TESC 117 - Physical Geology

Dr. Peter Selkin / Summer 2014

[Contact](#h.1onwo0jjiy9p) | [Textbook](#h.kfdn4gm4le61) | [Grading](#h.yelnajj88d1s) | [Policies](#h.n1jae1sevrc8) | [Resources](#h.bv2yqnwkbt) | [UW Grade Scale](#h.7wllo14qilwy)

## Overview

This course introduces students to the fundamental concepts and theories of geology and provides them with a basic understanding of how the earth works. Topics covered will include plate tectonics, volcanism, earthquakes, the rock cycle, continents and oceans and surface processes.

## Objectives

Upon successful completion of this course, students will be able to:

1. Relate geological processes to overarching principles in geology e.g. plate tectonics and biogeochemical systems.
2. Identify common rocks, minerals, and geological structures.
3. Use information from rocks to interpret the geologic and environmental history of a location.
4. Engage in scientific dialogue using common means of presenting geoscientific data – maps, writing, presentations, and computer visualization.
5. Develop quantitative skills needed to analyze geological processes.
6. Identify practical applications of the geosciences.

These objectives primarily address the following program learning objectives:

1. [Environmental Science] Be conversant in theoretical concepts of the biological and physical sciences and their application to understanding and studying the environment.
2. [IAS] Build experience in the analysis of environmental issues and their scientific basis.

## Meetings

This course meets Tuesday and Thursday from 9:00 AM - 11:30 AM in SCI 209.

Lab meetings are on Thursdays from 1:00 PM - 3:30 PM in SCI 209 or in the field.

My office hours are Tuesdays Noon -1:00 PM in my office, SCI 208 or in the classroom if requested.

## Instructor and Contact Information

Dr. Peter A. Selkin

Email: paselkin@uw.edu (best way to contact; please DO NOT contact through canvas mail)

Phone: (253) 692-5819

Office: Science 208

## Textbook and Required Materials

Reynolds, S.J., J.K. Johnson, M.M. Kelly, P. Morin, C.M. Carter. 2010. Exploring Geology 3rd ed. McGraw-Hill: New York. Note: the 2nd ed. is OK, but you will be responsible for matching content and page numbers.

Please bring a laptop to class if you have one. If possible, install Google Earth version 6.2 (see info on course website).

## Other Recommended Materials

Printz, M., G. Harlow, J. Peters. [Date Unknown.] Simon & Schusters Guide To Rocks & Minerals. Simon and Schuster: New York. ISBN 978-0-67-124417-0

I also highly recommend a Hastings Triplet (or similar) 20x hand lens, available from Wards Scientific ([http://www.wardsci.com](http://www.wardsci.com/)), though we will have ones available.

Appropriate clothing, rain gear, footwear, and writing implements are required for field trips.

## Grading

Successful students in this course learn to think like a geologist and to do geology. To be successful at these things, you will need to actively participate in class, in the lab and the field, and in the at-home activities. Your grade depends on your progress toward being able to think and act like a geologist, as reflected in the work you do in this class.

Grades will be calculated based on a weighted average of points earned over the quarter. A conversion chart between percentage (of the weighted average) and the standard UW 4.0 scale is attached.

The breakdown of points is as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Number | Drop | Weight |
| Quizzes | 6 | 1 | 30% |
| Midterm | 1 | 0 | 20% |
| Final | 1 | 0 | 20% |
| Lab/Field Questions | 16 | 1 | 20% |
| Participation | Many | 2 | 10% |

*Reading and Labs/Field Trips are expected, not graded.*

*Reading assignments* will primarily be in the required textbook (Exploring Geology) or given out as handouts.

*Labs and Field Trips* are hands-on activities designed to introduce you to the techniques that geologists use when interpreting geological information. Labs themselves are not graded. Model answers are available on completion, but keep in mind that the labs are typically not designed to lead you to a “correct” answer, but to teach you how to do something. The main activity for each lab will be completed during the lab period, but you should expect to spend some time on your own analyzing lab data, answering questions, or practicing rock and mineral identification.

*Quizzes* test your ability to recall and comprehend ideas from the reading. Most of the questions will be either multiple-choice or fill-in-the-blanks. Online, 10 minutes, 10-15 questions. Due before the class on the given date.

*Midterm and Final*: Two tests cover fundamental knowledge of geoscience concepts, problem-solving, and analytical techniques. Tests will be a combination of multiple choice, short answer, calculation, diagramming, and long answer. All multiple-choice questions will require you to justify your answer. Each test is designed to take 1 hour, though you will have the entire class period to complete the test. The final is cumulative. You may bring one 8.5x11” note sheet (both sides) to the midterm and final, which you will turn in with the test. You will be able to redo both the midterm and the final for up to ¾ credit.

*Lab/Field Questions*: Labs usually involve practicing some skill. I want to make sure you can use that skill after practicing it. So I will ask you a few questions (usually online) or have you post the results of some analysis of your lab results (online). During weeks 4-5 we will be running a set of simulations that involve some pre- and post-work. That material is also considered in this category, and cannot be dropped.

*Participation*: Class time will be focused on building a framework for understanding the concepts covered in the day’s reading, analyzing further examples and case studies, and on applying key concepts. There will usually be some record of participation in the hands-on activities in class. This, along with an overall impression of your readiness and professionalism in class, will constitute your participation grade.

## Course Policies

*Late work and makeups*

No late lab questions or quizzes will be accepted. Period. If you need to miss a test, you may reschedule the test to a time within one week of the scheduled test. You may only reschedule a test if you contact me by email with an appropriate excuse prior to 24 hours before the scheduled test. Our deal is only valid if you receive confirmation from me by email that the rescheduling will work.

*Submission of work*

All materials due must be submitted electronically by the beginning of class on the date due unless otherwise stated. I may require that lab questions be checked before you leave lab. Ungraded work collected in class will be due either during class or at the end of the class period.

*Dropping work*

You may drop one lab, one quiz, and one reading assignment from your grade. If you are absent, you will receive a “0” for the labs/reading questions due on the day that you missed. If you choose to do all of the work in any of these categories, your lowest score in that category will be dropped from your grade. You do not need to specify the item to be dropped: I will determine which will be most beneficial for your grade.

*Missed Class*

I do not provide class notes or lesson summaries to make up for missed class meetings. If you miss a class, make sure to contact three students to find out what you have missed before contacting me. There will be an opportunity to exchange contact information during the first class.

*Excused Absences*

Excused absences (for participation purposes) are only for cases of illness or extreme hardship. Run-of-the-mill car breakdowns, job requirements, or work for other classes are not valid excuses. I do not need to see a doctor’s note, but I do expect you to contact me ahead of time or as close to class time as possible. I am the final arbiter of what counts as a valid excuse.

My sick policies:

* If you feel sick, particularly if you have upper respiratory problems and a fever, STAY HOME. Your attendance in class does not outweigh your health and that of your classmates.
* Keep in touch with me while you are out, as early as possible. We may need to make arrangements particular to your situation. If you are sick, again, DO NOT COME IN: contact me by email or phone. This counts as an excused absence.

*Discussion of Grades*

I appreciate it when students catch my arithmetic mistakes in adding up points. Even so, do not discuss your personal grade, either in the course or on an assignment, with me in class. It is illegal as per the Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part 99), and is also impolite to your classmates. Instead, please discuss grading matters in office hours or by appointment. As a general matter of policy, I do not regrade work. However, if you make a strong case for a regrade, I may do it. Be forewarned that your grade may be lower as a result.

*Electronic Devices*

Unless you are using a computer to take notes or to do something that I specifically designate in class, the use of electronic communication or entertainment devices in class is prohibited. However, you should bring your computer to class if you have a laptop.

*Returning Work*

I will try to return work to you within one week of the due date. If work is not returned within two weeks of the due date, I will return it, ungraded, and the piece of work will be dropped from the class grade. I will certainly post solutions within a week of the assignment’s due date. If work is not returned to you by the end of the quarter, provide a self-addressed, stamped 9”x12” envelope or pick it up by the end of the following quarter.

*Academic Honesty*

The University of Washington Tacoma's standard cheating and plagiarism policy applies to this course:

A major part of your experience in the class will be reading, synthesizing, and using the knowledge and ideas of others. It is the responsibility of the faculty to help you in this process and to be certain you learn to credit the work of others upon which you draw. To plagiarize is to appropriate and to pass off, as one's own ideas, writing or works of another. Plagiarism is no less of a misconduct violation than vandalism or assault. Ignorance of proper documentation procedures is the usual cause of plagiarism. This ignorance does not excuse the act. Students are responsible for learning how and when to document and attribute resources used in preparing a written or oral presentation.

For more information, please refer to the Academic Honesty: Cheating and Plagiarism document prepared by the Committee on Academic Conduct in the College of Arts and Sciences, UW Seattle: <http://depts.washington.edu/grading/issue1/honesty.htm>

Copying exam answers from a neighboring student, using unapproved notes during an exam, or trying to pass off another student’s lab work as your own are all examples of cheating. Any type of cheating on a test, quiz, assignment, or lab will result in a grade of 0 for the entire piece of work. The incident may also be reported to the University Disciplinary Committee. Repeated offenses will result in a grade of 0.0 for the course and report to the UDC.

## Resources

*Teaching and Learning Center*

The Teaching and Learning Center (TLC) offers free academic support for students at all levels.

For writing, reading, learning strategies and public speaking needs, please make an appointment online at: http://uwttlc.mywconline.com/index.php. Writing support is also available at our online writing center at: uwtwrite@u.washington.edu. More information about our online writing center is available at: <http://www.tacoma.washington.edu/tlc/writing/onlinewritingcenter.cfm>. For math, stats and quantitative needs, assistance is available on a drop-in basis in KEY 202. Please check our schedule at: <http://www.tacoma.washington.edu/tlc/math/schedule.cfm>. For special needs, please contact Ingrid Horakova athoraki@u.washington.edu

*Tutoring*

Science tutors are available at the Teaching and Learning Center. Check with the TLC and on the class website for names and hours. They may not be able to clarify everything about the course, so come to me if there is an ambiguity.

*Library*

The UW Tacoma Library provides resources and services to support students at all levels of expertise. We guide students through the research process, helping them learn how to develop effective research strategies and find and evaluate appropriate resources. For assistance or to schedule an appointment, visit us at the Reference Desk in the Library, email tacref@u.washington.edu or phone 253-692-4442. For more information about the Library and its services, see http://www.tacoma.uw.edu/library/

*Disability Support Services*

The University of Washington Tacoma is committed to making physical facilities and instructional programs accessible to students with disabilities. Disability Support Services (DSS) functions as the focal point for coordination of services for students with disabilities. In compliance with Title II of the Americans with Disabilities Act, any enrolled student at UW Tacoma who has an appropriately documented physical, emotional, or mental disability that "substantially limits one or more major life activities [including walking, seeing, hearing, speaking, breathing, learning and working]," is eligible for services from DSS. If you are wondering if you may be eligible for accommodations on our campus, please contact the DSS reception desk at 692-4522, or visit <http://www.tacoma.uw.edu/dss>.

*Weather Days*

Call (253) 383-INFO to determine whether campus operations have been suspended. If not, but driving conditions remain problematic, call my office number, (253) 692-5819: this number should provide information on whether a particular class will be held or not, and/or the status of pending assignments. If the first two numbers have been contacted and you are still unable to determine whether class will be held, call the IAS program office number for updated information.

*Counseling*

To schedule an appointment with a counselor, please call the front desk in Student Health and Wellness at 692-4522. If crisis services are needed outside of these hours, call Emergency Services at 911 (9-911 on campus). Services are currently free, with the exception of any assessment or testing fees or outside consultations that may be necessary.

For more information, please refer to the Student Counseling Center web page: <http://www.tacoma.uw.edu/counseling>.

## Grade Conversion Chart

All grades will be given in points, which can easily be converted to %.

|  |  |  |
| --- | --- | --- |
| Letter | % | UW Decimal Grade |
| A | 97-100 | 4.0 |
|  | 94-96 | 3.9 |
| A- | 93 | 3.8 |
|  | 92 | 3.7 |
|  | 91 | 3.6 |
|  | 90 | 3.5 |
| B+ | 89 | 3.4 |
|  | 88 | 3.3 |
|  | 87 | 3.2 |
| B | 86 | 3.1 |
|  | 85 | 3.0 |
|  | 84 | 2.9 |
| B- | 83 | 2.8 |
|  | 82 | 2.7 |
|  | 81 | 2.6 |
|  | 80 | 2.5 |
| C+ | 79 | 2.4 |
|  | 78 | 2.3 |
|  | 77 | 2.2 |
| C | 76 | 2.1 |
|  | 75 | 2.0 |
|  | 74 | 1.9 |
| C- | 73 | 1.8 |
|  | 72 | 1.7 |
|  | 71 | 1.6 |
|  | 70 | 1.5 |
| D+ | 69 | 1.4 |
|  | 68 | 1.3 |
|  | 67 | 1.2 |
| D | 66 | 1.1 |
|  | 65 | 1.0 |
|  | 64 | 0.9 |
| D- | 63-62 | 0.8 |
|  | 61-60 | 0.7 |
| E | 59-0 | 0.0 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Week** | **Date** | **Topic** | **Reading** | **Due Dates** |
| 1 | 6/24/2014 | Intro / Earth Structure | Ch. 1 |  |
| 1 | 6/26/2014 | Tectonics | Ch. 3 | Quiz 1 (Ch. 3) due 6/26 |
| 1 | 6/26/2014 | Lab: Google Earth | LAB |  |
| 2 | 7/1/2014 | Stratigraphy | Ch. 2 | Lab 1 questions due 7/1 |
| 2 | 7/3/2014 | Minerals | Ch. 4 | Quiz 2 (Ch. 4) due 7/3 |
| 2 | 7/3/2014 | Lab: Mineral ID | LAB |  |
| 3 | 7/8/2014 | Igneous Rocks | Ch. 5 |  |
| 3 | 7/10/2014 | Igneous Rocks |  | Quiz 3 (Ch. 5) due 7/10; Lab 2 questions due 7/10 |
| 3 | 7/10/2014 | Lab: Igneous Rocks | LAB |  |
| 4 | 7/15/2014 | Risk and Hazard: Transform Plate Boundaries | HDT | Pre-Work 1 due 7/15; Lab 3 questions due 7/15 |
| 4 | 7/17/2014 | Risk and Hazard: Divergent Plate Boundaries | HDT | Pre-Work 2 due 7/17 |
| 4 | 7/17/2014 | Lab: Jell-auea | LAB |  |
| 5 | 7/22/2014 | Risk and Hazard: Convergent Plate Boundaries | HDT | Pre-Work 3 due 7/22; Lab 4 questions due 7/22 |
| 5 | 7/24/2014 | Sedimentary Environments | Ch. 7 |  |
| 5 | 7/24/2014 | Lab: Sedimentary Rocks | LAB | Lab 5 questions due END OF LAB 7/24 |
| 6 | 7/29/2014 | MIDTERM |  |  |
| 6 | 7/31/2014 | Metamorphism | Ch. 8 | Quiz 4 (Ch. 8) due 7/31 |
| 6 | 7/31/2014 | Lab: Metamorphic Rocks | LAB |  |
| 7 | 8/5/2014 | Geologic Time | Ch. 9 | Lab 6 questions due 8/5; Midterm Redo Due 8/5 |
| 7 | 8/7/2014 | Climate | Ch. 13 | Quiz 5 (Ch. 13) due 8/7 |
| 7 | 8/7/2014 | Lab: Topographic Maps | LAB |  |
| 8 | 8/12/2014 | Glaciers | Ch. 14 | Lab 7 questions due 8/12 |
| 8 | 8/14/2014 | Weathering | Ch. 15 | Quiz 6 (Ch. 14) due 8/14 |
| 8 | 8/14/2014 | Lab: Geologic Maps | LAB | Lab 9 questions due END OF LAB |
| 9 | 8/19/2014 | FINAL EXAM |  |  |
| 9 | 8/21/2014 | FIELD TRIP | Ch. 16/LAB | Field Trip questions due END OF TRIP; Final Redo due 8/22 |
| 9 | 8/21/2014 | FIELD TRIP |  |  |