PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

CONCEPTS OF EARTH SCIENCE
GEOL 1310

Class Hours: 2.0 **Credit Hours:** 3.0
Laboratory Hours: 3.0 **Revised:** Fall 2016

Catalog Course Description:

This course is an introduction to the 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 six hours each week of lecture combined with lab applications.

Prerequisites:

MATH 1030, also students must be able to read and write at college level and must have two years of high school algebra or one year of high school algebra and one year of high school geometry. Students must be able to give short oral presentations in front of class. This course is intended for students who are considering a career in K-6 education.

Corequisites: None

Textbook(s) and Other Course Materials:

Visualizing Earth, 1st edition, by Merali and Skinner, 2009, John Wiley and Sons.Salley Ride Science Series 6 book set. A lab book is not used. Exercises are either printed individually or accessed using the World Wide Web.

World Wide Web: Access to the World Wide Web, e-mail service, D2L, Google Earth (free download) and Google My Maps. These services are available on campus, but home access is recommended. GEOL1310 will be a "Web Enhanced" course utilizing D2L. Point your Web Browser to D2L (now called Bright Spaces), https://elearn.pstcc.edu/ to Log-On. This webpage will be used to post the syllabus, calendar of quiz dates, and power points, to get assignments and upload completed assignments, and for distribution of handouts, links to web-based databases, and other information as the semester progresses. Communication with the instructor will be by e-mail in D2L. Check the site frequently for new items and information!

Week/Unit/Topic Basis:

Week	Topics	Assignment	Laboratory
1	Intro. to Earth Sciences, Natural Resources and Energy, Atoms and Elements	As assigned	Metric Olympics Google Earth tutorial, Geo-Tours Energy Resources
2	Energy, Atoms and Elements, Minerals	As assigned	Atom-building Games, Mineral Families, Physical Properties of Minerals

Week	Topics	Assignment	Laboratory
3	Rock Cycle, Technology	As assigned	Introduction to Rocks
4	Igneous, Metamorphic and Sedimentary Rocks	As assigned	Non-silicate Minerals, Igneous, Metamorphic, Sedimentary, and Geo-Tours Sedimentary Rocks
5	Weathering and Erosion, Technology	As assigned	Sugar Cube Lab and Water Cycle Game
6	Water Cycle – Surface Water and Groundwater	As assigned	Silicate Minerals, Water Testing, Porosity, and Permeability
7	Caves/Karst, Technology	As assigned	Geo-Tours Groundwater and Karst Landscapes
8	Plate Tectonics	As assigned	Igneous Rocks, Discovering Plate Boundaries
9	Earthquakes, Technology	As assigned	Graham Cracker Plate Boundaries
10	Volcanoes	As assigned	Interpreting Earthquake Data, Geo-Tours Plate Tectonics
11	Geologic Time	As assigned	Geo-Tours Volcanoes, Volcano Building
12	Oceans and Coasts, Technology	As assigned	Radioactivity Lab, Relative Age Dating
13	Atmosphere, Weather	As assigned	Geo-Tours Oceans and Coastlines, Tides
14	Global Circulation, Solar System	As assigned	Interpreting Carbon Dioxide and Temperature Data, Weather Observation and Journals, Solar System Scales, and Geo-Tours Solar System
15	Final Exam		

Course Goals*:

The course will

A. Develop an understanding of the K-6 science education curriculum. I.5, VII
B. Implement exploratory curriculum-based science activities for K-6 students. I.5, III.2, VII
C. Research, evaluate, and interpret earth science information and educational resources. I, III
D. Develop skill in observation, measurement, classification, communication, and logical inference. III, IV
E. Develop skill in recognizing common minerals and rocks, and in interpreting the origin of earth materials. I, III.2
F. Develop an understanding of weathering and of the agents of erosion. I, III.2
G. Develop an understanding of plate tectonic processes and their roll in generating earthquakes, producing volcanism and associated igneous activity, and building mountains. I, III.2
H. Develop an understanding of relative and absolute dating methods, and an appreciation for the vast history of earth, the solar system, and the universe. I, III.2
I. Develop an understanding of ocean chemistry, morphology, processes, and the role of ocean basins in plate tectonic cycles. I, III.2

J. Develop an understanding of Earth's atmosphere, including composition, circulation patterns, interaction with the ocean and solid earth. I, III.2
K. Develop an understanding of Earth as a body in the solar system and the universe. I, III.2
L. Develop an understanding of earth as a system and the interactions of living and nonliving systems. I, III, IV

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

Expected Student Learning Outcomes*:
Students will

1. Design and conduct K-6 science activities. B, C, D, E, F
2. Collect earth science information and science education resources on the Internet. D, E, F, J
3. Evaluate earth science information obtained from print sources, video, and television. D,E, F
4. Know current State of Tennessee science curriculum standards. A
5. Explain and use the scientific method of inquiry. E

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

Evaluation:

A. **Testing Procedures:** Lecture material will be evaluated as follows: 50% of the lecture grade will be earned from 5 lecture exams (the lowest score will be dropped.) One of these exams is a cumulative final which accounts for 14% of the lecture grade. Homework assignments account for 15%, attitude/participation, 5% and four "Geology in the News" assignments accounts for 3%. There are 5 rock and mineral identification quizzes that account for 10% of the grade, and a rock and mineral exam that is worth 4% of the grade. In class "lab" assignments" (see laboratory expectations) account for 11% of the grade. The final exam must be passed in order to pass the course. Tests are short answer, multiple choice, fill in the blank and T/F although not all of these inquiry styles will be on every quiz or exam. The comprehensive final exam is multiple choice.

   Quizzes and exams cannot be made up. The attitude/participation grade is based on class participation, class discussions, being prepared for class, homework and other assignments completed on time and attendance. Attendance is mandatory and classes and associated activities cannot be made up.. You must notify your professor of any mistakes or disagreements in scoring within one week after an exam, quiz, or other assignment is graded

B. **Laboratory Expectations:** In this class, lab work is intertwined with lecture material, so is not assigned a separate grade. There will be assignments that are not graded, that should be completed. These assignments are not "busy work", but are intended to support the concepts being presented in lecture. Attendance is mandatory and classes and associated activities cannot be made up.

C. Field Work: N/A

D. **Other Evaluation Methods:** Optional (extra credit) Activities Outside of Classroom: an optional field trip may be added to the class activities depending on availability of transportation, the weather and interest. The extra credit would be added to the total percentage earned for the class.

E. **Grading Scale:** 90-100 A, 87-90 B+, 80-87 B, 77-80 C+, 70-77 C, 60-70 D, < 60 F. Percentages may be rounded up if > 0.5 at instructor's discretion (Example: 89.6=90.)

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.