ATMOSPHERIC AND OCEANIC SCIENCE

College of Computer, Mathematical, & Natural Sciences
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The department is particularly strong in atmospheric chemistry and air pollution, mesoscale to global numerical weather prediction, data assimilation, earth sciences and climate, physical oceanography, remote sensing, and dynamics with predictability. These strengths are reinforced by strong collaborations leading to joint research topics with NASA Goddard Space Flight Center, Maryland Departments of the Environment and of National Resources, the National Centers for Environmental Prediction (NCEP) of the National Weather Service, the NOAA Satellite (NESDIS) and Air Research Laboratories, all of which are located near the campus. Interdisciplinary programs with the Departments of Geology, Physics, Chemistry, Mathematics, Computer Sciences, Geography, the Marine-Estuarine Environmental Science, and Hydrology (within the School of Engineering) are also encouraged. The department has two members of the National Academy of Engineering and a member of the Academia Europaea.

PROGRAMS

Major

- Atmospheric and Oceanic Science Major (https://academiccatalog.umd.edu/undergraduate/colleges-schools/computer-mathematical-natural-sciences/atmospheric-oceanic-science/atmospheric-oceanic-science-major/)

Minors

- Atmospheric Chemistry Minor (https://academiccatalog.umd.edu/undergraduate/colleges-schools/computer-mathematical-natural-sciences/atmospheric-oceanic-science/atmospheric-chemistry-minor/)
- Atmospheric Sciences Minor (https://academiccatalog.umd.edu/undergraduate/colleges-schools/computer-mathematical-natural-sciences/atmospheric-oceanic-science/atmospheric-sciences-minor/)
- Climate Change Fluency Minor (https://academiccatalog.umd.edu/undergraduate/colleges-schools/computer-mathematical-natural-sciences/atmospheric-oceanic-science/climate-change-fluency-minor/)
- Meteorology Minor (https://academiccatalog.umd.edu/undergraduate/colleges-schools/computer-mathematical-natural-sciences/atmospheric-oceanic-science/meteorology-minor/)

ADVISING

It is mandatory for students in this program to meet with their academic advisor at least once per semester. Students will be assigned an academic advisor at new student orientation. Students who need to make an advising appointment should check TerpEngage for available appointments and drop-in hours. Other questions about advising or adding any major or minor programs in AOSC can be directed to aosc-advise@umd.edu.

OPPORTUNITIES

Undergraduate Research Experiences

Many of our present undergraduate students have sought out and obtained productive internships in the Washington, D.C. area. These experiences (whether at NASA, NOAA, EPA, DOE or other federal or state agencies) are important both to our students' academic careers, as they provide context and generate ideas for independent research projects, and to their professional careers. In light of this importance, we have made an undergraduate senior thesis mandatory for all AOSC majors (see the courses AOSC493 and AOSC498). Our majors have the opportunity and are required to perform research! Non-majors may also participate in undergraduate research through AOSC499 or informally with individual professors and research scientists.

Internships

Internships are an integral part of our program. All AOSC majors must complete and defend a full year research project during their senior year. Many opportunities are available at nearby research facilities such as NASA and NOAA.

Honors Program

Each year, the AOSC Honors Program Committee reviews the academic records of AOSC majors. Students with a minimum 3.00 overall GPA and a minimum 3.30 major GPA will be added to the AOSC Honors List. For students on the AOSC Honors list certain graduate courses are open. To receive a citation of "with honors in atmospheric and oceanic science" the student must:

- Have earned a 3.00 or higher overall GPA and a 3.30 or higher GPA for all AOSC major required courses at graduation time
- Pass two approved AOSC graduate level classes with a grade of "B-" or better.
- Pass an Honors Oral Examination in their senior year.

To receive a citation of "with high honors in atmospheric and oceanic science" the student must complete the requirements for honors and receive a high pass for the thesis.

Student Societies and Professional Organizations

The undergraduate program features an active student chapter of the American Meteorological Society.

Scholarships and Financial Assistance

The department maintains awards for highly qualified undergraduate students. Please contact the department for details.

In addition, the Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: http://financialaid.umd.edu.

Academic Programs and Departmental Facilities

Our department hosts an undergraduate major, three undergraduate minors, a professional master's and a full academic graduate program. The overlap between the professional master's program and the undergraduate program allows incoming freshman to earn both a bachelor's and a master's degree in five years. We believe that research is an essential part of an undergraduate experience, and require all our majors to complete a senior thesis as part of their education!

We maintain computer labs for the use of our students in addition to the computer facilities provided by the university, with all major operating systems represented. Several of our research groups also have their own compute clusters, and those who need to access still more powerful computing resources can use NASA, NOAA and NCAR machines. The department hosts several large disk arrays for local data storage and general-use compute clusters for student use in classes and on small projects. All are accessible from our laboratories. We are in the process of completing and advance forecasting/data visualization lab for students to prepare forecasts, analyze data, and general classroom use.

We have a state of the art rooftop meteorological laboratory, which currently houses standard meteorological instruments and more than a dozen atmospheric chemistry measurements. This facility also frequently hosts instruments from nearby research laboratories such as NASA and NOAA. A short distance away, our department runs an atmospheric chemistry, precipitation and deposition field site at the Beltsville Agricultural Research Center.

Closely affiliated departments and programs, the Earth System Science Interdisciplinary Center (ESSIC) and the Joint Global Change Research Institute (JGCRI) are in the MSquare development immediately east of the main campus, and numerous world-class federal facilities are a short walk or drive away. The new NOAA Center for Weather and Climate Prediction with 700 NOAA researchers is housed next to ESSIC and JGCRI in the MSquare development just east of US Route 1. NASA's Goddard Space Flight Center is five miles down the road, and the National Institute of Standards and Technology, Naval Research Labs, Environmental Protection Agency, and many more are also located in the Washington, D.C. Metro area. All have hired our graduates and host frequent collaborations with our faculty and students.