Environmental Geology 1060 and 1065 – Lecture and Lab
Syllabus

Instructor:
Office Room:
Emails:
Phone:
Office Hours:
Class Time:
Class Location:
Required Text: *Environmental Geology, 10th edition,* by Carla W. Montgomery

"We learn geology the morning after the earthquake."
*– **Ralph Waldo Emerson***

***"**Geology is the science which investigates the successive changes that have taken place in the organic and inorganic kingdoms of nature; it enquires into the causes of these changes, and the influence which they have exerted in modifying the surface and external structure of our planet."*
— Sir Charles Lyell

Geo 1060 Lecture: Course Description: This is an introduction the study of the Earth's near-surface environment and how human interact with it. Topics include global climate change, resource extraction (metals and fossil fuels), groundwater and surface water pollution, air quality, and environmental law. Corequisite: Geo 1065

Geo 1060 Lecture: Course Student Learning Outcomes (SLOs):
- Differentiate between natural and human-made environmental disruptions.
- Explain how the greenhouse effect and global climate change work and how human are influencing this change.
- Explain basic groundwater and surface water flow systems and analyze groundwater and surface water contaminant fate and transport.
- Explain the basics of air quality including sources of criteria pollutants and winter urban inversion pollution.
- Analyze real-world data for air quality or groundwater to determine trends and causes of pollution.
- Explain the basic formation history of rocks and minerals, plate tectonic settings, and layers of Earth.
- Describe and categorize the origin and characteristics of natural resource extraction such as with hydraulic fracturing in petroleum and strip mining for metals, and be able to analyze environmental impacts associated with these practices.

Geo 1065 Lab: Course Description: This is the laboratory course for Geo 1065 Environmental Geology. Corequisite: Geo 1060

Geo 1065 Lab: Course Student Learning Outcomes (SLOs):
- Perform basic unit conversion, map distance calculations using ratio scale, and draw cross-sections.
- Explain how the greenhouse effect and global climate change work and how human are influencing this change.
- Explain basic groundwater and surface water flow systems and analyze groundwater and surface water contaminant fate and transport.
- Conduct field sampling and mapping, and analyze result by comparison with state or federal screening criteria.
- Operate a survey-grade Trimble GPS unit to mark latitude and longitude points and plot these on a map using digital technology such as GIS or Google Earth.

- Identify basic rocks and minerals, read and interpret plate tectonic settings on a map, and draw cross sections.
- Draw and interpret contour lines and isolines of contaminant concentration.

Attendance Policy:

- Regular and prompt attendance is expected at all classes. Regular attendance and consistent study habits are necessary for success in college. Faculty members have the prerogative of lowering grades for excessive absence.
- Attendance will be taken verbally at the beginning of class.
- Attendance is required at least once during the first week of class, otherwise the student may be dropped from the class.
- You must come to class on time. Coming in late is highly disruptive.
- It is the student's responsibility to drop the class if they are no longer interested in remaining in the course.

"Change is the only constant." "You cannot step twice into the same river."
- Heraclitus

"Rocks are records of events that took place at the time they formed. They are books. They have a different vocabulary, a different alphabet, but you learn how to read them." ***- John McPhee***

How to succeed in this course:

- **Attendance:** Come to every class and come on time. Treat school like work.
- **Professional behavior**: I expect students to conduct themselves in a professional manner. This means coming to class on time, being respectful of other student's questions and comments, and not talking when someone else has the floor. If you cannot respect these policies, then you may be asked to withdraw from the course and/or be dropped. Coming in late is disruptive to the other students and important announcements are covered in the first few minutes of class.
- **Textbook:** You must have the textbook and you must bring it to class every day. We will be using the book in class. A copy of this textbook is on reserve in the library.
- **Lecture Notes:** Have a dedicated notebook or binder for lecture notes for this class. Start each new day on a fresh page, take notes using the outline format, and try to write down everything the instructor writes on the board and says, including drawing any diagrams or charts from the board or PowerPoint presentation. Lecture notes that are based on my PowerPoint presentation will be provided electronically on Canvas.
- **Exams:** A study guide will be provided.
- **My Weekly Expectations of you:** You should dedicate about 6 hours per week for work outside of class time. Most of your learning will occur by you doing reading at home, taking notes on this reading, and doing homework to prepare for quizzes.
- Talk to your instructor at any time or during office hours about how to succeed in this course and improve study skills.

Assignments:

- **Chapter Questions and Quizzes** – Students will read the chapter and take notes **before** I lecture on that chapter. Students will then take a quiz on the chapter on Canvas **before** I lecture on the chapter. Many of the quiz questions will be related to the **"Review Questions"** questions but others will be word-problems requiring critical thinking and analysis. Canvas is the college's electronic learning management software where much of the content for your courses is increasingly being hosted. Quiz duration will be about 30 minutes and is open book. However, you will have to read the text, take notes, and answer the questions before starting the quiz. Otherwise, you won't have enough time to do the quiz. You will have two attempts at the quiz.
- The purpose of the quiz and chapter questions are to encourage you to read the chapter and become familiar with the content before coming to class, so that in class we can discuss the more challenging

topics instead of just lecturing. Be prepared to work on mini-assignments in class - bring you textbook to class every day.

- **Final Research Project and Poster Presentation** - A description of this assignment will be provided within the first week of class. Each student will work with the professor on a real field-based research project. Students will develop their own hypothesis and collect soil and/or water samples in the field to test their hypothesis. This effort could be combined with a research project from the separate field course Geo 2350.
- **Extra Credit: Enroll in Geo 2350 Field Studies to Moab and Salt Lake Valley Area.**
- **Other Assignments:** Expect other small assignments.

Make-up and Late Policy:

- All late assignments will have points removed. The later it is, the more you lose. You cannot make-up any exams or quizzes. The reason for missing an exam or quiz does not change this policy. If you know you are going to miss a day, talk with me about turning in an activity early.

How to Calculate Your Grade:

To determine your grade percentage, sum the total points possible and total points you received. Divide the total points you received by the total points possible and multiply the answer by 100%. For example, Bill received an 80 out of 100 points on his first test, and 10 out of 20 points for five quizzes. His total is 90 points out of 120 possible points. 90 divided by 120 = 0.75. Then, take 0.75 x 100 % = 75% a grade of "C".

Geo 1060 Lecture: Grading Scale and Distribution:

Exam 1	100 points
Exam 2	100 points
Exam 3	100 points
Quizzes (5 points each)	45 points
Research Project and Poster	100 points
Other assignments	30 points
Total Points	475 points

Grading Scale:	
90-100%	A
80-89.4%	B
70-79.4%	C
60-69.4%	D
0-59.4%	E

Geo 1065 Lab: Grading Scale and Distribution:

Lab Exam 1		100 points
Lab Exam 2		100 points
Labs	(10 points each)	140 points
	Total Points	340 points

INCOMPLETE GRADES

Students must be passing and have completed 75% of the course work in order to be granted an incomplete. Students are responsible for making arrangements to complete the course.

Lecture and Lab Schedule:

Week	Date	Geo 1060 Lecture Chapter and Topics	Notes	Geo 1065 Labs
1	Jan 11	1 – Planet and Population		1 - Intro to Maps, Math, and Chemistry
2	Jan 18	2 – Rocks and Minerals		2 - Topographic Maps
3	Jan 25	3 – Plate Tectonics		3 – Lab 12 and 15 from Foley, McKenzie, and Utgard 2009
4	Feb 1	12 – Weathering, Erosion, and Soil		4 - Soil Classification and Soil Logging
5	Feb 8	11 - Groundwater and Water Resources		5 – Lab 13 and 14 from Foley, McKenzie, and Utgard 2009.
6	Feb 15	11 - Groundwater and Water Resources	**Exam 1 Thursday**	6 - Water Quality Analysis – GIS Mapping and Analysis
7	Feb 22	17 – Water Pollution		7 – **Field Trip** - Jordan River Sampling Water Quality Sampling and Analysis
8	Feb 29	17 – Water Pollution		**Lab Exam 1**
9	Mar 7	Environmental Consulting Industry - **Klienfelder Guest Speakers**		8 - Groundwater Contamination Investigation - Part I
10	Mar 14	**Spring Break – No Class**		**Spring Break – No Class**
11	Mar 21	16 – Waste Disposal (Jack Guest Lecture on Nuclear Waste Disposal); 19- Environmental Law and Policy		8 - Groundwater Contamination Investigation - Part II
12	Mar 28	18 – Air Pollution	**Exam 2 Thursday**	8 – **On-Campus Field Trip to SEM Lab** - Scanning Electron Microscope (SEM) activity.
13	Apr 4	13 – Mineral and Rock Resources		9 – **Field Trip** - JWCD - RO Plant Field Trip
14	Apr 11	14 – Energy Resources – Fossil Fuels		10 – **Field Trip** - XRF Analyzer, Mining, Metals, and Acid Mine Drainage
15	Apr 18	15 – Energy Resources – Alternative Sources		11 - Research Project
16	Apr 25	10 – Climate Change		11 - Research Project Poster Presentations
17	May 2	**Finals Week**	**Exam 3 - Tuesday May 3 11:20 am – 1:20 pm**	**Lab Exam 2 – Tuesday May 3 1:30 pm – 3:30 pm**

Incomplete Grade and Withdraw from Class: A grade of "I" (Incomplete) is the instructor's option and is not given except only in the most extenuating of circumstances for which there is verifiable written documentation. In order to receive an incomplete, nearly all course work must have been completed (e.g. ~75%) with a passing grade. Last day to drop this class *with refund* is September 16, last day to withdraw (*without refund)* is October 30. **It is the responsibility of the student to drop/withdraw from this class, not the instructor.**

College-Wide Learning Outcomes: The Core Themes of SLCC's Mission focuses on Access and Success, Transfer Education, Workforce Education and Community Engagement. As such, all courses and programs address one or more of the below College-Wide Learning Outcomes. Upon successful completion of any program at SLCC, students should:

- Acquire substantive knowledge in the discipline of their choice sufficient for further study, and/or demonstrate competencies required by employers to be hired and succeed in the workplace.
- Communicate effectively.
- Develop quantitative literacies necessary for their chosen field of study.
- Think Critically.
- Develop the knowledge and skills to be civically engaged, and/or to work with others in a professional and constructive manner.

SLCC Writing Center
Your assignments and discussions MUST be written with MINIMAL spelling or grammatical errors. SLCC's Writing Center is multi-functional. In addition to computers for class use, the Writing Center also offers an advising program where you have the opportunity to discuss your work with a peer tutor or faculty-writing advisor. The Writing Center advisor can help you think about your writing process by sharing impressions of your materials, offering revision strategies, discussing different ways to approach an assignment, as well as to provide an experienced reader for your work.

SLCC ePortfolio Statement
In order for SLCC students to have a place to display and chronicle projects that demonstrate discipline-specific skills, critical thinking, and collaboration, SLCC has instituted a Gen Ed ePortfolio requirement in which students display their work from General Education courses. Students taking Gen Ed courses must place significant projects from those courses on a website they create that acts as a virtual portfolio of accomplishments in each course. In this way, prospective employers, community members, and transfer institutions can easily see the best of what each student has accomplished while attending SLCC. Your ePortfolio will allow you to include your educational goals, describe your extracurricular activities, and post your resume. When you finish your time at SLCC, your ePortfolio will then be a multi-media showcase of your educational experience. Visit http://www.slcc.edu/gened/eportfolio for more details.
You may visit the ePortfolio Lab in the basement of the Taylorsville Redwood Library during business hours, and staff will help you without an appointment. Finally, questions regarding the ePortfolio can be directed to eportfolio@slcc.edu.

Americans with Disabilities Act: Students with medical, psychological, learning or other disabilities desiring accommodations or services under ADA, should contact the Disability Resource Center (DRC). The DRC determines eligibility for and authorizes the provision of these accommodations and services for the college. Please contact the DRC at

[redacted]

Academic Dishonesty: Absolutely NOT tolerated and includes all forms of cheating and plagiarism as outlined in the Student Code. Cheating will be dealt with as harshly as allowed by the college *on the first instance*, which includes your being failed from the class.

Although I encourage students to work together on some assignments, you must turn in your own assignments with your own answers in your own words. You are responsible for your own work. If you plagiarize an exam or assignment you will receive a grade of "F" on the material or exam and a possible "F" in the class. For field trip reports, you must take your own photos, make your own notes, and cite your references correctly.

Cheating includes:

- copying from another's test, assignment, or lab; or obtaining answers from another person during the test
- submitting work previously presented in another course, if contrary to the rules in either course
- using or consulting during an examination sources or materials not authorized by the instructor
- using a cellular phone, text messaging device, digital camera, iPod, or other electronic device
- that can convey information during an examination
- altering or interfering with grading or grading instructions
- deliberately altering or interfering with examination materials, such as lab exam setups
- sitting for an examination by a surrogate, or as a surrogate

- talking or consulting with another person (except the instructor) during an examination
- giving information to, or receiving information from, another student that provides the recipient with an undeserved advantage on an examination, such as sharing information about an exam with a student in another section, or telling a student what to expect on a alternative exam
- any other act committed by a student in the course of his or her academic work which defrauds or misrepresents, including aiding or abetting in any of the actions described above.

Plagiarism includes:

- incorporating the ideas, words, sentences, paragraphs or parts thereof, or the specific substance of another's work, without giving due credit, and representing the product as one's own work. (Note that this includes copying or using the same words as another student on a written assignment, even if you were permitted to work together on the assignment. You must write in your own words.)
- representing another's artistic, scholarly, or similar works as one's own.

Student Code of Conduct: The student is expected to follow the SLCC Student Code of Conduct found at http://www.slcc.edu/policies/docs/Student_Code_of_Conduct.pdf

Emergency Evacuation Procedures: we will leave the building immediately in case of an emergency. We will follow school guidelines at: http://www.slcc.edu/emergency-prepare/emergency-procedures.aspx

Title IX Information:

20 U.S.C.A. Section 1681 (a): TITLE IX

"No person in the United States shall, on the basis of sex, be excluded from participation in, be denied benefit of, or be subjected to discrimination under any education program or activity receiving federal funds."

Examples of violations (but not limited to):

- Sexual advances, requests for sexual favors and sexually motivated physical conduct
- Overt or subtle pressure for sexual activity
- Sexually offensive verbalization including remarks, "teasing", slurs, and innuendo
- Repeated inappropriate jokes or comments about sex or gender specific traits
- Conduct that is demeaning or derisive and occurs substantially because of one's gender
- Sexual assault
- Sexual Violence
- Gender based disparate treatment

Violations can occur in any college environment, such as (but not limited to):

- Field Trips
- Student Clubs
- Transportation
- Classrooms
- Athletics
- On Campus Events

If you have questions or concerns regarding your rights or responsibilities, or if you would like to file a Title IX complaint please contact:

Students-

[redacted]

Online Reporting Form-
http://www.slcc.edu/eeo/title-ix/complaint.aspx

Salt Lake Community College has a strong prohibition against RETALIATION! The college does not tolerate acts of retaliation against anyone for engaging in filing a complaint or participating in an investigation.

"By following cracks you can trace the subtle power of the fault as it angles under the town, offsetting sidewalks and curbstones and gutters, an effect most alarming in the house of a chiropractor which you pass soon after entering Hollister, CA, from the west. One half of a low concrete retaining wall holding back the chiropractor's lawn has been carried north and west about eight inches. The concrete walkway is buckling. Both porch pillars

lean precariously toward the coast. In back, the wall of his garage is bent into a curve like a stack of whale's ribs. The fact that half his doomed house rides on the American plate and the other half rides the Pacific has not discourage this chiropractor from maintaining a little order in his life. He hangs his sign out front, he keeps his lawn well mowed and the old house brightly, spotlessly painted."

- James D. Houston, *on the San Andreas Fault as it runs through Hollister, CA.*