

ATMOSPHERIC SCIENCES

M.S., Ph.D. Degrees, Minor M.S., PH.D., ATMOSPHERIC SCIENCES

The field of atmospheric science covers a wide variety of disciplines involving the physical and chemical properties and processes of the atmosphere. Emerging trends in atmospheric science stress the interactions of the atmosphere with other components (e.g., land, sea ice, ocean) in the total earth system.

The UAF Geophysical Institute, the International Arctic Research Center and other university research institutes support active research programs in high-latitude atmospheric science that include faculty from biology, chemistry, physics, engineering and other departments. Current research by atmospheric sciences focuses on atmospheric chemistry and biogeochemistry, climate modeling, cloud and aerosol physics, mesoscale modeling, numerical weather prediction and aviation weather, and the upper atmosphere (stratosphere and mesosphere). In addition, scientists affiliated with the research institutes conduct research on ocean-atmosphere interactions, dynamic meteorology, micrometeorology and microclimatology, polar meteorology, radiative transfer, cryosphere-atmosphere interactions and remote sensing.

Graduate students are an integral component of this research, both in the experiments in the laboratory and the field as well as in high-performance computing. Research institutes provide excellent environments for research in atmospheric science as well as interdisciplinary research with scientists in other research areas.

Minimum Requirements for Atmospheric Sciences Degrees: M.S.: 30 credits; Ph.D.: 45 credits

M.S., PH.D., EARTH SYSTEM SCIENCE

Earth System Science at UAF is a multidisciplinary degree program that provides the option for a disciplinary concentration in one of eight topics:

- Sustainability
- Ecosystems
- Hydrology
- Atmospheric and Climate Sciences
- Cryosphere
- Solid Earth Geophysics
- Geoscience
- Geospatial Science

The ESS program involves faculty participation from six departments and programs:

- Natural Resources and Environment
- Center for Cross-Cultural Studies
- Biology and Wildlife
- Civil, Geological, and Environmental Engineering
- Atmospheric Sciences
- Geosciences

and five research institutes:

- Institute of Agriculture/Natural Resources and Extension
- Institute of Arctic Biology
- Institute of Northern Engineering
- International Arctic Research Center
- Geophysical Institute.

Minimum Requirements for Earth System Science Degrees: M.S.: 30 credits; Ph.D.: 26-41 credits.

MINOR, AGROMETEOROLOGY

This minor provides an opportunity for upper-level undergraduates from sciences (e.g., natural sciences and agriculture, geosciences, geography, physics), mathematics and engineering across the University of Alaska system to pursue a concentration and specialization in agrometeorology. The minor is established in the College of Natural Science and Mathematics and fostered by worldwide specialists in the fields of meteorology, climate and agriculture from the Department of Atmospheric Sciences and the Department of Natural Resources and Environment. This minor aims to provide the student with training in state-of-the-art experimental and computational methodologies and tools, as well as a deep theoretical understanding of the transdisciplinary process at the convergence and intersection between agriculture and meteorology/climate. All courses listed for this minor present a module for professional practices in the field and in computers so that the student can profile a pathway for workforce development.

With a minor in agrometeorology, the student would have a well-rounded and hands-on formation in all aspects involving agricultural systems that influence or are influenced by meteorological and climate processes. The program is fully compliant with the standard practices set by the U.S. Department of Agriculture, the U.S. National Weather Service and the World Meteorological Organization objectives in terms of seasonal analysis, forecasting activities and decision-making processes.

Minimum Requirements for Agrometeorology Minor: 24 credits

College of Natural Science and Mathematics

Department of Atmospheric Sciences (<https://www.uaf.edu/atmos/>)
907-474-7368

Programs Degrees

- M.S., Atmospheric Sciences (<https://catalog.uaf.edu/masters/atmospheric-sciences/>)
- M.S., Earth System Science (<https://catalog.uaf.edu/masters/earth-system-science/>)
- Ph.D., Atmospheric Sciences (<https://catalog.uaf.edu/phd/atmospheric-sciences/>)
- Ph.D., Earth System Science (<https://catalog.uaf.edu/phd/earth-system-science/>)

Minor

- Minor, Agrometeorology (<https://catalog.uaf.edu/minors/agrometeorology/>)