500-Level Courses that Carry Graduate Credit

EAS G504 Geobiology 3 credits. Geobiology is the application of biological principles and fossils to the study of earth history.

EAS G506 Introduction to Geochemistry 3 credits. Chemistry in the study of the earth, employing elementary chemical thermodynamics, the phase rule, chemical equilibria, redox reactions, the radioactive decay law, and organic chemistry.

EAS G511 Invertebrate Paleontology 3 credits. Application of biological principles and use of fossils in the study of Earth's history; origin of life and the early fossil record; evolution; approaches to taxonomy; chemistry of fossils; ecology of ancient life; use of fossils to measure geologic time.

EAS G512 Introduction to Vertebrate Paleontology 2-3 credits. Fossil record, comparative morphology, phylogeny, biogeography, and paleoecology of the major vertebrate groups.


500-Level Courses for Atmospheric Science

EAS G534 Dynamic Meteorology: Synoptic to Global Scale 3 credits. Introduction to dynamical processes and analysis in the atmosphere.

EAS G537 Synoptic Meteorology and Climatology 3 credits. Analysis and prediction of synoptic scale weather systems, emphasizing the mid-latitudes.

EAS G538 Air Pollution Meteorology 3 credits. Analysis of the physical laws that govern the transport, transformation, and removal of atmospheric pollutants.

EAS G540 Physical Meteorology and Climatology 3 credits. Introduced to the physical processes and properties of the atmosphere.

EAS G556 Wind Power Meteorology 3 credits. The science of wind power meteorology will be explained with a focus on practical elements of how to measure wind resources, estimate wind turbine loads and wind turbine siting.

EAS G564 Dynamic Meteorology: Boundary-Layer Meteorology 3 credits. Basic meteorological theory for processes in the atmospheric boundary-layer that scale from the microscale to the mesoscale.

EAS G570 Micrometeorology 3 credits. Atmospheric processes at the micro and local scale.

EAS G594 Numerical Weather Prediction 3 credits. This course covers the conceptual foundations of techniques that are commonly used in numerical weather prediction for atmospheric and oceanic modeling.

400-Level Courses that Carry Graduate Credit

EAS E404 Geobiology 3 credits. Geobiology is the application of biological principles and fossils to the study of earth history.

EAS E406 Introduction to Geochemistry 3 credits. Chemistry in the study of the earth, employing elementary chemical thermodynamics, the phase rule, chemical equilibria, redox reactions, the radioactive decay law, and organic chemistry.

EAS E411 Invertebrate Paleontology 3 credits. Application of biological principles and use of fossils in the study of Earth's history; origin of life and the early fossil record; evolution; approaches to taxonomy; chemistry of fossils; ecology of ancient life; use of fossils to measure geologic time.

EAS E412 Introduction to Vertebrate Paleontology 2-3 credits. Fossil record, comparative morphology, phylogeny, biogeography, and paleoecology of the major vertebrate groups.


EAS E416 Economic Geology 3 credits. Geologic occurrence and genesis of economic mineral deposits, including petroleum and coal.

EAS E417 Optical Mineralogy 3 credits. Use of crystal optics and the petrographic microscope to identify minerals, textures, rocks, and mineral reactions in thin sections of rock.

EAS E418 Igneous and Metamorphic Petrology 3 credits. The petrogenesis of igneous and metamorphic rocks.

EAS X420 Regional Geology Field Trip 1-2 credits.

EAS X423 Methods in Applied Geophysics 4 credits. Application of geophysical principles to field and laboratory experiments, with emphasis on data acquisition, analysis, and geologic interpretation.


EAS X451 Principles of Hydrogeology 3 credits. Physical and chemical properties of water; chemical equilibria and stable isotopes in groundwaters; acid drainage, landfills, and agricultural pollution.

EAS X429 Field Geology in the Rocky Mountains 5 credits. Six weeks, including five weeks at the Geologic Field Station in Montana. Geologic reconnaissance, measurement of stratigraphic sections, mapping on aerial photographs, construction of structure sections.

EAS X428 Field Geology Fundamentals in Montana and Wyoming, a 5-week, 5-credit face-to-face field course based out of the IUGFS facility in SW Montana.

EAS X498 - a 1-week, 1-credit face-to-face subdiscipline concentration course based out of the IUGFS facility in SW Montana. There are five subdisciplines to choose from.

EAS G549 Field Geology and Paleoanthropology in Tanzania 6 credits. Hands-on experience in field geology and paleoanthropology of the Olduvai Gorge site situated on the flanks of East African Rift Valley in northern Tanzania.

EJU Earth and Atmospheric Science graduates are highly regarded and actively recruited by industry, government and other academic institutions. Our network of alumni has a tradition of helping graduates find and secure the jobs they seek.

If you are interested in more information about graduate studies, contact Doug Edmonds, the Graduate Advisor, at 812-855-4512 oredmonds@indiana.edu. For information about Field Station courses, contact Dr. Jim Handschy, Executive Director, IU Geologic Field Station, jwhandschy@iu.edu.

Note: this represents a sampling of course offerings in EAS. Please visit https://earth.indiana.edu/student-portal/graduate/courses/grad-course-list.html to get a complete list.