CoSM Class Syllabus / Policy

2014 / Fall
GOL 131 & GOL 131L
Introductory Physical Geology

Name: Professor
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Office Hours: TBA or by appointment

Class meeting time and place: Varies : E.L. Miller Science 3##
Lab meeting time and place: Varies : E.L. Miller Science 3##

Course Description:
Introductory Geology (GOL 131) - Four semester hours, three hours lecture, two hours laboratory per week. Designed for the student with no geology background. Introduction to the study of minerals, rocks, and the processes that modify and shape the surface features of the Earth. Focus on energy, mineral and water resources; volcanism; and other practical aspects of geology. Required lab fee. No prerequisites.

Program Learning Outcomes:
This is a general education core curriculum course and no specific program learning outcomes for this major are addressed in this course.

General Education Core Curriculum Objectives/Outcomes:
The student is expected to develop the following core objectives established by the THECB.

CO 1. **Critical Thinking Skills** – creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information. (SLO 1-4)
CO 2. **Communication Skills** – effective development, interpretation and expression of ideas through written and visual communication. (SLO 4-5)
CO 3. **Empirical and Quantitative Skills** – manipulation and analysis of numerical data or observable facts resulting in informed conclusions. (SLO 1-2,4)
CO 4. **Teamwork** – the ability to consider different points of view and to work effectively with others to support a shared purpose or goal. (SLO 3-5)

Student Learning Outcomes for Lecture and Lab:
After successful completion of this course students will be able to:

SLO 1. Demonstrate an understanding of fundamental geologic concepts as it relates to Earth processes and landscape evolution through geologic time. (Critical Thinking, Empirical and Quantitative Skills)
SLO 2. Use quantitative reasoning to interpret geologic data (tables, figures, graphs) from primary research, data assimilation and models to assess the differences in competing scientific theories associated with rock formation. (Critical Thinking, Empirical and Quantitative Skills)
SLO 3. Demonstrate knowledge on the interdependence of science and technology and the influences geologic reasoning associated with identifiable and testable hypotheses of geologic processes. (Critical Thinking, Teamwork)

SLO 4. Critically assess the interrelationships between geologic phenomenons and communicate the resulting conclusions in visual and written formats. (Critical Thinking, Communication, Empirical and Quantitative Skills, Teamwork)

SLO 5. Demonstrate an understanding of the skills and attitudes necessary for effective teamwork in collaborative learning activities. (Communication, Teamwork)

Text and Materials:

- ***The Changing Earth with Geology of Texas*** (5th Ed.), Monroe et al.
- Introductory Geology Laboratory Manual

Course Requirements:
This class is a 4-credit hour course and has a weekly requisite lab where you will gain hands-on experience with geologic materials such as mineral and rocks, analyze geologic data, and interpret geologic landforms through an understanding of topographic maps. Grades from the lecture and lab will be averaged, with the lab counting 1/3 of the grade. You will receive one grade for the entire course, assigned by your lecture instructor.

Lecture Course Information

Lecture Course Calendar (required in all sections):

Topics to be covered in GOL 131 Lecture include:

- Basic Concepts of Geology: ~15% of semester
- Mineralogy – the building blocks of rocks: ~10% of semester
- Igneous Rocks and Volcanism: ~10% of semester
- Weathering, Erosion and Sedimentary Rocks: ~10% of semester
- Metamorphism and Metamorphic Rocks: ~10% of semester
- Plate Tectonics and Deformation: ~5% of semester
- Earthquakes and the Earth's Interior: ~10% of semester
- Surface Water and Ground Water: ~10% of semester
- Glaciers and Glaciation: ~5% of semester
- Eolian Processes and Deserts: ~5% of semester
- Shorelines and Coastal Processes: ~5% of semester
- Earth's Natural Resources: ~5% of semester

Grading Policy:

- Lecture counts 2/3 (66.7%) of course grade. Grades from each lecture test will count equally toward your final lecture grade. Lab counts 1/3 (33.3%) of the final course grade.
- Total points: 66.7% (Lecture) + 33.3% (Lab) = 100%
- Grade Scale: 90 – 100 + A, 80 – 89 + B, 70 – 79 = C, 60 – 69 = D, < 60 = F

All lecture exams will include a multiple-choice section with additional sections that will vary between exams but may include any or all of the following sections: 1) multiple choice questions; 2) true / false questions; 3) fill in the blank questions; 4) short answer questions; 5) figure illustration; 6) short essay questions. All exams will take place in room ### unless otherwise stated in class.

Cell phones, calculators, and other electronic devices are NOT permitted during exams. If you are using them in an exam, it will be assumed that you are cheating and you will receive a grade of "0" on that exam.

Lecture exam scheduling conflicts for officially sanctioned university reason will be accommodated at a different time or date. In the event of such conflicts, you must inform your instructor at least one week prior to the exam to reschedule your exam.

Make-up exams for lecture classes are only given in documented cases of official university activities, illnesses or deaths in the family. If the final is missed for a legitimate excuse, an "Incomplete" will be given at the final and a make-up exam can be taken at the beginning of the next semester. Make-up exams will be different than the regular class exam and may be entirely essay format.

Attendance Policy:

- Daily attendance will be taken for university accounting purposes. Success in this course will reflect the level effort you put into the course.
- Be prepared for lectures by reading the material to be covered prior to attending class. Questions are encouraged and welcome – do not hesitate to ask questions in class.
- No electronic devices are needed during lectures for this class, including cell phones and calculators. Please turn them off and do not use them in class. Ringing phones and beeping electronics disturb others in the class and interrupt lectures. If you interrupt class with your personal electronic devices, you will be asked to leave for the day.
- If you are late to class, please seat yourself quietly. Try not to be late because it interrupts others in the class. If you need to use the restroom or become ill, please excuse yourself from the lecture quietly.
- If you need to study for another class, do it elsewhere. The classroom is not the place to sleep either. Basically, refrain from activities in lectures that will distract or disturb the other students in the room, because you are all paying for the class and most people want to get what they are paying for.

Laboratory Course Information

Laboratory Exercises and Group Project: In order to facilitate the inclusion of the General Education Core Curriculum Objectives uniformly across multiple sections of the course, these objectives will be addressed in the laboratory exercises. Weekly laboratory exercises will reinforce lecture material with practical exercises designed to enhance specific General Education Core Curriculum Objectives. Each week, students will be introduced to these core objectives in the form of classroom exercises and electronic assignments delivered through the SFA platform Desire2Learn (d2l). Students will be responsible for accessing and downloading material and assignments from d2l and uploading pertinent laboratory materials and quizzes to d2l.

Each week, students will complete a laboratory exercise which will be turned in to the laboratory instructor for grading at the end of the class period. During the laboratory exercises, students will work individually and in teams to complete the in-class assignments. In addition to the classroom exercise, students will be responsible for taking a weekly requisite electronic quiz administered through d2l. The quizzes should be taken individually, and must be completed by 12 midnight on the days they were assigned (your weekly lab day). These electronic quizzes will address topics covered in the laboratory class and will be used to address the Critical Thinking, Written Communication, and Empirical and Quantitative Skills General Education Core Curriculum Objectives.

Group Project: During week 11, students will participate in a group project to analyze geologic data and create a final project which will address the Teamwork and Communication Skills General Education Core Curriculum Objectives. The project is a major grade component and will require time outside the

classroom. Final projects will be uploaded electronically by each student. More information on this assignment will be given before the project is assigned.

Your laboratory grade will consist of the following:

• Weekly Laboratory Exercises (10 exercises @ 10 points each)	100
• Weekly Electronic Quizzes (10 quizzes @ 10 points each)	100
• Group Project (50 points)	50
• Exams (Midterm and Final Exam, 100 points each)	200
Total Points	450

Your average in lab will be determined by the number of points you earn divided by 450.

Laboratory Exams: Two major exams will be given in the classroom during the laboratory period. Grades for laboratory classroom activities, exams, and electronic assignments will be delivered through d2l. You **will not** receive a separate grade for your lab performance. Your laboratory average will be sent to your lecture instructor and your final grade for the course will be assigned by your lecture instructor using the formula listed on page 2, Grading Policy.

All make-up exams are departmental and will be given at one time. It is the responsibility of the student to find out the date and time of the exam. The Laboratory Coordinator can provide that information. All exams must be made up **NO LATER THAN 2 WEEKS AFTER REGULARLY SCHEDULED TIME**.

Laboratory Etiquette: Each laboratory exercise must be completed during the laboratory period. You must be present for the entire laboratory in order to turn in the exercise at the conclusion of the laboratory. Cell phones and other electronic devices are NOT permitted during the class or exams. If you are using them in an exam, it will be assumed that you are cheating and you will receive a grade of "0" on that exam. If you are using them in class, you will be asked to leave.

Missed work: Attendance is mandatory for understanding the material and participating in class. Opportunities for make-up exercises/quizzes will be approved by the **Laboratory Coordinator** for **EXCUSED** absences only. The following constitutes an excused absence:

- Illness: note from doctor for day of the lab.
- Death in Family: must be documented by obituary clipping from newspaper or funeral home.
- Jury Duty: must be documented by note from judge or other court official.
- School Function: name must appear in Faculty Bulletin or note must be sent from instructor, coach, etc.

If you cannot document an excused absence, late work may be accepted at the discretion of the Laboratory Coordinator. Your grade will be lowered by 5% for each day the assignment is late, and will not be accepted one week after the assignment is due.

After a student has missed more than 3 labs, 10 points will be deducted from the final lab average for each additional absence. You are expected to come to lab, to be on time, and to stay for the duration of the lab. Whenever it is possible, arrangements should be made BEFORE the lab time so that provisions can be made.

Help with the material: Internet lab tutorials for minerals/rocks can be found on the SFASU Geology home page under "131-132 Lab Tutorials" or at http://www.geology.sfasu.edu/tutorials.html. In addition to the online tutorials, Teaching Assistants will hold tutorial sessions every Friday at 1:00 to help students with the material.

Laboratory Course Calendar (required in all sections):

Week	Laboratory Topic	General Education Core Curriculum Objective					
		Critical Thinking	Communication Written	Communication Visual	Communication Oral	Empirical & Quantitative Skills	Teamwork
1	Reporting Scientific Information Handout; Introduction to the Scientific Method and Critical Thinking;	X	X	X	X	X	
	Physical Properties of Minerals;	X					
	Instruction for Electronic Quizzes; Mohs Scale Minerals;	X					
	Critical Thinking Quiz (d2l)	X	X				
2	Introduction to Teamwork; Introduction to Empirical and Quantitative Skills; Identification of Minerals;	X				X	X
	Density of Minerals;				X	X	X
	Critical Thinking Quiz (d2l)	X	X				
3	Igneous Rocks and Volcanoes;	X					
	Practice with Empirical and Quantitative Skills;		X		X	X	
	Critical Thinking Quiz (d2l)	X	X				
4	Sediments and Erosion; Erosional Landforms; Erosion Rates;	X				X	
	Empirical & Quantitative Skills Quiz (d2l)		X	X		X	
5	Sedimentary Rocks and Sedimentology; Classification of Sedimentary Rocks;	X					
	Critical Thinking Quiz (d2l)	X	X				
6	Metamorphic Rocks; Principles of Metamorphism; Calculation of Temperature and Pressure of	X					
	Metamorphic Events;		X	X		X	X
	Critical Thinking Quiz (d2l)		X	X		X	
7	Midterm Exam (classroom)	X	X				
8	Introduction to Topographic Maps;	X					
	Calculation of Distance;	X	X	X	X	X	X
	Empirical & Quantitative Skills Quiz (d2l)		X	X		X	
9	Meteorology;	X	X	X	X	X	X
	Milankovitch Cycles: Fluctuations in Climate;	X	X			X	
	Empirical & Quantitative Skills Quiz (d2l)		X	X		X	
10	Hydrology Erosional Landforms; Topographic Expression;	X	X				
	Critical Thinking Quiz (d2l)	X					
11	Hydrogeology; Group Project (d2l);	X	X	X	X	X	X

	Teamwork Evaluation (d2l)		X				X
12	Desert Environments; Desertification Processes; Dune Migration Empirical & Quantitative Skills Quiz (d2l)	X X X	X			X X	X
13	Final Exam	X				X	

Academic Integrity (*A-9.1*)

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Withheld Grades *Semester Grades Policy (A-54)*

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.
The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

Students with Disabilities

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Critical Thinking Assessment Questions – GOL 131

Mineral Identification Laboratories

1. Compare and contrast the identifying characteristics of calcite and quartz. In your response, address the following mineral characteristics: hardness, luster, crystal form, cleavage and/or fracture, diaphaneity, and tenacity. (Week 1)
2. During the laboratory exercise this week, you and your partner calculated the density of certain minerals. Which characteristicof the minerals you measured was the most important factor in determining the mineral with the greatest density? Which characteristic is the least important? In your answer, consider size, shape, luster, crystal form, elemental composition, and any others that could be relevant. (Week 2)

Igneous Rock Identification Laboratory

3. Basalt and granite are both igneous rocks, yet differ greatly in their mineralogy, mode of formation, and texture. What geologic processes account for the differences between these two rocks? Explain your answer. (Week 3)

Sedimentary Rock Identification Laboratory

4. Clastic sedimentary rocks are identified by their grain size. What is the correlation between grain size, the energy level of the transportation mechanism, and proximity to the source material? (Week 5)

Metamorphic Rock Identification Laboratory

5. Regionally metamorphosed rocks are commonly strongly foliated, but contact metamorphosed rocks adjacent to an igneous intrusion are commonly non-foliated. Compare and contrast the mode of formation and development of foliation in quartzite and gneiss. For each rock, what would be the primary agent of metamorphic change that would influence the formation of these samples?

Hydrology

6. As rivers flow across geologic materials, they erode these materials by a variety of processes. Based on the topographic maps provided, what are the principal erosive processes creating the landforms present today? What topographic landforms did you use as a basis for your answer? Explain. (Week 10)

NOTE: These questions are not part of the actual syllabus and are included in this document to facilitate the committee review of our application.

Empirical and Quantitative Skills Assessment Questions – GOL 131

Sediments / Erosion Laboratory

1. Central Texas contains extensive outcrops of pink granite, which is commonly used in gravestones, counter tops, historical markers, and our State Capital in Austin, TX. A sample of granite was analyzed and found to contain four common silicate minerals: 1) quartz; 2) plagioclase; 3) amphibole; and 4) orthoclase. The relative percentages of each of the minerals and their weathering rates are listed in the chart below. Fill in the remainder of the chart by calculating the relative percentages of each mineral at the given time period. Which mineral weathers most quickly? Which mineral is the most stable and remains at the end of the weathering period? (Week 4)

Topographic Map Basics Laboratory

2. Using the scale provided, calculate the distance between Point A and Point B. Express your answer in feet, miles, and kilometers. What is the latitude and longitude of Point A? Using the Public Land Survey System, give the location of Point B by the Township and Range method. (Week 8)

Meteorology Laboratory

3. Our climate today is the product three factors discussed in laboratory today: 1) the tilt of earth's axis; 2) precession of the spin axis; and 3) the eccentricity of the earth's orbit. Based on the time periods for each of these factors, when will be the next time in the future we could expect a period of global cooling? Based on the time periods for each of these factors, when will be the next time in the future we could expect a period of global warming? Please show your work and round your answers to the nearest 1,000 years. (Week 9)

Eolian / Deserts

4. Attached are three historical aerial photographs of a migrating dune field in Saudi Arabia from Google Earth. Using these images and the scale provided, what has been the rate of migration of the dune field from the time period of 1950 – 1975? What has been the rate of migration from 1975 to the present? What factors would influence a change in the migration rate? (Week 11)

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Hydrogeology Group Project – GOL 131

Students will be assigned to work in a group of 2-3 members to foster Teamwork and Communication Skills. For the exercise, students will be supplied with a data set and asked to determine stream discharge. The students will be instructed to use technology, in the form of Excel, to perform the calculations. Students will then use their data to create a stream profile (using Excel) and answer some basic questions allowing them to interpret their data. Finally, students will be asked to plot the inputs from tributaries and groundwater to determine the base flow of the stream before, during, and after a precipitation event.

Goals of the Activity:

1. Foster communication and organizational skills among team members.
2. Facilitate the understanding of the relationship between groundwater baseflow and stream discharge.
3. Strengthen empirical and quantitative skills by the use of technology to determine discharge.
4. Create graphic displays of their data by generating a stream profile.
5. Help students determine the relationship between groundwater baseflow, precipitation events, and tributary inputs along a river.
6. Strengthen analytical skills by encouraging students to interpret their data.
7. Strengthen written communication skills by asking students to communicate their findings in a formal laboratory report.

Students will be required to work together to process the data, create the stream profiles, and plot the various discharge rates. Students will be able to demonstrate their teamwork skills while performing data processing and graphing, and outlining their laboratory reports. Although students are encouraged to work together toward a final product, each student will be responsible for producing an individual formal laboratory report complete with the data sets, stream profiles, and plots. Individual laboratory reports should be uploaded to d2l. Each laboratory report should list their name as the author, with their team member's names as co-authors.

Students will also be asked to critique the teamwork experience using an online evaluation to determine peer participation and their thoughts on the group project.

NOTE: This project description is not part of the actual syllabus and is included in this document to facilitate the committee review of our application.