

PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE  
MASTER SYLLABUS

**PHYSICAL GEOLOGY**  
**GEOL 1040 (formerly GEO 1010)**

**Class Hours: 3.0**

**Credit Hours: 4.0**

**Laboratory Hours: 3.0**

**Revised: Spring 04**

**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 3 hours of lecture and 3 hours of laboratory applications each week.

**Entry Level Standards:**

Students must have English and math skills at the college-level.

**Prerequisites:**

None

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

Press and Siever. 2000. *Understanding Earth*, 3rd edition. W. H. Freeman and Company.  
Busch (ed.). 1999. *Laboratory Manual in Physical Geology*, 5th edition. Prentice Hall.

**I. Week/Unit/Topic Basis:**

<b>Week</b>	<b>Topic</b>
1	Introduction to geology; Minerals
2	Mineral properties; Rocks – records of geologic processes
3	Volcanoes; Igneous rocks
4	Weathering and erosion; Sedimentary Rocks
5	Metamorphism
6	Relative geologic time; : Absolute geologic time
7	Folds and faults; : Earthquakes
8	Earth' s interior; Continental drift
9	Plate tectonics
10	Mountain building; Mass wasting

- 11 Hydrologic cycle; Groundwater
- 12 Rivers; Glaciers
- 13 Deserts; Landscape evolution
- 14 Oceans; semester review
- 15 Review
- 16 Final Exam

## II. Course Objectives\*:

- 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. Understand 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 goals of the university parallel program.

## III. Instructional Processes\*:

Students will:

1. Engage in team work to foster cooperative learning. *Active Learning Strategies*
2. Approach problems both mathematically and verbally. *Communication Outcome, Problem Solving and Decision Making Outcome, Numerical Literacy Outcome*
3. Use critical thinking to solve problems. Laboratory work will be conducted in groups to encourage idea sharing. *Problem Solving and Decision Making Outcome, Active Learning Strategies*
4. Use critical thinking to evaluate news media reports. *Information Literacy Outcome, Communication Outcome*
5. Participate in literature and/or field research by conducting a student-directed study. *Active Learning Strategies, Numerical Literacy Outcome, Problem Solving and Decision Making Outcome, Personal Development Outcome*

6. Learn about careers in the geosciences: lecture presentations, video presentations, presentations by outside speakers. *Personal Development Outcome, Transitional Strategies*
7. Learn about the use of geoscience information for making public and personal decisions that affect safety, health, and financial security. *Problem Solving and Decision Making Outcome, Information Literacy Outcome, Personal Development Outcome, Technological Literacy Outcome, Transitional Strategies*
8. Gain fundamental knowledge of geological processes and materials that are prerequisites for study of upper level geology courses. This foundation is obtained through lectures, laboratory exercises, participating in field trips, and multimedia exercises. *Transitional Strategies*

\*Strategies and outcomes listed after instructional processes reference Pellissippi State's goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

#### **IV. Expectations for Student Performance\*:**

Upon successful completion of this course, the student should be able to:

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 operated 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 effect personal safety, health, and financial security. B, D, G
8. Discuss the possible careers in earth science. H

\*Letters after performance expectations reference the course objectives listed above.

#### **V. Evaluation:**

##### **A. Testing Procedures: 60% of grade**

There will be 4 exams consisting of multiple choice and essay questions. Three lecture class tests account for 30% of the course grade. A final comprehensive test accounts for 20% of the course grade. Ten multiple choice quizzes will account for 10% of the course 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, 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: 40% of grade

The laboratory component of the course grade will be determined on the basis of laboratory exercises, two examinations, and a group project paper and oral report. The laboratory component will account for 40% 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. Field Work:

Field work may be included in research performed in cooperation with student colleagues to complete a group project report.

D. Grading Scale:

90-100 %	A
80-89.9	B
70-79.9	C
60-69.9	D
<60	F

\*Quizzes may not be made up if missed

**VI. Policies:**

A. Attendance Policy:

Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all 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 and Student Affairs, may have requirements that are more stringent.

B. Academic Dishonesty:

Plagiarism, cheating, and other forms of academic dishonesty are prohibited. A student guilty of academic misconduct, either directly or indirectly through participation or assistance, are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions which may be imposed through the regular Pellissippi State procedures as a result of academic misconduct, the instructor has the authority to assign an F or a zero for the exercise or examination or to assign an F in the course.