

5 yr
approval
12/07

Geology 102: Physical Geology

Spring 2008

Instructor: Dr. Susan Circone
Office: TBA

E-mail: TBA
Office hours: Mon. 11-12 p.m., Wed. 2-2:50 p.m.
or by appointment

Lecture: MW 2:50 – 4:05 p.m. in VLIB 201

Laboratory: M 12:00 – 14:40 p.m., or M 4:15 – 7:05 p.m. in VCLS 150

Textbook (required): Essentials of Geology, 2nd ed. by Stephen Marshak

Learning goals: This course fulfills 3 credits of physical science [P] and one credit of laboratory science [L] for General Education Requirements. The course objective is to develop students' *critical thinking skills* and *quantitative and symbolic reasoning*. To accomplish this learning goal, we will investigate the geologic materials and processes that are constantly and dynamically changing the Earth's surface and explore how this affects our lives as individuals and as a society.

Course objectives (theme): The General Education theme for this year is "Global Change in a Local Context". Because we live on a planet with a dynamic and ever-changing surface, the processes that shape this surface can be beneficial and/or detrimental to our lives, whether they occur locally or on the opposite side of the world. The course will introduce the student to the materials of the Earth and the physical processes that shape them, both on the surface and in the Earth's interior. In particular, large-scale processes including plate tectonics, mountain building, volcanism, and earthquakes will be explored. Weathering and geologic environments such as rivers, deserts, glaciers, and landforms will be discussed. The relationship between man, geology, and the geologic hazards that can arise from these dynamic processes will be considered, as well as the environmental aspects of geology and geologic hazards.

Learning outcomes: To demonstrate *critical thinking skills*, students will 1) learn to define a question in geology within its contextual boundaries, 2) identify and apply relevant causal relationships to explain geologic processes and theories, 3) evaluate evidence for geologic processes, 4) distinguish between scientific fact and opinion, and 5) identify contradictions and faulty logic in evaluating geologic processes.

To demonstrate *quantitative and symbolic reasoning*, students will 1) learn to draw conclusions from symbolic representations of the Earth's interior and surface to check the validity of statements and models, and 2) to use estimates to check mathematical problems related to geological processes to determine reasonableness and identify optimal results.

Linking with other classes: Class will be linked with Chem 106.

Campus writing and ePortfolio: Near the end of the course, students will be asked to write a discussion of a recently published, general-audience scientific paper on a geologic theme to demonstrate their expanded understanding of the processes that shape our planet, which will be placed in their ePortfolio.

Course requirements: This course involves approximately 3 hours of lecture and 3 hours of lab every week, and you must be enrolled in both sections to receive credit for this course.

Lecture: Attending lectures is not mandatory (i.e. attendance will not be taken regularly) but is strongly encouraged. You are expected to read the assigned chapters in Essentials of Geology prior to the scheduled lecture so that you may participate in discussions. A few short, unannounced written assignments will be given during the semester (due at the beginning of the following lecture) and cannot be made up. The paper will be due on the announced date, and no late papers will be accepted. Lecture materials may extend beyond the textbook content, and you will be tested on materials presented in class and in the textbook. Lecture exams are 1-hour exams. Each exam is comprehensive and will cover material from lectures and reading assignments. Two exams will occur during regular class-time. *If you notify me by e-mail prior to the exam that you cannot be present on exam day, a make-up exam will be allowed.* The final exam will occur during finals week, and there is no option for a make-up exam. Exams will be a combination of multiple choice, fill-in-the blank, short answer, sketching, and essay questions. Introductory geology courses are full of new terminology that you will be required to learn and use.

Laboratory: Attendance is mandatory, and there will be NO opportunity to make up the laboratory exercises. All labs will be completed in class and handed in at the end of the period. If you cannot attend a lab, you must notify me by e-mail *prior* to the lab of your intended absence.

Supplies: a notebook, a protractor, a ruler, pencils, an eraser, and a calculator.

Lab exams: There will be two lab exams given during lab time. The first exam will focus on recognizing and distinguishing rocks and minerals in hand-samples. The final lab exam will focus on geologic processes and maps, covered in the second half of the semester.

Grading: Letter grades will be assigned based upon a percentage of total points (500) earned from the lecture exams, the laboratory, and writing assignments. Lecture accounts for 70% of the grade (three 100-point exams, a few short written assignment-10 points, paper-40 points). The laboratory accounts for 30% of the grade (10 labs for 10 points each and two 25-point exams). *The lecture and laboratory components must both be passed individually for a passing grade in this course.*

Grading Scale (%)			
A 93 – 100	B+ 87 – 89	C+ 77 – 79	D+ 67 – 69
A- 90 – 92	B 83 – 86	C 73 – 76	D 60 – 66
	B- 80 – 82	C- 70 – 72	F < 60

70%	Possible pts.	Pts. earned
Exam 1	100	
Exam 2	100	
Exam 3	100	
Writing	10	
Paper	40	
<i>Total</i>	350	

30%	Possible pts.	Pts. earned
Lab 1-5	50	
Lab Exam 1	25	
Lab 6-10	50	
Lab Exam 2	25	
<i>Total</i>	150	

Classroom Conduct: Disruptions during lecture/lab will not be tolerated. Disruptive behavior (including talking, excessive noise, poor behavior towards other students or instructors, arriving late/leaving early, reading/working on unrelated materials in class, inappropriate language/comments, or ringing cell phones) will result in your being asked to leave the class. It is important that you arrive on time because most announcements and assignments will be given at the beginning of lecture or lab.

Academic Integrity (from the Office of Nancy Youlden, Vice Chancellor): When a student enrolls in Washington State University, the student assumes an obligation to pursue academic endeavors in a manner consistent with the standards of academic integrity adopted by the University. To maintain the academic integrity of the community, the University cannot tolerate acts of academic dishonesty. Academic dishonesty includes cheating, falsification, fabrication, multiple submission, plagiarism, abuse of academic materials, complicity, or misconduct in research. Academic dishonesty in this class will result in a zero for the assignment, quiz, test, etc. and possible failure of the course. All instances of academic dishonesty will be reported to the Office of Student Services as dictated by University policy. Consult the WSU Student Handbook for further details (<http://www.vancouver.wsu.edu/ss/handbook/handbook.html>).

Copyright policy: WSU requires all users of campus services to comply with all state and federal laws including copyright laws. For more information, see:
<http://publishing.wsu.edu/copyright/>

Disability Accommodation: Reasonable accommodations are available for students who have a documented disability. Please notify the instructor during the first week of class of any accommodations needed for this course. If you do not contact me, I will assume that you agree to the format of the class and accept the terms outlined in this syllabus. Late notification may mean that requested accommodations might not be available. All accommodations must be approved through Disability Services located in VMCC Lower Level (360) 546-9155.

Weather policy: For emergency weather closure policy, see:
<http://www.vancouver.wsu.edu/adm/fo/psafety/weather.htm>

Evacuation policy: Emergency evacuation plans are posted in each classroom. Read and be familiar with these plans. In case of emergency, follow these instructions.

Week	Date	Topic	Lab
1	1/7	Introduction	----
	1/9	Origin of the Earth (Chap 1)	
2	1/14	Minerals (Chap 3)	Lab #1 mineral prop.&ID
	1/16	Minerals cont'd, Rock Cycle (A,B)	
3	1/21	No class	----
	1/23	Igneous Rocks (Chap 4)	
4	1/28	Igneous Rocks cont'd	Lab #2 igneous rocks
	1/30	Volcanism (Chap 7)	
5	2/4	Sedimentary Rocks (Chap 5)	Lab #3 sedimentary rocks
	2/6	Metamorphism (Chap 6)	
6	2/11	Metamorphism cont'd	Lab #4 metamorphic rocks
	2/13	Exam #1	
7	2/18	No class	----
	2/20	Geologic Time (Chap 10,11, D)	
8	2/25	Geologic Time cont'd	Lab #5 geologic time
	2/27	Plate Tectonics (Chap 2)	
9	3/3	Plate Tectonics Cont'd	Lab Exam 1
	3/5	Orogeny (Chap 9)	
10	3/10,3/12	No classes-Spring Break	----
11	3/17	Orogeny cont'd	Lab #6 plate tect./magma
	3/19	Earthquakes (Chap 8)	
12	3/24	Earth's Interior (C)	Lab #7 deformation
	3/26	Exam #2	
13	3/31	Hydrologic Cycle (E)	Lab #8 earthquakes
	4/2	Landslides (Chap 13)	
14	4/7	Rivers and Streams (Chap 14)	Lab #9 topographic maps
	4/9	Rivers and Streams cont'd	
15	4/14	Groundwater (Chap 16)	Lab #10 streams, etc.
	4/16	Oceans (Chap 15)	
16	4/21	Glaciers & Deserts (Chap 17, 18)	Lab Final
	4/23	Climate Change (Chap 19)	
17	TBA	Exam #3	----

Note: Syllabus is subject to change.

Dear General Education Advisory Board:

Below are outlined the ways in which my syllabus materials meet GEAB criteria.

- 1) The Geology 102 course introduces the students to critical thinking skills and the use of quantitative and symbolic reasoning. The following learning outcomes are emphasized for *critical thinking*: 1a) learn to define a question in geology within its contextual boundaries (through applied laboratory exercises), 2a) identify and apply relevant causal relationships to explain geologic processes and theories through analysis of hand specimens and their relationship to the geologic processes that formed them (Labs 1-4), 3a) evaluate evidence for geologic processes by developing an understanding of the parameters involved in geologic processes and hazards (e.g. Labs 5,6,7,8, 10), 4a) distinguish between scientific fact and opinion and 5a) identify contradictions and faulty logic in evaluating geologic processes (in-class discussion and evaluation of geologic issues in the news). The following learning outcomes are emphasized for *symbolic and quantitative reasoning*: 1b) learn to draw conclusions from symbolic representations of the Earth's interior and surface to check the validity of statements and models (Labs 6-9) and 2b) use estimates to check mathematical problems related to geological processes to determine reasonableness and identify optimal results (labs 6,8,10). In general, the laboratory exercises involve application of specific criteria to identify the relationship between process and outcome, manipulation of numerical data to provide estimates of process rates and outcomes, and interpretation and analysis of two-dimensional, symbolically represented information to infer process in a three-dimensional context. The students grasp of these themes will be evaluated through the instructor's analysis of written materials generated in the laboratories and through examination on laboratory materials.
- 2) The course will explore the campus theme, "Global Change in a Local Context", by contextualizing the dynamic geologic processes that shape the Earth both globally and on a local scale. The course is particularly relevant because we live in a geologically active area in which the evidence of many of these processes surrounds us daily. Furthermore, the affect of geologic events, historic and current, local and global, on people's lives and society will be a consistent theme for discussion throughout the course.
- 3) The course will be linked to another course (Chemistry 106) by having the instructor give a lecture on global biogeochemical cycles in the latter part of the term. In general, the course materials strongly echo material taught in other GE courses (e.g., Chemistry 106, Physics 102, GE 106, and general mathematics), as many of the concepts taught in these courses apply to geologic processes as well.
- 4) In addition to the written materials turned in for the laboratories (20% of the course grade), the students will be required to write a short paper discussing a recent scientific paper on a geologic topic. This assignment has three goals: 1) provide an opportunity for the student to write on scientific topic, 2) promote critical analysis skills by discussing scientific literature, and 3) demonstrate to the student that they have developed a deeper understanding of the geologic sciences

that they did not have prior to taking the course. This paper, in conjunction with short writing assignments given in the lecture portion of the class, will account for 10% of the course grade.

- 5) The student can place any of the written materials that they have produced (in particular the paper) into their ePortfolio.

If you have any questions or comments with regard to my course syllabus and how it meets the GEAB criteria, please do not hesitate to contact me at scircone@comcast.net.

Cheers,

Susan Circone
Adjunct Instructor
Geology 102