

jobs COMPANIES RECRUITING OUR STUDENTS
Representatives from Chevron, Arcadis, ExxonMobil, and other firms hold recruiting sessions in Bloomington during September and October. Travel support from the department will allow students to participate in AAPG jobs fairs in Houston and Laramie.

explore
your
Earth!

CONTACT INFORMATION

Chair of the Department:

James Brophy | geochair@indiana.edu | (812) 855-5581

Director, Graduate Studies:

Simon Brassell | simon@indiana.edu | (812) 855-3786

Director, Undergrad Studies:

Kaj Johnson | kajjohns@indiana.edu | (812) 855-3612

Mailing Address:

Department of Earth and Atmospheric Sciences

Indiana University

1001 E. 10th Street, Bloomington IN 47405

Website: <http://earth.indiana.edu/>

Phone (general info): (812) 855-5582

Email: geoinfo@indiana.edu

EARTH AND ATMOSPHERIC SCIENCES

<http://earth.indiana.edu>



Atmospheric Science at Indiana University is a dynamic program with exciting opportunities to undertake field, satellite, or modeling research. Our faculty members actively conduct both observational and modeling studies of weather and climate processes across scales, from cold fronts and tropical cyclones, to global atmospheric cloud and circulation patterns.

The Atmospheric Science Group is an active participant in the interdisciplinary research of other Earth and Atmospheric Sciences faculty, including paleoclimate research and global climate change studies. The Department's diverse, close-knit group of researchers enjoys a collective expertise in atmosphere-hydrosphere-solid earth interactions. We are among the most active users of IU's high-performance parallel computing facilities which include the new Big Red II machine-one of the world's 70 fastest supercomputers.

atmospheric science

FACULTY: CHANH Q. KIEU, CODY KIRKPATRICK, PAUL W. STATEN, AND BEN KRAVITZ (JANUARY 2019)

biogeo-chemistry

Our research programs are rooted in the exploration of molecular and isotopic characteristics of organic matter in diverse geological settings. The programs address challenges in the limits of understanding how the evolution and persistence of complex interactions between chemical, geological and biological systems shape our planet and its neighbors. Biogeochemistry is inherently multidisciplinary, positioned at the intersection of biology, geology, and chemistry, and typically combines field investigations and sampling with laboratory analyses and experimentation to yield empirical data that can constrain computational models.

FACULTY: SIMON BRASSELL, ERIKA ELSWICK, MARIA MASTALERZ, EDWARD RIPLEY, JUERGEN SCHIEBER, PETER SAUER, ARNDT SCHIMMELMANN, JEFF WHITE, CHEN ZHU

Economic Geology encompasses all areas in the geological sciences that pertain to the extraction or production of geologic materials for profit. Natural resource utilization throughout the world includes geologic materials such as metals, non-metals, fuels, and water.

Here at IU we have faculty and research scientists who are involved in both field/analytical and experimental studies of all of these natural resources. We have an active group investigating the genesis of metallic ore deposits that occur in magmatic, hydrothermal, and sedimentary environments. Several faculty and research staff are also involved in studies that relate to the genesis and localization of petroleum, coal, and natural gas.

economic geology

FACULTY: JIM BROPHY, CHUSI LI, MARIA MASTALERZ, EDWARD RIPLEY

geobiology geoanthropology geoarchaeology

These disciplines investigate the interactions between life and environments throughout Earth's history. Principles of paleontology form the foundation that bridges geologic, biologic, chemical, and anthropologic sciences. Geobiology relies on analysis of fossils in their geologic, and thus historical and environmental contexts to test hypotheses about the history of life. Geoarchaeology and geoanthropology focus on the spatial, temporal, and environmental context of humans in the most recent phases of Earth history.

The IU Paleontology Collection, which contains more than 1.3 million fossil specimens, offers special opportunities for specimen-based research, teaching, and outreach.

FACULTY: SIMON BRASSELL, ERIKA ELSWICK, ED HERRMANN, CLAUDIA JOHNSON, JACKSON NJAU, P. DAVID POLLY

geophysics geomorphology tectonics

Critical to our understanding the Earth is knowledge of the physical processes that shape the Earth's formation, evolution, and present-day dynamics. The combination of state-of-the-art geophysical instrumentation and advanced computational capabilities makes it possible to observe and quantitatively model complex geological systems in ways that were previously unimaginable.

At IU, our research applications of these geophysical methods include studies of global plate tectonics, earthquake-related deformation, earthquake forecasting and hazards, volcanology, structural geology, and tectonic geomorphology. We utilize recent advances in quantitative geochronology, thermochronology, and petrology in interdisciplinary investigation of deep Earth and surface processes involved in crustal deformation, sedimentary basin formation, magmatism, landscape evolution, and natural hazard mitigation.

FACULTY: BRUCE DOUGLAS, MICHAEL HAMBURGER, KAJ JOHNSON, BRIAN YANITES

Our mineralogy and petrology program involves the study of rocks from all terrestrial and some planetary environments. We have active projects in sedimentary, igneous, and metamorphic rocks funded by NSF and NASA and sited on all 7 continents and on Mars. Current investigations include research on basalt and tonalitic magma generation, magmatic processes and sulfide ore formation, structural and rheological properties of metamorphic rocks, pure and applied clay mineralogy, the mineralogy of natural zeolites, and planetary mineralogy. These projects, involving natural samples and experimental methods, interface with and contribute to our hydrology, biogeochemistry, inorganic geochemistry, and geophysics research efforts.

FACULTY: JIM BROPHY, CHUSI LI, EDWARD RIPLEY, JUERGEN SCHIEBER

Sedimentary geology utilizes sedimentary rocks to investigate the processes that shaped the surface of the early Earth and understand the history of how those processes have interacted to control the Earth system. In addition to traditional techniques like facies analysis and provenance analysis, cutting-edge application of techniques ranging from stable isotope geochemistry to detrital zircon geochronology are leading rapid developments in what can be learned from the sedimentary record.

sedimentology stratigraphy

IU builds on traditional strengths in physical sedimentology and basin analysis to define new frontiers in tectonics, paleoclimate and sedimentary processes. Training in sedimentary geology provides a myriad of employment options, ranging from academia to government, to careers in the energy industry.

FACULTY: SIMON BRASSELL, DOUG EDMONDS, ERIKA ELSWICK, JUERGEN SCHIEBER

Earth's surface and environment is a dynamic zone that extends from the base of weathered bedrock to the top of trees. In this zone, the atmosphere, water, biota, and tectonics interact to influence landscapes, water resources, natural hazards, climate, biogeochemical cycles, and life.

Faculty at Indiana University teach relevant courses on Sedimentology, Geochemistry, Hydrogeology, and Geomorphology. Recent research projects on Earth's surface and environment include dynamics of ground- and surface waters, geological carbon sequestration, evolution of landscapes, rivers, and deltas, interaction of climate and topography, dynamics of geochemical cycles, and contamination of soils and surface and ground waters.

FACULTY: CHRIS CRAFT, DOUG EDMONDS, JEFF WHITE, BRIAN YANITES, CHEN ZHU

mineralogy petrology

surface processes + environment



IU GEOLOGIC FIELD STATION

The Indiana University Geologic Field Station, located in Cardwell, Montana, is home to undergraduate and graduate courses and research seminars. Our field courses place emphasis on solving problems in the field by collection and analysis of field data.

The ultimate goal of these courses is to improve students' abilities to generate and utilize field-based data in solving geologic problems and to increase understanding of the processes that were involved.

EAS X429 *Field Geology in the Rocky Mountains* is the Field Station's flagship course and is frequently the required capstone course for advanced college geosciences majors. X429 is an immersive, hands-on, field geology course. It is designed to allow students to build and integrate diverse geoscience skills to solve 4-dimensional geologic problems. Projects range from outcrop scale to regional scale, and cover most sub-disciplines of the geosciences.

G700 *3-D Structural Analysis* is designed to provide an intense 12-day field based program taught at the Indiana University Geological Field Station. The seminar will focus on the creation of a 3-D model that can be studied and restored using state of the art software packages.

DIRECTOR OF THE FIELD STATION

Jim Handschy | jwhandsch@iu.edu | (812) 855-1475

ACADEMIC DIRECTOR

Bruce Douglas | douglasb@indiana.edu | (812) 855-3848

IUGFS CONTACT INFORMATION FOR SUMMER ENROLLMENT:

iugfs@indiana.edu | (812) 855-1475

www.indiana.edu/~iugfs

