



Course Syllabus

GEOL 1403—Physical Geology

Revision Date: 8/22/2016

Catalog Description: Introduction to the study of the materials and processes that have modified and shaped the surface and interior of Earth over time. These processes are described by theories based on experimental data and geologic data gathered from field observations.

Lecture hours = 3 Lab hours = 1

Prerequisites: TSI Complete in Reading

Semester Credit Hours: 4

Lecture Hours per Week: 2.5

Lab Hours per Week: 2.5

Contact Hours per Semester: 48

State Approval Code: 40.0601.54 03

Core Components and Related College Student Learning Outcomes

This course counts as part of the academic requirements of the Panola College Core Curriculum and an Associate of Arts or Associate of Science degree. Yes No: If no, skip to Instructional Goals.

The items below marked with an X reflect the state-mandated outcomes for this course **IF this is a CORE course:**

- X Critical Thinking Skills – to include creative thinking, innovation, inquiry and analysis, evaluation and syntheses of information
 - CT1: Generate and communicate ideas by combining, changing, or reapplying existing information
 - X CT2: Gather and assess information relevant to a question
 - X CT3: Analyze, evaluate, and synthesize information
- X Communication Skills – to include effective development, interpretation, and expression of ideas through written, oral, and visual communication
 - X CS1: Develop, interpret, and express ideas through written communication
 - X CS2: Develop, interpret, and express ideas through oral communication
 - X CS3: Develop, interpret, and express ideas through visual communication
- X Empirical and Quantitative Skills – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
 - EQS1: Manipulate and analyze numerical data and arrive at an informed conclusion
 - X EQS2: Manipulate and analyze observable facts and arrive at an informed conclusion
- X Teamwork – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

- X TW1: Integrate different viewpoints as a member of a team
- X TW2: Work with others to support and accomplish a shared goal
- Personal Responsibility – to include the ability to connect choices, actions, and consequences to ethical decision-making
 - PR1: Evaluate choices and actions and relate consequences to decision-making
- Social Responsibility – to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities
 - SR1: Demonstrate intercultural competence
 - SR2: Identify civic responsibility
 - SR3: Engage in regional, national, and global communities

Instructional Goals and Purposes:

The purpose of this course is to introduce students to the natural processes operating on and in planet Earth. Students will learn how these processes interact with one another and with life on the planet.

Learning Outcomes: [from the ACGM catalog]

After studying all materials and resources presented in the course, the student will be able to:

1. Describe how the scientific method has led to our current understanding of Earth's structure and processes.
2. Interpret the origin and distribution of minerals, rocks and geologic resources.
3. Describe the theory of plate tectonics and its relationship to the formation and distribution of Earth's crustal features.
4. Quantify the rates of physical and chemical processes acting on Earth and how these processes fit into the context of geologic time.
5. Communicate how surface processes are driven by interactions among Earth's systems (e.g., the geosphere, hydrosphere, biosphere, and atmosphere).
6. Identify and describe the internal structure and dynamics of Earth.
7. Describe the interaction of humans with Earth (e.g., resource development or hazard assessment).

Course Content:

A general description of lecture/discussion topics included in this course are listed in the Learning Objectives section of this syllabus.

Students in all sections of this course will learn the following content:

1. Nature of scientific inquiry
2. Theory of Plate Tectonics
3. Formation and classification of minerals, igneous rocks, sedimentary rocks, and metamorphic rocks
4. Mechanical and chemical weathering processes, soil erosion
5. Geologic time and fossils
6. Crustal deformation (faulting, folding)
7. Earthquakes and earthquake hazards
8. Structure of the interior of Earth
9. River processes
10. Groundwater
11. Mass wasting processes
12. Glaciers and glaciation

13. Coastal processes
14. Introduction to historical geology
15. Energy resources
16. Global climate change

Methods of Instruction/Course Format/Delivery:

This course is offered fully online. Lecture material will be delivered via eText assignments and pre-recorded Powerpoint presentations. Homework assignments for lecture will be submitted through Canvas.

Lab material will be delivered by reading assignments in students' lab manual and assignments submitted through Canvas. Students will complete a group lab project, due at the end of the semester. This will consist of students addressing a current issue in geology and creating a Powerpoint presentation with audio about this topic. Students do not need to be in the same location to complete this assignment, and virtual meetings are encouraged.

All lecture exams must be taken at a proctored testing center. Lab assignments may be completed on a home computer.

Major Assignments / Assessments:

The following items will be assigned and assessed during the semester and used to calculate the student's final grade.

Assignments

1. Weekly laboratory assignments
2. Homework assignments
3. Lab final Project

Assessment(s):

1. Lecture Exams 1-4
2. Final Lecture Exam
3. Lab Midterm Practical

Course Grade:

The grading scale for this course is as follows:

- Regular Lecture Exams – 40%
- Lecture Final Exam – 10%
- Weekly Lecture Homework – 15%
- Weekly Lab Assignments - 25%
- Lab Midterm and Lab Group Project – 10%

Texts, Materials, and Supplies:

- Access code for MasteringGeology synched with Earth: An Introduction to Physical Geology by Tarbuck, Lutgens, and Tasa
- Laboratory Manual for Introductory Geology by Ludman

- Access to internet
- Access to Powerpoint or similar software
- Access to a scanner (see your local library)

Other:

- For current texts and materials, use the following link to access bookstore listings: <http://www.panolacollegestore.com>
- For testing services, use the following link: <http://www.panola.edu/elearning/testing.html>
- If any student in this class has special classroom or testing needs because of a physical learning or emotional condition, please contact the ADA Student Coordinator in Support Services located in the Administration Building or go to <http://www.panola.edu/student-success/disability-support-services/> for more information.
- Withdrawing from a course is the student's responsibility. Students who do not attend class and who do not withdraw will receive the grade earned for the course.
- Student Handbook, *The Pathfinder*: <http://www.panola.edu/student-success/documents/pathfinder.pdf>