

# METEOROLOGY AND ATMOSPHERIC SCIENCE

## Integrated Undergrad-Grad Programs

### Integrated B.S. in Meteorology and Atmospheric Science and M.S. in Meteorology and Atmospheric Science

This Integrated Undergraduate/Graduate (IUG) degree program combines the B.S. in Meteorology and Atmospheric Science with the M.S. in Meteorology and Atmospheric Science offered at the following campuses:

#### Undergraduate Degree

- University Park

#### Graduate Degree

- University Park

Requirements listed here are in addition to requirements listed in GCAC-210 Integrated Undergraduate-Graduate (IUG) Degree Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-210-integrated-undergraduate-graduate-degree-programs/>).

The Department of Meteorology and Atmospheric Science offers an integrated B.S./M.S. program, also called the Integrated Undergraduate-Graduate (IUG) program, that is designed to allow academically superior students to obtain both the B.S. and the M.S. degree in Meteorology and Atmospheric Science in five years of study. In order to complete the program in five years, students interested in the IUG program in Meteorology and Atmospheric Science must apply for admission to the Graduate School and the IUG program no later than the end of the second week of the semester preceding the semester of expected conferral of the undergraduate degree.

During the first three years, the student will follow the course scheduling of one of the options in the B.S. degree, normally the Atmospheric Sciences or the General Option (see the Undergraduate Bulletin (<http://bulletins.psu.edu/undergraduate/>)). Students who intend to enter the IUG program are encouraged to take upper level classes during their first three years whenever appropriate. However, students must sequence their courses so all undergraduate degree requirements are fulfilled before taking courses to count solely towards the graduate degree. By the end of the junior year, students normally apply for admission to both the IUG Program and to the Graduate School. Acceptance decisions will be made prior to the beginning of the senior year and M.S. advising committees appointed for successful applicants. During the senior year, IUG students follow the scheduling of the selected B.S. Meteorology and Atmospheric Science Option, with an emphasis on completing 500-level course work as appropriate. During the senior year, IUG students will start work on their theses or papers that are designed to meet the requirements of the M.S. degree in Meteorology and Atmospheric Science. During the fifth year, IUG students take courses fulfilling the departmental M.S. degree requirements and complete their M.S. theses or papers. Typical scheduling plans for students pursuing the General or Atmospheric Sciences Options are given on the Meteorology and Atmospheric Science Undergraduate Bulletin page (<http://undergraduate.bulletins.psu.edu/undergraduate/colleges/earth->

[mineral-sciences/meteorology-atmospheric-science-bs/](http://bulletins.psu.edu/undergraduate/colleges/earth-mineral-sciences/meteorology-atmospheric-science-bs/)). If a plan similar to one of these plans is followed, then the student will have completed all requirements for the B.S. in Meteorology and Atmospheric Science by the end of the fourth year. If a student cannot continue in the integrated program, then the student will be able to receive the undergraduate degree upon completion of all of the B.S. requirements.

#### Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (<https://gradschool.psu.edu/graduate-admissions/how-to-apply/>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (<https://gradschool.psu.edu/graduate-education-policies/>).

Students must apply to the program via the Graduate School application for admission (<http://gradschool.psu.edu/prospective-students/how-to-apply/>), and must meet all the admission requirements of the Graduate School and the Meteorology and Atmospheric Science graduate program for the Master of Science degree. In consultation with an adviser, students must prepare a plan of study appropriate to this integrated program, and must present their plan of study to the head of the graduate program or the appropriate committee overseeing the integrated program prior to being admitted to the program. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser as the student advances through the program.

Before applying to the Graduate School, students must have completed entrance to their undergraduate major and have completed no less than 60 credits. Students must be admitted no later than the end of the second week of the semester preceding the semester of expected conferral of the undergraduate degree. Transfer students must have completed at least 15 credits at Penn State to enroll in an IUG. Admission to the program will be at the discretion of the Associate Head of the Department of Meteorology and Atmospheric Science graduate program, who will determine the necessary criteria for all applicants. These criteria include the setting of the minimum required scores on the GRE and minimum cumulative GPA for consideration, the receipt of recommendation letters from three faculty and a letter of support from the department head, and the identification of an adviser who is willing to oversee the student's research project. Evidence of significant research potential must be provided in the application.

#### Degree Requirements

Students must fulfill all degree requirements for each degree in order to be awarded that degree, subject to the double-counting of credits as outlined below. Degree requirements for the Bachelor of Science in Meteorology and Atmospheric Science are listed in the Undergraduate Bulletin (<http://bulletins.psu.edu/undergraduate/>). Degree requirements for the Master of Science in Meteorology and Atmospheric Science are listed on the Degree Requirements tab. All IUG students must defend their theses or papers, as do all M.S. students, in a public presentation toward the end of their graduate program.

Up to 12 credits may be double-counted towards the degree requirements for both the graduate and undergraduate degrees; a minimum of 50% of the double-counted courses must be at the 500 or 800 level. Independent study courses and credits associated with the culminating experience for the graduate degree cannot be double-counted.

Code	Title	Credits
<b>Courses Eligible to Double Count for Both Degrees</b>		
METEO 520	Geophysical Fluid Dynamics	3

METEO 521	Dynamic Meteorology	3
METEO 532	Chemistry of the Atmosphere	3
METEO 533	Cloud Physics	3
METEO 535	Radiative Transfer	3
METEO 554	Atmospheric Turbulence	3
METEO 551	Physical Oceanography	3
METEO 556	The Atmospheric Boundary Layer	3
METEO 570	Climate System Dynamics	3

Students must sequence their courses so all undergraduate degree requirements are fulfilled before taking courses to count solely towards the graduate degree. Students are expected to complete the undergraduate degree requirements within the typical time to degree for the undergraduate major. In the semester in which the undergraduate degree requirements will be completed, IUG students must apply to graduate, and the undergraduate degree should be conferred at the next appropriate Commencement.