Department of Geosciences

Mission:

The Auburn University Department of Geosciences offers undergraduate and graduate degree programs in Geology, Geography and Environmental Studies, and Earth System Science and undergraduate and graduate certificate programs in Geographic Information Systems Science. The department supports students in a unique learning environment that promotes team-based approaches to explore and solve problems across disciplines. Our department is made up of nationally recognized Geosciences faculty, staff, students, alumni, and community partners who explore dynamic issues of Earth, Environment, and Society.

Faculty and staff explore a range of specializations in the disciplines of Geography and Geology, two in-demand STEM (Science-Technology-Engineering-Math) fields at Auburn. We are committed to student excellence, research excellence, and teaching excellence. Auburn geoscientists are deeply invested in the land, sea and space grant missions of Auburn University. This includes a strong outreach and service commitment to the citizens of Alabama and beyond.

Research:

Directly linked to the department's educational programs is a nationally recognized, faculty-based- program of both basic and applied research, which expands our general geosciences knowledge base as well as addresses pressing societal needs. Department research and training facilities include elemental and isotope mass spectrometers, X-ray diffraction/fluorescence, geochronology labs, and field-based geophysical, hydrogeologic, and GIS and drone equipment. The department includes several active research and teaching themes demonstrating the breadth and depth of the Geosciences. These themes include, but are not limited to:

Earth and Life Through Time– Sedimentology/Paleobiology/Geomicrobiology

Environmental Geosciences– Climate/Hydrogeology/Environmental Geochemistry/Water Resources/Natural Hazards

Geospatial Sciences and Geoinformatics– Geographic Information Systems/Remote Sensing/UAVs/Data Science

Natural Resources Exploration– Energy/Minerals/Engineering Geology

Solid-Earth Processes and Dynamics– Petrology/Geochemistry/Volcanology/Structural Geology/Tectonics/Geophysics

Geoscience Education and STEM Education- Geocognition/Climate and Geoscience Communication/STEM Education.

Impact:

This research in the department is often linked to outreach and service activities supporting the Auburn land-grant mission and results in dissemination of new knowledge to the state, nation, and international communities. The department is further dedicated to outreach and service activities through technological links to agencies, professional societies, publishing houses, industry, and other educational institutions. In fall 2024, the department unveiled plans for Geo Explorer Auburn mobile labs. This 36-foot mobile science lab will support education and outreach opportunities for K-12 students, families, and community groups. The vehicle is expected to be completed in late Spring 2025. Once on the road, the world's largest geosciences-themed mobile lab will provide science and technology learning experiences in a "science on wheels" program. STEM education researchers in the department will also collect, analyze, and disseminate learning and engagement data related to the mobile lab experience to inform the STEM education literature.

Teaching:

The Geology program covers traditional field, petrologic, and petrographic instruction as well as emerging areas in geochemistry, geophysics, and environmental geology. The Geography and Environmental Studies program covers the breadth of Geography from human to physical as well as the mapping and spatial (Geographic Information Systems [GIS] and Remote Sensing) sciences. Though united in our focus on the Earth, Environment, and Society, the disciplines of Geology and Geography are very broad fields, and the expertise of our faculty spans a wide range of the natural and social sciences, bridging them perhaps better than any other unit at Auburn University. department includes several active research and teaching themes demonstrating the breadth and depth of the Geosciences.

Future Ambitions:

- Transition into the new STEM+AG building (expected to open in fall 2026) to house all Geosciences personnel, students, and facilities.
- Hire more faculty in strategic areas of research and teaching.
- Enhance extramural funding to support research and outreach efforts of faculty, students, staff, and community partners.
- Develop a new interdisciplinary center of excellence at Auburn focused on Earth Systems Science.
- Grow enrollments in current Geology and Geography/Environmental Studies undergraduate majors, while creating additional new majors.



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