EARTH AND ATMOSPHERIC SCIENCES

Department of Earth and Atmospheric Sciences

UNDERGRADUATE DEGREE PROGRAM
Study of the Earth and atmospheric sciences (EAS) has never been more critical to society than it is today. By analyzing the complex relationships between the ocean, solid earth, atmosphere, and biosphere, students can help meet society’s growing demand for energy, minerals, and clean water as well as contribute to mitigating the negative impacts of global climate change, dwindling energy resources, inadequate water supplies, and political strife over strategic minerals. Globally these problems are becoming more and more acute, while volcanic eruptions, earthquakes, tsunamis, and hurricanes threaten our increasingly concentrated populations and complex infrastructure with disaster on unprecedented scales.

Cornell is a global leader in research directed toward understanding the fundamental processes that have shaped our planet. The EAS major provides Cornell students with the earth literacy needed to be informed citizens and wise stewards of the Earth. EAS faculty members and graduate students carry out frontier research on both basic and applied aspects of subjects as diverse as satellite monitoring of volcanic activity, the deep structure of the Andes Mountains and Tibetan Plateau, natural and man-made earthquakes, the nature of the Earth’s ionosphere, ocean acoustics, controls on global climate, and improved weather prediction.

The EAS major is the undergraduate program offered by the Department of Earth and Atmospheric Sciences in the Colleges of Engineering, Arts and Sciences, and Agriculture and Life Sciences. Students in this program can pursue education and research that prepare them to compete for careers or graduate study. You may choose to focus on one of a number of disciplinary specialties, such as geophysics or biogeochemistry, or to develop the broad expertise needed to understand the interactions between the diverse elements of Earth and life in the past, present, and future.

The EAS program is intrinsically interdisciplinary, involving many branches of science and engineering. It incorporates the fundamentals of Earth Science with the emergence of a new and more complete approach that encompasses all components of the earth system—air, life, rock, and water—to gain a new and more comprehensive understanding of the world as we know it. It draws on the expertise of several of Cornell Engineering’s schools and departments, including civil and environmental engineering, biological and environmental engineering, mechanical and aerospace engineering, and electrical and computer engineering.

Hands-on work is an inherent part of how students achieve complete understanding of the issues raised through the coursework. There are many opportunities for you to engage in geological, oceanographic, and meteorological research in the field, and for national and international travel as well as paid research experiences. EAS students have worked with faculty members in the Andes, the Aleutian Islands, the Rocky Mountains, the Atacama Desert, the Caribbean, Tibet, and Hawaii. Some have spent a semester at sea in the Woods Hole Ocean Studies Program. You will be able to probe the ionosphere of Earth and the surface of Mars using remote sensing techniques.

EAS REQUIRED COURSES
Choice of Three:
- EAS 3010 Evolution of the Earth System
- EAS 3030 Introduction to Biogeochemistry
- EAS 3040 Interior of the Earth
- EAS 3050 Climate Dynamics
CAREER OPPORTUNITIES
environmental engineering and policy
geoenergy
groundwater conservation
meteorology
natural hazards
oceanography
climate change modeling
research in academe, government, or industry
science education

CAREER OPPORTUNITIES

The EAS major provides a strong preparation for graduate school in any one of the earth sciences, such as atmospheric sciences, geologic sciences, geophysics, geochemistry, oceanography, hydrology, biogeochemistry and environmental geosciences. Students seeking employment with the degree will have many options in a wide variety of careers related to energy, the environment, and critical resources in both the private sector and government. The energy industry, to cite one example, is entering a demographic turnover that will result in large numbers of high paying positions in the near future. Students with the strong science background provided by the EAS major are also highly valued by graduate programs in environmental law, public affairs, economics, and public policy.

CONCENTRATIONS

All EAS students must select an area of interest in which to concentrate. Standard concentrations include: atmospheric sciences; environmental geosciences; geological sciences; and ocean sciences.

Students may also create their own concentration by working closely with a faculty advisor.

EAS SAMPLE ELECTIVE COURSES

EAS 1101 Climate and Energy: a 21st-Century Earth Science Perspective
EAS 1220 Earthquake!
EAS 1540 Introductory Oceanography
EAS 1700 Evolution of the Earth and Life
EAS 2680 Climate and Global Warming
EAS 4010 Fundamentals of Energy and Mineral Resources
EAS 4040 Geodynamics
EAS 4050 Active Tectonics
EAS 4260 Structural Geology
EAS 4620 Marine Ecosystem Sustainability
EAS 4470 Physical Meteorology
EAS 4790 Paleobiology

EAS By the Numbers

Starting salaries of B.S. Earth and Atmospheric Sciences graduates
Median $40,669

Earth and Atmospheric Sciences undergraduate students 44
  College of Agriculture and Life Sciences 22
  College of Arts and Sciences 14
  College of Engineering 8

Geological Sciences graduate students 28

MASTER OF ENGINEERING DEGREE PROGRAM

The one-year Master of Engineering (M.Eng.) Program in Geological Sciences provides future professional geoscientists or engineers with the geoscience and engineering background they will need to analyze and solve engineering problems that involve earth system variables and concepts. Individual programs are developed within several established options: geohydrology, remote sensing, hazards, applied and environmental geophysics, and ocean science and technology (joint program with the Woods Hole Oceanographic Institution).

eas.cornell.edu