 2 of these 6 credits may be awarded for prior professional experience, or by an internship conducted as part of the M.S. program.

OVERALL GRADUATE GPA REQUIREMENT

3.0 GPA required

OTHER GRADE REQUIREMENTS

M.S.—thesis tract: A grade of B or greater is required for the 12 credits of lecture courses in the department numbered 400 or above. See above, under "Program-Specific Courses Required."
The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

**PROBATION POLICY**

Academic probation:

A semester GPA below 3.0 will result in the student being placed on academic probation. If a semester GPA of 3.0 is not attained during the subsequent semester of full time enrollment (or 12 credits of enrollment if enrolled part-time) the student may be dismissed from the program or allowed to continue for 1 additional semester based on advisor appeal to the Graduate School.

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

Probation based on progress:

Probation is based on student status. The status of a student can be one of three options:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

**ADVISOR / COMMITTEE**

All students are required to conduct a yearly progress report meeting with their advisor, scheduled by December 31 and completed by April 30. Failure to do so will result in a hold being placed on the student’s registration.

**ASSESSMENTS AND EXAMINATIONS**

M.S.–thesis tract: A master's thesis is required, and must be approved by the major professor and two additional faculty members. A public oral presentation of presentation of the thesis research is required.

M.S.–non-thesis tract: A paper demonstrating technical writing skill is required. The student can write this paper by working individually with a professor in a directed research setting, or as part of a seminar class. The professor in charge of the directed study or seminar course indicates acceptance of the paper as evidence of technical writing skill by signing the paper.

**TIME CONSTRAINTS**

The M.S. degree should be completed within three years. For additional time constraints please consult the Graduate School Academic Policies and Procedures (https://grad.wisc.edu/acadpolicy).

**LANGUAGE REQUIREMENTS**

No language requirements.

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**ADMISSIONS**

Prerequisites for admission are one semester of chemistry, three semesters of calculus, one semester of differential equations, and two semesters of calculus-based physics. Prior work in atmospheric or oceanic sciences is not required, but it is beneficial. Knowledge of computer programming is recommended. Admitted students generally have GRE quantitative scores of at least 151 (650 prior scale, 56% percentile), verbal reasoning scores of 152 (490 prior scale, 56% percentile) and analytical scores of 4.0 (48% percentile), and have a GPA of better than 3.0 on a 4.0 scale. International students must submit scores from the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). Applications are also judged on academic record, letters of recommendation, prior research experience, and the statement of purpose. Ph.D. students must have an advisor identified before they can be recommended for admission.

**LEARNING OUTCOMES**

**KNOWLEDGE AND SKILLS**

- Acquisition of a broad foundation of knowledge contained in our graduate-level core courses: Geophysical Fluid Dynamics I and II, Radiation in the Atmosphere and Ocean, Introduction to Atmospheric and Oceanic Physics, Introduction to Physical Oceanography.
- Students will have learned the historical origin and significance of certain issues central to the field by taking a special seminar course (ATM OCN 900 Seminar-Meteorology).
- Students will have developed a good problem-solving skill that prepares them to become efficient supporting scientists for research institutions or effective career atmospheric professionals in operational units of government or commercial institutions.
- Students articulate, critique, or elaborate the theories, research methods, and approaches to inquiry or schools of practice in the field of study.

**PROFESSIONAL CONDUCT**

- Students recognize and apply principles of ethical and professional conduct.

**PEOPLE**

Faculty: Professors Petty (chair), Ackerman, Hitchman, Liu, Martin, Morgan, Tripoli, Wang; Associate Professors Desai, Holloway, McKinley, Vimont; Assistant Professors Back, L’Ecuyer