FALL SEMESTER 2016 COURSES IN GEOLOGICAL SCIENCES

100-Level General Introductory Classes

- **G103 Earth Science Materials and Processes** 3 credits - Introduction to origin and classification of minerals and rocks. Class #3199. Lecture Monday/Wednesday 1:25-2:15 p.m., GY143. Laboratory: GY 214 (3 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 #6903. Lecture Tuesday/Thursday 1:25-2:15 p.m., GY 126. Laboratory: GY 210 (5 lab sections).

- **G105 Earth Our Habitable Planet** 3 credits - Introduction to Planet Earth as a dynamic and complex global system. Class #3916. Lecture Tuesday/Thursday 2:30-3:20 p.m., GY 126. Laboratory: GY 220 (2 lab sections).

- **G111 Physical Geology** 3 credits – N&M Breadth of Inquiry credit. Basic concepts of geology. Formation of rocks, erosion and landscape evolution, plate tectonics, interpretation of Earth processes from geological data. Class #3919. Lecture Tuesday/Thursday 2:30-3:20 p.m. GY143. Laboratory: GY522 (2 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 #6911. Lecture Tuesday/Thursday 11:15-12:05 p.m., GY 126. Laboratory: GY 220 (5 lab sections).

- **G118 Water Resources** 3 credits – N&M Breadth of Inquiry credit. A dependable supply of water is critical to sustaining life but this resource is increasingly at risk because of growing competition among domestic, industrial-commercial, agricultural, and environmental needs. 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 #15682. Lecture Monday/Wednesday 10:10 – 11:25 a.m. GY 220.

100-Level Focused Introductory Classes

- **G121 Meteorites and Planets** – 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. Weekly quizzes/examinations (open book, open notes) on inferences from available evidence. Class #3921. Lecture Monday/Wednesday 1:00-2:15 p.m., GY214. No laboratory.

- **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 #14696. Lecture 100% online course taught by IU Bloomington. No on-campus meetings are required.

- **G141 Earthquakes and Volcanoes** 3 credits - Examination of the causes and effects of earthquakes and volcanic activity. Class #3922. Lecture Monday/Wednesday 10:10 – 11:00 a.m., GY 143. Laboratory: GY 214 (3 lab sections).

- **G144 Extreme Weather and Its Impact** 3 credits - N&M CASE 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 #31012. Lecture Monday/Wednesday 11:15 a.m. – 12:30 p.m., GY143. No lab.

200-300-Level Intermediate Classes for Science Majors

- **G221 Introductory Mineralogy** 4 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 #3925. Lecture Monday/Wednesday/Friday 9:05-9:55 a.m., GY 214. Laboratory: GY245 (2 lab sections).
• **G334 Principles of Sedimentation and Stratigraphy** 4 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 #3928. Lecture Monday/Wednesday/Friday 10:10 – 11:00 a.m. GYS22. Laboratory: GYS22 (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 #30586. Lecture: Tuesday/Thursday 11:15 a.m.-12:20 p.m. GYS22. No lab.

• **G340 Physical Meteorology, Climate** 3 credits - Topics span multiple scales of atmospheric processes including past/recent/projected climate change, weather forecasting, severe weather, and surface energy budgets. Students gain knowledge concerning physical processes and properties of Earth’s atmosphere and acquire skills used to study and quantify atmospheric processes through problem solving with models and remote sensing data. Class #31015. Lecture: Monday/Wednesday 2:30-3:45 p.m. SB017. No lab.

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 #12097. Lecture Monday/Wednesday/Friday 11:15 a.m. – 12:05 p.m. GYS22. No lab.


• **G417 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. Class #31017. Lecture Tuesday/Thursday 4:00-5:15 p.m. GY341. No lab.

• **G420 Regional Geology Field Trip** 1-2 Credits - 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 #15488. Class requires permission of instructor. Contact instructor for details.


• **G434 Dynamic Meteorology** 3 credits - 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 #31024. Lecture: Monday/Wednesday/Friday 9:05-9:55 a.m., GYS22. No lab.

• **G444 Methods in Analytical Geochemistry** 1-2 credits - An overview of basic collection and preparation of water, soil, and geologic materials for analysis by analytical geochemistry techniques for environmental, and exploration geology, and geochemistry applications. Techniques include Inductively Coupled Plasma (ICP), Atomic Spectrometry Absorption (AAS) by flame and graphite furnace, X-ray fluorescence, and Leco carbon and sulfur concentration determinations. Class #30136. Lecture Monday 12:20-2:15 p.m., GYS22.