CONCEPTS OF EARTH SCIENCE
GEOL 1310

Class Hours: 2.0                     Credit Hours: 3.0
Lab Hours: 3.0                      Revised: Spring 2011

Catalog Course Description:
This course covers basic principles from the fields of geology, oceanography, meteorology and
astronomy. Topics include map interpretation, minerals and rocks, processes acting at the Earth’s
surface and within the Earth, plate tectonics, geologic time and dating, water movements, ocean
floor, weather and climate, composition and motions of the Earth, solar systems, phases of the moon,
origin and life cycles of stars, and galaxies.

Entry Level Standards:
Students must be able to read and write at the 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 the class. This course is intended for students who are
considering a career in K-6 education.

Prerequisites:
None

Textbook(s) and Other Course Materials:

Reference Textbook:

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.

GEOL 1310 will be a “Web Enhanced” course utilizing D2L. Point your Web Browser to
OnlineCourses, 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!

I. Week/Unit/Topic Basis:

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| 1    | Lecture: Intro. to Earth Sciences
|      | Lab: Introduction to Concepts of Earth Science Lab |
metric system, metric conversions, rock and mineral boxes, on-line resources

2 Lecture: Minerals: Earth’s Building Blocks
Lab: Identification of common minerals, quiz

3 Lecture: Rocks: Keepers of Earth’s History
Lab: identification of common rocks, quiz

4 Lecture: Weathering, Soils and Mass Wasting
Lab: physical versus chemical weathering, quiz

5 Lecture: Water On and Under the Ground
Lab: water testing, karst topography, quiz

6 Lecture: Extreme climate regions
Lab: deserts and glaciers, quiz

7 Lecture: Plate Tectonics, mid-term exam
Lab: “s’more” plate tectonics, quiz, student project presentations

8 Lecture: Earthquakes and Earth’s Interior
Lab: EQ waves, locating an EQ, EQ intensity, quiz

9 Lecture: Volcanism
Lab: types and composition of volcanoes, locations, quiz

10 Lecture: How Old is Old
Lab: Geologic Time Scale, dating rocks, quiz

11 Lecture: The Oceans
Lab: cross-section of the ocean, ocean life, ocean currents, quiz

12 Lecture: Where Ocean Meets Land
Lab: wave-cut terraces, barrier islands, quiz

13 Lecture: Atmosphere, Composition, Structure, Clouds
Lab: air masses, middle-latitude cyclone, & weather maps, quiz

14 Lecture: Earth’s Place in Space, Semester Review
Lab: Moon, Solar System, Student project presentations

15 Lecture:
Comprehensive Final Exam

II. Course Goals*

This is an introductory earth science course that presents the scientific method and basic concepts of geology, oceanography, meteorology, and astronomy.

A. Develop an understanding of the K-6 science education curriculum. I.5, VII

B. Design and 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. Apply the scientific method in research. III.1, III.2
F. Develop skill in recognizing common minerals and rocks, and in interpreting the origin of earth materials. I, III.2
G. Develop an understanding of weathering and of the agents of erosion. I, III.2
H. 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
I. 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
J. Develop an understanding of ocean chemistry, morphology, processes, and the role of ocean basins in plate tectonic cycles. I, III.2
K. Develop an understanding of Earth’s atmosphere, including composition, circulation patterns, interaction with the ocean and solid earth. I, III.2
L. Develop an understanding of Earth as a body in the solar system and the universe. I, III.2
M. Develop an understanding of earth as a system and the interactions of living and non-living systems. I, III, IV
N. Develop skills in critical thinking. III

*Roman numerals after course objectives reference TBRs general education goals.

III. Expected Student Learning Outcomes*:
The student will be able to:

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
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.

IV. Evaluation:

A. Testing Procedures:

Lecture material will be evaluated using twelve quizzes and two exams. Quizzes count for 24% of the total grade (2% each). Two of the lowest quiz scores will be dropped. The midterm exam is 25% of the total grade and the final is 30% of the total grade, for a total of 55%. 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.** A participation grade is 16% of the total grade and is based on class participation, class discussions, being prepared for class, the homework and the student project. Attendance counts for 5% of the grade. Attendance is mandatory and **classes and associated activities cannot be made up.**

It is important to read your book and practice the self-tests at the end of each chapter. Although all the quiz and exam questions will not come from these questions, your ability to answer them will help you gauge your understanding of the book chapters.

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 as points to the total points earned for the class and not exceed 50 points.

E. Grading Scale:

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<tr>
<td>90</td>
<td>100</td>
<td>A</td>
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| 80 | 89.9| B   | Percentages may be rounded up if > 0.5 at the
| 70 | 79.9| C   | instructor’s discretion.
| 60 | 69.9| D   |  
| <60|     | F   |  

V. 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 the Learning Division, 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 the Learning Division.

B. Accommodations for disabilities:

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.

C. Accommodations for disabilities:

Students who 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 Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127, 132, 134, 135, 131 or by phone: 539-7153 or TTY 694-6429. More information is available at www.pstcc.edu/departments/swd/.

D. Other Policies:

Cell phones and Lap tops:

Cell phone use is not allowed in the classroom and cell phones should be on off or vibrate and **out of sight.** Any other electronic devices should also remain in silent mode while in class. Exceptions should be discussed with the instructor.

Lap tops provided by the school will be used for quizzes and exams. Each student will be assigned a lap top, and will use that same lap top throughout the term. Lap tops should be handled with care, and each student should log off the lap top before returning it to the lap top cart after each class. In the NEXT classroom, lap tops should be plugged into the nearest cord to the laptop. Lap tops are not to be used for social purposes such as Facebook or gmail, or used to work on assignments from other classes. A student may be asked to leave class if these policies are not followed.