

EVOLUTION AND EXTINCTIONS

EARTH AND ENVIRONMENTAL SCIENCE 0837  FALL 2014

Lecture: Barton A130/ SERC 110A MW, 3:00-3:50pm
Required Texts: Stanley, *Earth System History*, 4e (ESH)
Lab: Barton 303 or 305/ SERC 228/232 (check your schedule!)
Lab Text: Rhodes, *Fossils (Golden Guide)*

Instructor: Dr. Alexandra Davatzes

Email: alix@temple.edu

Office: Beury Hall Room 315A

Office hours: 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 the Earth and 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. Your lab instructor will set the attendance policy for your laboratory section.

Clickers: You are responsible for purchasing a Top Hat Monacle account and using your phone, tablet, or computer to participate in class. Go to www.tophat.com, then click the Student Signup button to get started. In class, you can text your responses or use the website or app to respond. If you do not have a phone, tablet, or computer, come see me and we can make other arrangements. To get access to the class site, you can use any of the following ways:

Labs: All students must attend their scheduled laboratory section. Labs do not meet during the first week of classes. The lab activities will all be posted on Blackboard. You will need your Golden Guide to Fossils for the second half of the class. Students are responsible for printing copies of the pdf of each week's lab exercises (see course schedule) and bringing them to each week's lab period. Your lab instructor will set due dates and policies for lab assignments and lab exams. Note that the ANSP Project assignments and the lab portion of the course together count for 45% of your final grade. It is to your benefit to attend all lab sections and hand in these assignments.

ANSP Dinosaur Project: Throughout the semester, you will work on a project to better understand what fossilized dinosaur eggs can tell us about the ecology and evolution of dinosaurs. This project will involve "fieldwork" at the Academy of Natural Sciences of Philadelphia, library research, and online science blogging. More information about this project will come throughout the class. This project is worth 10% of your grade, so it is important to take it seriously.

Blackboard: Course announcements and slides from lecture will be posted on Blackboard. I do suggest printing the slides out before class to write on them during lecture. All slides will be posted by 6am the morning of class. 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 multiple-choice quizzes given randomly throughout the semester on Blackboard. You have 48 hours to complete all quizzes (47 if the last hour is during

Wednesday's class time). 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. **I DO NOT SEND E-MAIL NOTIFICATIONS OF QUIZZES.**

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 (Wednesday 12/17 at 1pm)	15%
Lecture Quizzes	5%
Clickers participation	5%

Lab

Dino Project Assignments	10%
Lab Assignments	15%
Lab Midterm (In lab)	10%
Lab Final (In lab)	10%
<u>Total</u>	<u>100%</u>

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 = 69-60, F ≤ 60

PLEASE NOTE THAT I DO NOT GIVE ANY EXTRA CREDIT. FOR ANY REASON. SO DON'T ASK.

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. The same is true for your lab instructor.

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.

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. I'd like to hear about it!
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....and make sure you copy down your quiz questions and correct answers!
6. **START STUDYING *AT LEAST* ONE WEEK BEFORE THE EXAM. DO NOT WAIT FOR THE NIGHT BEFORE TO CRAM EVERYTHING INTO YOUR HEAD!**
7. Use the resources on the text's website: www.whfreeman.com/esh3e
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. Same for the Dino Project.
10. What you put into the class is what you will get out of it.

Tentative Schedule

WEEK	DATE	LECTURE TOPIC	READ (ESH)	LAB (HG)
1	8/25	Introduction: The Earth as a System	1	
	8/27	The Fourth Dimension: Geologic Time	6	
2	9/1	NO CLASS (Labor day)		Relative Dating
	9/3	The chocolate chips: Rock-Forming Minerals	2	
3	9/8	Now the whole cookie: Rocks	2	Rock and Minerals
	9/10	Beaches and Deltas and Rivers, oh my: Sedimentary Environments	5	
4	9/15	Plate Tectonics: the unifying theory of geology	8	Sedimentary Rocks
	9/17	More Plate Tectonics: It's that important	8	
5	9/22	Mountain Building	9	Sedimentary Environments
	9/24	Exam 1		
6	9/29	It's All Connected: Biogeochemical Cycles	10	Stratigraphy & Lab midterm review
	10/1	Remember the Isotopes: Ancient Climate Signals	10	<i>ANSP Dino Project Part I due in lab</i>
7	10/6	Beyond rocks: The Earth as home	4	Lab Midterm
	10/8	The coolest, or should I say, hottest time on Earth: the Hadean and Archean	11	
8	10/13	Snowball Earth: Proterozoic	12	Isotopes
	10/15	Darwin and Natural Selection	7	
9	10/20	Evolution and the Fossil Record	3	Invertebrate Macrofossils
	10/22	The Cambrian Explosion	13	<i>ANSP Dino Project Part II due in lab</i>
10	10/27	Early-Middle Paleozoic	14	Fossil Preservation
	10/29	Exam 2		
11	11/3	Late Paleozoic	15	Biostratigraphy
	11/5	"The Great Dying"—End-Permian Extinction	15	
12	11/10	The Age of Reptiles: The Mesozoic	16	Field trip to Wagner Free Institute
	11/12	Cretaceous Park: Late Mesozoic	17	<i>ANSP Dino Project Part III due by Friday 11/14 at midnight</i>
13	11/17	Death from Space: End-Cretaceous Extinction	17	Interpreting geologic history & final
	11/19	The Age of Mammals: Early Cenozoic	18	lab exam review
14	11/24	NO CLASS (Thanksgiving week)		
15	12/1	Freezing up: Cenozoic Ice Ages	19	Lab Final
	12/4	Changing our climate one fill-up at a time...	20	
16	12/8	Exploration beyond our Earth		

Final Exam Wednesday 12/17 at 1pm in classroom

* Note: this schedule is subject to change.