

**OXFORD COLLEGE**  
**Geology 141 - Physical Geology**  
**Fall 2014**

**GOALS FOR STUDENTS ENROLLED IN GEOLOGY 141:**

Geology 141 (Physical Geology) has been designed for either the geology/environmental studies major or for a student who wants an interesting laboratory science course as part of their liberal arts education. As such, no prior background is assumed or necessary, just a desire to learn and an interest in the natural world. Some of the key elements in the study of geology include the scientific method and observational skills. The course will introduce those early in the semester and continue to reinforce them throughout the rest of the term. At the end of the course students will understand how the scientific method applies to geology. Their observational skills will be considerably improved through the analysis of mineral and rock specimens and landscape features. The study of the Earth brings in a number of the other sciences that have a bearing on geology. Concepts of physics are relevant to plate tectonics, the generation of magma, and metamorphic rocks. Students will see how pressures within the Earth influence these processes. Chemistry is especially useful in the understanding of minerals, rocks, and weathering. Students will gain knowledge of basic chemistry as it is applied to mineral and rock composition and how it relates to weathering. Basic mathematical skills will be mastered in the use and analysis of topographic maps. Physical geology involves the study of the building materials of the Earth. Students will understand minerals and be able to identify some. Students will understand how igneous, sedimentary, and metamorphic rocks form and be able to identify a suite of them. The course also involves the internal processes of the Earth. As such, students will understand plutonism, volcanism, structural deformation, and earthquakes. Surface processes are also important in physical geology and students will gain knowledge of weathering, stream processes, glaciation, and coastal processes. Finally, it is my hope that at the end of the course, students will have developed a deep appreciation for the planet that we live on through an understanding of its geologic nature.

**COURSE ANNOUNCEMENTS**

Instructor: Dr. Stephen W. Henderson  
Office: 106 Pierce Hall  
Office Phone: (770) 784-8345  
Office Hours: Monday & Wednesday 1:00-2:00, Tuesday 9:30 – 12:00, and other times by appointment or walk-in's. I'm usually in my office and appreciate the opportunity to meet with you.

**Text:** Tarbuck, Lutgens, & Tasa, 2014, *Earth: An Introduction to Physical Geology*, 11<sup>th</sup> ed.

**Lab Manual:** Busch (ed.), 2011, *Laboratory Manual in Physical Geology*, 9th ed., (AGI/NAGT).

**Organization:** The class will meet for lecture three times each week: Monday, Wednesday, and Friday from 9:30-10:35 am or from 10:45-11:50 am. Students will enroll in one of the two laboratory sections that meet from 1:40 – 4:40 on Tuesday or 2:30-5:30 on Wednesday.

## COURSE REQUIREMENTS AND GRADING METHODS:

**Attendance:** All students are expected to attend all scheduled lecture and laboratory sessions. Attendance will be taken. No cuts are allowed in lab. Students who have an unexcused absence in lab will have their final course grade reduced three points per absence. Lab quizzes cannot be made up. A student who has four or fewer lecture absences for the entire semester will receive the addition of two points to the final course average. There are no excused absences. Students having six or more lecture absences will have their final course grade reduced one point per absence starting with the sixth absence.

Being late to class can be rude and distracting. If it happens, please be as unobtrusive as possible when you enter class. Three times of being late will be considered equal to one absence. If you come in late, it is your responsibility to see me immediately after class to ensure that you are marked late and not absent. No adjustments will be made at a later time. When you are in class, you must be attentive and not disturb others. You will be counted absent if you leave class early, unless you are suddenly sick or have talked with me prior. If you sleep through a class or are generally inattentive (which won't happen because you are great students and geology is actually interesting), you could be counted absent.

**Reading Assignments:** You must read the text assignments prior to class so that you are best prepared for an in depth understanding of the material presented in lectures. You will be responsible for the text readings on the tests. Prior to laboratory, you must read over the introductory material in the lab manual for that day's exercise. Otherwise, you will find yourself lost and out of favor with your instructor.

**Class Etiquette:** In class, you should be concentrating on learning. Anything that distracts from this is contrary to the educational process. Therefore, cell phones are to be turned off and cannot be used in class or lab (including as calculators during tests). Bring a calculator to lab.

**Grading System:** Geology 141 will use the plus-minus grading system. The distribution of grades is as follows:

A(4.0) 93-100	C+(2.3) 77-79
A-(3.7) 90-92	C(2.0) 73-76
B+(3.3) 87-89	C-(1.7) 70-72
B(3.0) 83-86	D+(1.3) 67-69
B-(2.7) 80-82	D(1.0) 60-66
	F 59 and below

### Evaluation:

Highest Half-Test 15%  
(Lowest Half-Test grade is dropped)  
Lecture Half-Test #1 on 9/17  
Lecture Half-Test #2 on 10/31

Lecture Test on 10/6	15%
Final Exam for 09A Section: 17 Dec 2:00 pm -5:00 pm	20%
Final Exam for 10A Section: 16 Dec 2:00 pm -5:00 pm	
Best 4 of 5 Laboratory Quizzes	12%
4 Laboratory Reports	8%
Mt. Arabia Lab Report (Due 11/4 or 11/5)	10%
Lab Practical Exam on 10/21 or 10/22	15%
Class Participation	5%

The **lecture tests and final exam** will consist of short to medium-length essays, combined with objective multiple choice and matching questions. The **lab quizzes** will be short answer and are given at the beginning of lab and cover the written material in the laboratory manual for that day's exercise. The **lab reports** will be turned in at the end of lab and the **lab practical exam** will cover material learned in lab.

**Class participation** is based primarily upon responses in lecture, including asking questions, providing insights into the material, and answering questions. In other words, being part of the discussion. Being an active learner is an excellent way to gain much from the course and receive the high participation grade that you deserve.

**Student work** submitted as part of this course may be reviewed by Oxford College and Emory College faculty and staff for the purposes of improving instruction and enhancing Emory education.

#### **APPLICATION OF HONOR CODE TO GEOLOGY 141:**

The Honor Code of Oxford College applies to Geology 141. All quizzes, tests, and exams will be done individually with no non-sanctioned additional materials or help. The laboratory exercises can be done with other students and with the instructor's help. The Mt. Arabia Lab Report must be done using your own notes taken on the fieldtrip and the report must be done by yourself without the help of others. If you are unsure whether or not an action may result in an honor code violation, ask the instructor first. The Honor Code at Oxford College is quite serious.

#### **TENTATIVE LECTURE SCHEDULE AND READING ASSIGNMENTS:**

<u>Day</u>	<u>Topic for the Week</u>	<u>Text Assignments</u>
W 8/27 F 8/29	Introduction & Basic Principles	Chapter 1
M 9/1 W 9/3 F 9/5	<b>Labor Day – No Class</b> Geologic Time	Chapter 9
M 9/8 W 9/10 F 9/12	Plate Tectonics	Chapter 2
M 9/15		

W 9/17 F 9/19	<b>Lecture Half-Test #1</b>	
M 9/22  W 9/24 F 9/26	Minerals	Chapter 3
M 9/29 W 10/1 F 10/3	Igneous Rocks	Chapter 4
M 10/6 W 10/8 F 10/10	<b>Lecture Test</b> Volcanoes	Chapter 5
M 10/13 W 10/15 F 10/17	<b>Fall Break - No Class</b>	
M 10/20 W 10/22 F 10/24	Weathering & Soil	Chapter 6
M 10/27 W 10/29 F 10/31	Crustal Deformation  <b>Lecture Half-Test #2</b>	Chapter 10
M 11/3 W 11/5 F 11/7	Earthquakes  Running Water	Chapter 11  Chapter 16
M 11/10 W 11/12 F 11/14		
M 11/17 W 11/19 F 11/21	Glaciation	Chapter 18
M 11/24 W 11/26 F 11/28	<b>Thanksgiving Break - No Class</b> <b>Thanksgiving Break - No Class</b>	
M 12/1 W 12/3 F 12/5	Shorelines	Chapter 20
M 12/8		

**LABORATORY SCHEDULE FOR GEOLOGY 141:**

<u>Meeting</u>	<u>Tue.</u>	<u>Wed.</u>	<u>Exercises</u>	<u>Lab Work Turned In?</u>	<u>Quiz?</u>
1	9/2	9/3	Observations & the Scientific Method	Yes	No
2	9/9	9/10	#8 Dating	Yes	No
3	9/16	9/17	#3 Minerals	No	Yes
4	9/23	9/24	#5 Igneous Rocks & Volcanoes	No	Yes
5	9/30	10/1	#s 6 & 7 Sedimentary & Metamorphic Rks	No	Yes
6	10/7	10/8	#9 Topographic Maps	No	Yes
<b>Fall Break - No Lab</b>					
7	10/21	10/22	<b>Lab Practical</b>		
8	10/28	10/29	<b>Mount Arabia Field Exercise</b>	Yes	No
9	11/4	11/5	#16 Earthquakes	Yes	No
10	11/11	11/12	#12 Groundwater	Yes	No
11	11/18	11/19	#15 Coastal Processes	No	Yes
<b>Thanksgiving Break - No Lab</b>					
12	12/2	12/3	<b>No Lab</b>		