Evolution and Extinctions

Earth and Environmental Science 0837 Fall 2008

Lecture: Anderson Hall AL 22 MW, 1:40-2:30
Required Texts: Stanley, *Earth System History*, 2e (ESH)
Lab: Barton 305A
Lab Text: Gore, *Historical Geology* (HG)

Instructor: Dr. Alexandra Davatzes
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Office: Beury Hall Room 315A
Office hours: MW, 10:00am-12:00; or by appointment

Objectives

Basic geologic principles and the fundamentals of evolutionary thought combine to bring to life the 4.6 billion year story of our planet and its creatures. Through hands-on experience with fossils and rocks, students investigate changes in life through time, and discover how to decipher past environments from the geologic record.

Policies:

Attendance: You are responsible for attending the required lectures and laboratory sections. Attendance sheets will be passed around during lecture; sign in on the class list next to your name. (On days with in-class quizzes, the quizzes will substitute for the attendance sheet.) Missing 3 days of lecture will result in a full-letter drop in your grade. Your lab instructor will set the attendance policy for your laboratory section.

Labs: All students must attend their scheduled laboratory section. Labs do not meet during the first week of classes. Your lab instructor will set due dates and policies for lab assignments and lab exams. Information Literacy Assignments will be periodically assigned in your lab sections. There will be 6 exercises over the course of the semester, assigned approximately every other week. More information on these will be given during your first lab meeting. Note that the information literacy assignments and the lab portion of the course together count for 45% of your final grade. It is to your benefit to take these seriously.

Blackboard: Course announcements and slides from lecture will be posted on Blackboard. On rare occasions I may e-mail the entire class in addition to posting an announcement, but I do not consider e-mail the primary source for course announcements. Check Blackboard regularly.

Exams and Quizzes: Exams are not cumulative; this includes the lecture final. Lecture exams will be multiple choice questions based on material covered in lecture. There will be 6 in-class multiple-choice quizzes given randomly throughout the semester. Quizzes may be given at either the beginning or end of the class period; there will not be advance notice of quiz dates. There will be no make-ups for quizzes; a missed quiz results in a grade of zero for that quiz. NO EXCEPTIONS. When calculating your final quiz average, I will drop the one lowest score. (This means that each student can miss one quiz without penalty.) Quizzes may include any lecture material covered since the previous quiz.

Make-up Exams: Make-up exams will only be given under extreme circumstances with a valid, documented excuse (e.g. severe illness, death in the family). This applies to all exams, including the lab exams and the lecture final. Should such a circumstance arise, contact me (or your lab instructor, for the lab exams) immediately and prior to the scheduled exam date to schedule a make-up exam. Simply not showing up for the exam and waiting until later to tell us is not acceptable, and we cannot guarantee a make-up under those circumstances.

Grading, Quizzes, and Exams:

Lecture	
Lecture Exam 1 (In class)	15%
Lecture Exam 2 (In class)	15%
Lecture Final (12/19 at 11:30am)	15%
In-Class Lecture Quizzes	10%
Lab	
Information Literacy Assignments	15%
Lab Assignments/Quizzes	10%
Lab Midterm (In lab)	10%
Lab Final (In lab)	10%
Total	*100%*

Final Grades: Final course grades will be assigned based on the following scale:

A = 93-100, A- = 90-92, B+ = 87-89, B = 83-86, B- = 80-82, C+ = 77-79,
C = 73-76, C- 70-72, D+ = 67-69, D = 63-66, D- = 60-62, F $\leq$ 60

Incompletes: Incomplete grades may be issued only after a written incomplete contract is completed by the student and the instructor and this contract is approved by the CST Dean. Students must have completed most of the work for the class.

Disabilities: Academic accommodations are available for students with disabilities.
Contact Disability Resources and Services (100 Ritter Annex, 1301 C.B.Moore Ave; 215-204-1280, drs@temple.edu) if you have needs that require accommodation. I must have a copy of your DRS accommodation letter before I can grant accommodations.

Academic Freedom: Freedom to teach and freedom to learn are inseparable facets of academic freedom. The University has adopted a policy on Student and Faculty Academic Rights and Responsibilities (Policy # 03.70.02) which can be accessed through the following link:
http://policies.temple.edu/getdoc.asp?policy_no=03.70.02.

GEN ED description and area goals: Science and Technology: This course is part of the General Education (GenEd) program. GenEd intends to develop your ability to think, problem-solve and communicate effectively. GenEd courses are designed to help you understand how your professor's field of study relates to important controversies, issues or themes, and/or how it is connected to other fields of study. The goal of the program overall is that you become active in the process of learning, not only absorbing facts, but finding, evaluating and using information to create new knowledge. There are nine areas in GenEd, each with its own set of goals. This course fulfills the Science & Technology area of the program, and its specific goals are to help students: (1) Understand and describe the scientific process; (2) Understand the sequential nature of science and technology; (3) Recognize, use and appreciate scientific or technological thinking for solving problems that are part of everyday life; (4) Understand and communicate how technology encourages the process of discovery in science and related disciplines; and (5) Retrieve, organize, and analyze data associated with a scientific or technological model.

TENTATIVE SCHEDULE

WEEK	DATE	LECTURE TOPIC	READ *(ESH)*	LAB *(HG)*
1	9/3	Introduction: The Earth as a System	1	NO LABS
2	9/8	The Rock Cycle and major geologic processes	1, 2	Rock and Minerals (Lab 2)
	9/10	The chocolate chips: Rock-Forming Minerals	2	
3	9/15	Now the whole cookie: Rocks	2	Sedimentary Rocks (Lab 4&5)
	9/17	Plate Tectonics: the unifying theory of geology	8	
4	9/22	More Plate Tectonics: It's that important	8	Relative Dating (Lab 1)
	9/24	The Fourth Dimension: Geologic Time	6	
5	9/29	Beaches and Deltas and Rivers, oh my: Sedimentary Environments	5	Sedimentary Environments (Lab 5&6)
	10/1	**Exam 1**		
6	10/6	Beyond rocks: The Earth as home	3, 4	Stratigraphy (Lab 8)
	10/8	Evolution and Diversity	7, 3	
7	10/13	Evolution and the Fossil Record	7	**Lab Midterm**
	10/15	It's All Connected: Biogeochemical Cycles	10	
8	10/20	Remember the Isotopes: Ancient Climate Signals	10	Fossil Preservation (Lab 11)
	10/22	Mountain Building and Climate	9	
9	10/27	The coolest, or should I say, hottest time on Earth: the Archean	11	Invertebrate Macrofossils 1 (Lab 10)
	10/29	Snowball Earth: Proterozoic	12	
10	11/3	The Cambrian Explosion and Early-Middle Paleozoic	13,14	Invertebrate Macrofossils 2 (Lab 10)
	11/5	**Exam 2**		
11	11/10	Middle-Late Paleozoic	14, 15	Biostratigraphy (Lab 13)
	11/12	"The Great Dying"—End-Permian Extinction	15	
12	11/17	The Age of Reptiles: The Mesozoic	16	Field trip to Wagner Free Institute
	11/19	Cretaceous Park: Late Mesozoic	17	(handout)
13	11/24	Death from Space: End-Cretaceous Extinction	17	Interpreting geologic history (Lab 16)
	11/26	NO CLASS (Friday schedule)		*(M sections meet as usual; R section meets on T; TW sections do not meet this week.)*
14	12/1	The Age of Mammals: Early Cenozoic	18, 19	Interpreting geologic history (Lab 16)
	12/3	Freezing up: Cenozoic Ice Ages	20	*(TW sections)* **Lab Final** *(R section)* *(M sections do not meet this week.)*
15	12/8	Changing our climate one fill-up at a time…		**Lab Final** *(MTW sections; R does not meet this week)*
	12/10	Exploration beyond our Earth		

* Note: this schedule is subject to change.

TIPS FOR SUCCESS:

1. Show up to class. On time. All the time. Exams are based on the lecture; the text is there to support your learning.

2. Do not *just* take notes from the text on the board or slides. What I say is often as or more important than what I write.

3. Focus your notes and your studying on concepts and processes, not only definitions of terms.

4. Find something in the class that excites you and learn more about it. Come talk to me about it. Even if you don't plan to pursue science as your career, I am sure you have seen something in the news, on the history channel, or on the discovery channel that has really caught your imagination.

5. Recopy and revise (or at least reread) your notes as soon as possible after class when the information is still fresh in your mind, and certainly do so before exams. This will help you make sense of the thoughts you wrote down during the lecture. It will also help you pin down what you understand and what you don't, so that you can either look in the textbook for the answer, or ask me or the lab instructor to clarify a definition or concept. It will also help with those quizzes….

6. When studying, read the Summaries and answer the Review Questions at the end of each chapter in the text. (Some questions, particularly in the later chapters, will cover material we did not talk about in class; don't stress about those.) Don't simply look up the answers to the questions; try to answer them first, then look up the answers to see how well you did.

7. Use the resources on the text's website: www.whfreeman.com/esh2e

8. Take advantage of my office hours—I have them for a reason….

9. Do not ignore and/or neglect the lab. It is a significant part of your final grade. Ignoring it will result in a failing grade in this class.

10. Make use of the Math and Sciences Resource Center (MSRC) located at 1810 Liacouras Walk, Rooms 201 & 208. They provide individual and group tutoring services.