

**PELLISSIPPI STATE COMMUNITY COLLEGE  
MASTER SYLLABUS**

**PHYSICAL GEOLOGY  
GEOL 1040**

**Class Hours:** 3  
**Laboratory Hours:** 3

**Credit Hours:** 4  
**Revised:** Fall 2016

**Catalog Course Description:**

An introduction to study of the Earth. Physical processes that continuously change the Earth's surface and interior are studied to understand the origins of rocks, volcanoes, earthquakes, continents, oceans and the atmosphere. Course includes three hours of lecture and three hours of laboratory applications each week.

**Prerequisites:**

MATH 1030

**Corequisites:**

None

**Textbook(s) and Other Course Materials:**

Grotzinger and Jordan. 2010. Understanding Earth, 6th edition. W. H. Freeman and Company, ISBN-10: 1-4292-1951-3, ISBN-13: 978-1-4292-1951-8.

Busch and Tasa (ed.). 2015. Laboratory Manual in Physical Geology, 10th edition. Pearson, ISBN=10: 0=321-94451-8, ISBN-13: 978-0-321-94451-1

**Week/Unit/Topic Basis:**

<b>Week</b>	<b>Topics</b>	<b>Laboratory</b>
<b>1</b>	<b>Begin Unit 1.</b> Introduction to geology; rocks and minerals Earth System, and Minerals and Rocks, Chaps 1, 3	Lab: Rock and Mineral Box
<b>2</b>	Rocks-Records of geologic processes Plate Tectonics, Ch. 2 and Minerals and Rock, Ch. 3	Labs 3 & 4: Minerals and Rock-forming processes, & the Rock Cycle
<b>3</b>	Volcanoes; Igneous rocks Igneous Rocks: Solids from Melts, Ch. 4	Lab 5: Igneous Rocks and Processes, Lab 5
<b>4</b>	Weathering and erosion; Sedimentary Rocks Sedimentation: Rocks Formed by Surface Processes, Ch. 5	Lab 6: Sedimentary Processes, Rocks, and Environment
<b>5</b>	Metamorphism: Alteration of Rocks, Ch. 6 Deformation of Rocks by Folding and Faulting, Ch. 7 <b>Test on Unit 1</b> (100 points) on Chapters 2, 3, 4, 5, and 6	Lab 7: Metamorphic Rocks, Processes and Resources
<b>6</b>	<b>Begin Unit 2</b> Planet moves through time, Relative geologic time; : Absolute geologic time Clocks in Rocks, Ch. 8	Lab 8: Dating of Rocks, Fossils and Geologic Events

<b>Week</b>	<b>Topics</b>	<b>Laboratory</b>
<b>7</b>	Folds and Faults, Plate Tectonics Volcanoes, Ch. 12	Lab: Volcanoes
<b>8</b>	Earthquakes, Earthquakes and Earth's Interior, Ch. 13 and Ch. 14	Lab 10: Geologic Structures, Maps and Block Diagrams
<b>9</b>	Continents forming and growing, Mountain building, The Structure of North America, Ch10 <b>Test on Unit 2</b> (100 points) Chapters 7, 8, 12, 13, and 14	Lab 9: Topographic Maps
<b>10</b>	Begin Unit 3:Water, Hydrologic Cycle and Groundwater, Ch. 17	Lab 12: Groundwater Processes, Resources and Risks
<b>11</b>	Rivers: Stream Transport, Ch. 18	Lab 11: Stream Processes, Landscapes, Mass Wastage and Floods
<b>12</b>	Oceans: Coastlines and Ocean Basins, Ch. 20 <b>Test on Unit 3</b> (100 points) Chapters 15,16,17,18, Karst	Lab 15: Coastal Processes, Landforms, Hazards and Risks
<b>13</b>	<b>Begin Unit 4:</b> Life on the planet. Extreme Environments: Glaciers and Deserts; Landscape evolution Glaciers: The Work of Ice and Deserts and Deserts, Chapters 20 and 21	Labs 13, 14: Glacial Processes, Landforms, and Indicators of Climate Change And Dryland Landforms: Hazards and Risks
<b>14</b>	Geo-biology, Planets and Life Intersects with Earth, Ch. 11	Lab: Fossil Exploration
<b>15</b>	Planets and Earth's Seasons Final Exam Comprehensive – Chapters 2, 3, 11, 19, 20, 21, Karst, Planets, Earth's seasons	

### **Course Goals\*:**

The course will

- A. Develop an understanding of the nature of science and the scientific method. I.5, III.1
- B. Develop an understanding that the Earth is a dynamic planet and its history and features are consequences of natural processes that have operated throughout Earth's history. I.5, III.2
- C. Develop an understanding of geologic time and the methods used to interpret earth history. I.5
- D. Develop knowledge of the features of the Earth and the processes by which they form. I.5
- E. Develop knowledge of geology sufficient to understand earth science related events and issues presented in newspaper, magazine, radio, or television reports. I.5, VII.1
- F. Develop an understanding of the use of simple techniques and equipment to identify common rocks and minerals. I.5
- G. Cooperate with student colleagues to research, analyze, and report on a geologically related topic. I.3, III.2, VI.1, III.3
- H. Develop an understanding of careers in geology. II.1, II.2

\*Roman numerals after course objectives reference the TBR general education goals.

### **Expected Student Learning Outcomes\*:**

Students will

1. Discuss the roles of observation and reasoning in applications of the scientific method. A
2. Discuss the concepts of relative and absolute geologic time, and the methods of determining the geologic time of geologic events and materials. C
3. Identify common earth materials using simple tests, and provide an explanation of the major processes that operated to create the materials in a laboratory setting. F, B
4. Provide an explanation of the major processes that operate to create common earth materials. F, B
5. Discuss earth science related issues and events presented in news media reports. E, D, C, B
6. Identify dynamic earth processes (e.g., erosion, flooding, sinkholes, earthquakes, volcanism). B, D, G
7. Discuss the manner in which dynamic earth processes affect personal safety, health, and financial security. B, D, G
8. Discuss the possible careers in earth science. H

\* Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

### **Evaluation:**

#### **A. Lecture Expectations:** 67% of the grade

There will be 4 exams consisting of multiple choice, short answer and essay questions. Three lecture class tests account for 30% of the course grade. A final comprehensive test accounts for 10% of the course grade. Four on-line quizzes that may be only multiple choice or a combination of multiple choice and short answer questions will account for 6% of the course grade. There are four homework/classwork assignments accounting for 16% of the lecture grade and attitude/participation accounts for 5% of the lecture grade. .Any student missing an exam will receive a score of zero for the missed exam, unless documentation for a valid excuse is presented to the instructor. Valid excuses include illness with an original doctor's note, family illness or death, jury duty, and military service. The instructor must be notified by phone before the examination, if possible, and a written excuse will be required.

#### **B. Laboratory Expectations:** 33% of grade

The laboratory component of the course grade will be determined on the basis of laboratory exercises and two examinations. Laboratory reports account for 12% of the lab grade. Quiz 1 accounts for 10% of the lab grade and quiz II accounts for 11% of the lab grade. The laboratory component will account for 33% of the overall grade. Lab may not be made up. Late laboratory exercise reports may be submitted for ½ credit one week after the due date

#### **C. Grading Scale:** 90-100 % A, 87-89 % B+, 80-86.9 B, 77-79.9 C+, 70-76 C, 60-69.9 D, <60 F.

\*Quizzes may not be made up if missed

### **Policies:**

#### **A. Attendance Policy:**

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

**B. Academic Dishonesty:**

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

- Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one's own work.
- Taking an exam for another student.
- Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
- Any of the above occurring within the Web or distance learning environment.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

**C. Accommodations for disabilities:**

Students that need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Disability Services (DS) in order to receive accommodations in this course. [Disability Services](#) (<http://www.pstcc.edu/sswd/>) may be contacted via [email](#) or by visiting Alexander 130.