

## FALL SEMESTER 2018 COURSES IN EARTH AND ATMOSPHERIC SCIENCES

### **100-Level General Introductory Classes**

- **EAS E104 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 #34298. Lecture Tuesday/Thursday 1:25-2:15 p.m., GY 126. Laboratory: GY 220 (5 lab sections).
- **EAS E105 Earth Our Habitable Planet** 3 credits – Introduction to Planet Earth as a dynamic and complex global system. Class #34305. Lecture Tuesday/Thursday 2:30-3:20 p.m., GY 126. Laboratory: GY 220 (5 lab sections).
- **EAS E111 Journey to the Center of the Earth (Physical Geology)** 3 credits – Basic concepts of geology. Formation of rocks, erosion and landscape evolution, plate tectonics, interpretation of earth processes from geological data. One required field trip. Restricted to prospective geology and other science majors. Class #36121. Lecture Tuesday/Thursday 2:30-3:20 p.m., GY 126. Laboratory: GY 220 (5 lab sections).
- **EAS E114 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 #35900. Lecture Tuesday/Thursday 11:15-12:05 p.m., GY 126. Laboratory: GY 220 (5 lab sections).
- **EAS E118 Sustainability in Water Resources** 3 credits – The term water resources refers to natural waters (vapor, liquid, or solid) that occur on the Earth and that are of potential use to humans. Students will become conversant on the topic of water resources as well as develop an understanding of the key concepts in sustainability and systems thinking. Class #31777. Lecture Tuesday/Thursday 11:15-12:05 p.m., GY 126. Laboratory: GY 220 (5 lab sections).

### **100-Level Focused Introductory Classes**

- **EAS E121 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 #35909. Lecture Monday/Wednesday 1:00-2:15 p.m. GY214.
- **EAS E131 Oceans and Our Global Environment** 3 credits – An introduction to oceanography integrating exploration of ocean basins and plate tectonics, seawater and seafloor sediments, ocean-atmospheric interactions and global climate, and coastal/marine ecology to build understanding of oceanographic processes complemented by on-line assignments that explore and interpret web-based data sets emphasizing ocean dynamics and the climatic and environmental importance of Earth's oceans. Class #34239. Lecture 100% online course taught by IU Bloomington. No on-campus meetings are required.
- **EAS E138 Geology of State and National Parks** 3 credits - This course introduces principles of physical, chemical, and biological processes that together influence the geologic evolution of the Earth's landscapes and composition as told through National and State parklands. Class #35948. Lecture Monday/Wednesday 1:00-2:15 p.m. GY214.
- **EAS E144 Extreme Weather and Its Impacts.** 3 credits – Introduces a range of natural disasters and extreme weather phenomena that span regions, seasons, and origins. Emphasizes the ingredients and causes of each phenomenon, as well as their physical and societal impacts. Types of disasters include floods, droughts and wildfires, thunderstorms and tornadoes, and hurricanes. Class #11566. Lecture Monday/Wednesday 11:15 a.m. - 12:30 p.m., GY126. No laboratory.

### **200-300-Level Intermediate Classes for Science Majors**

- **EAS E225 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 #13736. Lecture Tuesday/Thursday 11:15 a.m.-12:30 p.m., GY 214. Laboratory: GY 245 (2 lab sections).
- **EAS E227 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 #13837. Lecture Monday/Wednesday/Friday 10:10-11:00 a.m., GY 338.
- **EAS E314 Data Analysis for Earth Science** 3 credits - Introduction to processing, visualizing, and interpreting data using scientific computing techniques used in Earth science fields. Includes univariate and multivariate statistics, time-series analysis, signal processing and filtering, spatial data analysis, and computational methods such as regression, Taylor series truncation, accumulating error, interpolation, differentiation, and integration. Class #34085. Lecture Monday/Wednesday/Friday 11:15 a.m.-12:05 p.m., GY 214.

- **EAS E316 Fuel and Mineral Resources** 3 credits - Origin of petroleum, coal, industrial minerals, and ore deposits: reserves, resources, and future needs; history, economic and environmental considerations, national minerals policy, and international aspects of energy and raw materials distribution. Class #36358. Lecture Tuesday/Thursday 2:30-3:45 p.m., GY 214.
- **EAS E351 Elements of Hydrology** 3 credits - Introduction to hydrology: physical properties of water relating to heat transfer and flow; phases of water and phase changes; water as a solvent and transporting agent; water budgets at various scales of inquiry; fluid pressure and potential; fluid flow at the surface and subsurface of the earth. Class #34398. Lecture Tuesday/Thursday 9:30-10:45 a.m., TBA.

#### **400-Level Advanced Classes for Geology Majors**

- **EAS A434 Dynamic Meteorology: Synoptic to Global Scales** 3 credits **N&M CASE P:** G340 or GEOG–G 304. R: G339 or GEOG–G339, MATH M211–M212, and PHYS P221. Introduction to dynamical processes at the synoptic to global scales. Principles of fluid dynamics and thermodynamics and their application to the atmosphere. Basic conservation laws and equations of motion. Topics covered also include planetary waves and blocking mechanisms, teleconnections, and the global general circulation. Class #31779. Lecture Tuesday/Thursday 9:30-10:45 a.m. GY436.
- **EAS E444 Methods in Analytical Geochemistry** Designed as an overview of basic collection and preparation of water, soil, and rock samples by analytical geochemical techniques used in environmental, exploration geology and geochemical studies. The course will provide background and context to understanding published data sets for critical evaluation and an opportunity to develop scientific writing skills Class #11574. Lecture Arranged
- **EAS E454 Fundamentals of Plate Tectonics** 3 credits **N&M CASE P:** G 323, G 334 or consent of instructor. COLL Intensive Writing section COLL (CASE) N&M Breadth of Inquiry credit. Synthesis of observations from diverse disciplines of geology leading to the development of modern plate tectonic theory. Applications of plate tectonic principles to fundamental problems of continental and marine geology. Class #33342. Lecture Tuesday/Thursday 11:15 a.m. - 12:30 p.m. GY522.