

FALL SEMESTER 2017 COURSES IN EARTH AND ATMOSPHERIC SCIENCES

100-Level General Introductory Classes

- **G103 Earth Science Materials and Processes** 3 credits - Introduction to origin and classification of minerals and rocks. Class #2371. Lecture Monday/Wednesday 4:40-5:30p.m., GY210. Laboratory: GY 214 (2 lab sections).
- **G104 Evolution of the Earth** 3 credits - The Evolution of the Earth is an introductory science course focused on the 5-billion years of Earth history. Class #5171. Lecture Tuesday/Thursday 1:25-2:15p.m., GY 126. Laboratory: GY 220 (5 lab sections).
- **G105 Earth Our Habitable Planet** 3 credits - Introduction to Planet Earth as a dynamic and complex global system. Class #2375. Lecture Tuesday/Thursday 2:30-3:20 p.m., GY 126. Laboratory: GY 220 (5 lab sections).
- **G114 Dinosaurs and Their Relatives** 3 credits – Origin and evolution of vertebrates including dinosaurs and their distant relatives such as fish, amphibians, birds, and mammals. Course will focus on dinosaur evolution, paleobiology, paleoecology, and extinction. Class #5179. Lecture Tuesday/Thursday 11:15-12:05 p.m., GY 126. Laboratory: GY 220 (5 lab sections).

100-Level Focused Introductory Classes

- **G121 Journey to Mars** 3 credits - Geological processes and products on Earth-like planetary bodies and asteroids; evidence from current meteorite, lunar, Martian, and space research. Class #2380. Lecture Monday/Wednesday 1:00-2:15 p.m. GY214.
- **G131 Oceans and Our Global Environment** 3 credits - Introduction to oceanography, with emphasis on ocean-atmospheric interaction and global climate, plate tectonics and morphology of the ocean basins, marine geology, energy resources, environmental problems due to sea-level rise, coastal erosion, oil spills, and life in the sea. Class #11575. Lecture 100% online course taught by IU Bloomington. No on-campus meetings are required.
- **G144 Extreme Weather and Its Impacts.** 3 credits - What are tornadoes? Why do they happen? Why did Katrina kill over a thousand people in New Orleans? What's the difference between sleet and snow, and why do I care? If you're interested in severe or extreme weather events, and want to learn more about them, come to G144. Class #12837. Lecture Monday/Wednesday 11:15 a.m. - 12:30 p.m., GY126. No Laboratory.

200-300-Level Intermediate Classes for Science Majors

- **G221 Introductory Mineralogy** 3 credits - The importance of minerals, the basic building blocks of rocks and the Earth. Atomic bonding, structures, and symmetry. Mineral chemistry and crystal structures (how their atoms are arranged), and how the minerals respond to changes in temperature, pressure, and environment. Hand-specimen identification of minerals using their physical properties. Class #2384. Lecture Monday/Wednesday/Friday 9:05-9:55 a.m., GY 221. Laboratory: GY 245 (2 Lab sections).
- **G225 Earth Materials** 4 credits - This course sequentially considers minerals, rocks, sediments, and soils; the materials that comprise the solid earth. The distribution and environmental significance of these materials are studied, as are their chemical and physical interactions with groundwater and plants. Class #32618. Lecture Tuesday/Thursday 11:15 a.m.-12:30 p.m., GY 522. Laboratory: GY 245 (2 lab sections).
- **G227 Earth Climate and History** 3 credits - Earth's climate is linked to geological processes and life on our planet. Covers climate systems in the context of changes in continents, atmospheric composition, and life on land and in the oceans. Focuses on interactions between humans and climate and how climate and its variability are tied to Earth systems. Class #32814. Lecture Monday/Wednesday/Friday 10:10-11:00 a.m., GY 338.
- **G332 Atmospheric Thermodynamics** 3 credits - Earth's weather and climate are controlled by how heat and moisture move in the atmosphere. In this course, students learn and apply the basic physical laws that govern those processes. Class #32768. Lecture Monday/Wednesday 11:15 a.m. – 12:30 p.m., BH 149.
- **G334 Principles of Sedimentation and Stratigraphy** 3 credits - Interrelationship of sedimentation and stratigraphy; processes and factors influencing genesis of sedimentary strata; provenance, depositional environment,

sedimentary facies, paleoecology; analytical techniques; application of principles of interpretation of stratigraphic record. Class #2387. Lecture Monday/Wednesday/Friday 10:10-11:00 a.m., GY 522. Laboratory: GY522 (2 lab sections).

- **G339 Weather Analysis and Forecasting** 3 credits - Analysis and interpretation of meteorological data with a focus on forecasting applications for the mid-latitudes. Students learn the practical skills that weather forecasters use. Class #30043. Lecture Monday/Wednesday/Friday 1:25-2:15 p.m., GY522. No laboratory.
- **G340 Physical Meteorology** 3 credits - Any introductory science course or consent of instructor. Topics span multiple scales of atmospheric processes including past/recent/projected climate change, weather forecasting, severe weather, and surface energy budgets. Class #12840. Lecture Monday/Wednesday 2:30-3:45 p.m. No laboratory.
- **G347 Atmospheric Instrumentation** 3 credits - Discusses the need to quantify atmospheric variables and processes. Introduces the principles of atmospheric measurement including sampling strategies, instrumentation, and the inverse problem. Radiative transfer theory is described. Research projects include the use of field, radar, and remotely sensed data to investigate weather and climate processes. Course #30045. Lecture Tuesday/Thursday 9:30-10:45 a.m. No laboratory.

400-Level Advanced Classes for Geology Majors

- **G406 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. Class #9701. Lecture Monday/Wednesday/Friday 11:15 a.m. – 12:05 p.m. GY522. No lecture.
- **G411 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 of taxonomy; chemistry of fossils; ecology of ancient life; use of fossils to measure geologic time. Class #30126. Lecture Tuesday/Thursday 1:00-2:15 p.m., GY 522. No laboratory.
- **G415 Principles of Geomorphology** 3 credits - Natural processes that form landscapes, surficial geologic materials and soils. Physics and chemistry of weathering. Dynamics of streams, wind, waves, glacier ice, and mass movement. Interactions of geomorphology and environment. Class #2390. Lecture Monday/Wednesday 2:30-3:20 p.m. GY210. Laboratory GY226 (1 lab session).
- **X420 Regional Geology Field Trip** 3 Credits - Origin of Granites in New England. Field investigation of selected regions of North America for study of mineralogic, lithologic, stratigraphic, structural, paleontologic, geomorphologic, or other geological relationships. Six to 15 days in the field. Class #32676. Class requires permission of instructor. Contact instructor for details.
- **G444 Methods in Analytical Geochemistry** 3 credits – This course is designed as an overview of basic collection and preparation of water, soil and rock samples for elemental analysis by analytical geochemical techniques used in environmental and exploration geology, as well as geochemical studies. Class #12851. Lecture Monday 12:20-2:15 p.m. GY 220. No Laboratory.