

GEOL 1411: Historical Geology

Spring 2011

T, Th: 8:00 am – 9:15 am,
W: 1:00 pm -3:50 pm

Sid Richardson 232
Sid Richardson 242

Instructor

Dr. Steven J. Rosscoe
Sid Richardson 206
srosscoe@hsutx.edu
(325) 670-1387

Office Hours

Mon/Wed/Fri 10:00 am – 11:00 am
Tue/Thu 9:30 am – 10:30 am
Tue 1:00 pm – 5:00 pm
Thu 1:00 pm – 2:00 pm

Required Textbooks

Historical Geology, 6th Edition
Wicander & Monroe, 2010
In Suspect Terrain
John McPhee, 1982

Course Description

The lecture portion of this course will introduce students to the fundamental events of Earth history as recorded in the rock and fossil record. Students will learn the geologic history of the Earth as well as develop an understanding of the mechanisms of evolution and its impact on the history of living organisms on this planet. The lab portion of this course will enhance the students' understanding of Earth materials (minerals and rocks) and allow the students to develop the map skills (both basic and interpretive) to be a successful geologist.

Expected Learning Outcomes

Any student successfully completing this course should be able:

- Describe and identify common minerals and rocks.
- Identify common Texas fossils.
- Understand the evidence supporting evolution and its importance in unraveling Earth History.
- Understand the tectonic events that shaped North America and the rest of the world.
- Read, interpret, and discuss maps in a scientifically valuable manner.

Assessment of Expected Learning Outcomes

The success of a student in completing the expected learning outcomes for the course will be evaluated formally by graded activities, exams, and a paper (see below), and informally by pre- and post-course surveys and observation of lab work and group discussion.

Determination of Course Grade

The grade earned in this course will be determined by the student's success in completing the following components of course work. The course grade is determined based points earned versus the points available for the semester resulting in a percentage. The distribution of points among course components is found below:

Component	Number	Points Each	Total Points	Approx. Relative %
Examinations	2 (Midterm/Final)	300	600	45%
Lab Work	15 (Weekly)	20	300	23%
Lab Quizzes	15 (Weekly)	10	150	12%
Book Review Paper	1 (Late Semester)	150	150	12%
Field Notebooks	2 (2 Field Trips)	50	100	08%
			1300 Total	100% Total

The points needed to earn a specific letter grade in the course can be found below:

A (1170 points or more) B (1040-1169 points) C (910-1039 points) D (780-909 points) F (779 points or less)

Important: At the end of the semester, the grade a student has earned is based on the number of points the student has earned. Any student asking for a grade bump is out of line. Asking for a grade bump, is asking for special privileges, and is extremely unethical. The instructor will recalculate grades, but will not bump grades. If a student asks for a grade bump the request will be ignored.

- Examinations – On the dates listed in the course schedule (later in this document) two examinations will be given. Both exams (midterm – **March 8th, 2011** and final – **May 12th, 2011**) will be given in a format of 30-40 multiple choice questions and two essays from a choice of four essays. These exams are individual activities. Any cheating or academically dishonest activity on examinations will be dealt with in accordance to University policy (attachment).

- Lab Work – There will be fifteen laboratory activities completed throughout the semester. Each lab period will consist of an introductory lecture (typically less than one hour) and an activity to be completed in the remaining portion of the lab period. Labs are due at the end of the lab period. Working in groups of two is strongly encouraged in this lab.
- Lab Quizzes – Labs will be returned each Thursday morning during the lecture period. Students have until **Fridays at 4:00 pm** to take their weekly lab quiz. No late quizzes will be accepted. Each quiz will involve a few brief activities from the lab just completed. It is highly recommended that you schedule a time where you can come in each week with Dr. Rosscoe. Only one student at a time may take the quiz and waiting until the last minute is unwise.
- Book Review – Along with the normal course work for this class you will need to read the novel In Suspect Terrain, by John McPhee. This book tells the true story of a conodont worker and USGS geologists work in trying to unravel some of the geologic history of North America. You will need to read the novel in its entirety by **March 10th, 2011**. On this date we will take the class period to discuss the novel in detail and relate it back to our course work (a portion of your project grade will come from your participation in the discussion). Following this you will have five weeks to complete a geologic book review (format will be supplied on the date of the discussion). The paper is due by 4:00 pm on **April 19th, 2011**.
- Field Notebooks – There will be two mandatory field trips in the spring semester for this course. You are required to purchase a Rite-In-The-Rain field notebook for your course work at Hardin-Simmons University at this time (if you have not already done so for more advanced courses). You will take detail field notes on each of our field trips: **February 12th, 2011**, and **March 26th, 2011**. After each field trip you will turn your notebook in to be graded for completion and the quality of your field notes. You will be provided instructions on keeping a proper field notebook at the beginning of the semester.

University Policies

The university has specific policies on attendance, the use of electronic equipment in the classroom, students with disabilities, and official university communications, as well as an official calendar for the semester. See attached sheet of University Policies and Important Dates.

Tentative Course Schedule (Page 1)

GEOL 1411 – Historical Geology

DATE	TOPIC/ACTIVITY	PREPARATION/DUE DATES	
01/18/2011	Introduction and Ethics in Geology	Handouts	
01/19/2011	Lab One: Mineral Review	Handouts	
01/20/2011	Introduction to Historical Geology	Chapter 1	Lab Quiz 1 - Fri
01/25/2011	Minerals and Rocks	Chapter 2	
01/26/2011	Lab Two: Igneous and Metamorphic Rocks	Handouts	
01/27/2011	Minerals and Rocks	Chapter 2	Lab Quiz 2 - Fri
02/01/2011	Plate Tectonics	Chapter 3	
02/02/2011	Lab Three: Clastic Sedimentary Rocks	Handouts	
02/03/2011	Plate Tectonics	Chapter 3	Lab Quiz 3 - Fri
02/08/2011	Geologic Time	Chapter 4	
02/09/2011	Lab Four: Chemical Sedimentary Rocks	Handouts	
02/10/2011	Geologic Time	Chapter 4	Lab Quiz 4 - Fri
02/12/2011	<i>Permian of Abilene Area Field Trip</i>	Handouts	<i>Field Notes Due</i>
02/15/2011	The Geologic Record	Chapter 5	
02/16/2011	Lab Five: Depositional Environments	Handouts	
02/17/2011	The Geologic Record	Chapter 5	Lab Quiz 5 - Fri
02/22/2011	Sedimentary Rocks	Chapter 6	
02/23/2011	Lab Six: Common Fossils of Texas	Handouts	
02/24/2011	Sedimentary Rocks	Chapter 6	Lab Quiz 6 - Fri
03/01/2011	Evolution	Chapter 7	
03/02/2011	Lab Seven: Map Projections and Grid Systems	Handouts	
03/03/2011	Evolution	Chapter 7	Lab Quiz 7 - Fri
03/08/2011	Midterm Exam	Chapters 1-7	
03/09/2011	Lab Eight: Map Distances and Elevations	Handouts	
03/10/2011	Class Discussion <u>In Suspect Terrain</u>	McPhee	Lab Quiz 8 - Fri
03/15/2011	No Class – Spring Break	None	
03/16/2011	No Class – Spring Break	None	
03/17/2011	No Class – Spring Break	None	
03/22/2011	The Archean Eon	Chapter 8	
03/23/2011	Lab Nine: Topographic Maps and Symbols	Handouts	
03/24/2011	The Proterozoic Eon	Chapter 9	Lab Quiz 9 - Fri
03/26/2011	<i>Cretaceous of Abilene Area Field Trip</i>	Handouts	<i>Field Notes Due</i>
03/29/2011	Early Paleozoic History	Chapter 10	
03/30/2011	Lab Ten: Cross Sectional and Longitudinal Profiles	Handouts	
03/31/2011	Late Paleozoic History	Chapter 11	Lab Quiz 10 - Fri
04/05/2011	Paleozoic Life – The Invertebrates	Chapter 12	
04/06/2011	Lab Eleven: Geologic Maps and Cross Sections	Handouts	
04/07/2011	Paleozoic Life – The Vertebrates and Plants	Chapter 13	Lab Quiz 11 - Fri
04/12/2011	Mesozoic History	Chapter 14	
04/13/2011	Lab Twelve: Stratigraphic Sections	Handouts	
04/14/2011	Mesozoic History	Chapter 14	Lab Quiz 12 - Fri

**Note: This course is in its design stage and adjustments may need to be made to the schedule throughout the semester.*

Tentative Course Schedule (Page 2)**GEOL 1411 – Historical Geology**

<u>DATE</u>	<u>TOPIC/ACTIVITY</u>	<u>PREPARATION/DUE DATES</u>	
04/19/2011	Mesozoic Life	Chapter 15	<i>Final Paper Due</i>
04/20/2011	Lab Thirteen: Geologic Time	Handouts	
04/21/2011	Early Cenozoic History	Chapter 16	Lab Quiz 13 - Fri
04/26/2011	Late Cenozoic History	Chapter 17	
04/27/2011	Lab Fourteen: GPS, GIS, and Remote Sensing I	Handouts	
04/28/2011	Cenozoic Life	Chapter 18	Lab Quiz 14 - Fri
05/03/2011	Human Evolution	Chapter 19	
05/04/2011	Lab Fifteen: GPS, GIS, and Remote Sensing II	Handouts	
05/05/2011	Human Evolution	Chapter 19	Lab Quiz 15 - Fri
05/12/2011	Final Exam (8:00 am – 9:50 am)	Chapters 8-19	

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