

## Geo 111 Introduction To Earth System Science Fall 2005

Earth System Science is an exploration of the interaction of land, water, air and life through time. This course will focus on the interior processes that shape this incredible planet. This course can be used towards the Earth System Science minor. Successful completion of the course also provides 4 credit toward the Natural Science (with lab) distribution requirement.

### Objectives of this course:

1. Improve your powers of observation by identifying rocks and structures
2. Gather and analyze data to interpret the tectonic setting and geologic history of different areas.
3. Analyze an environmental issue in light of principles learned in ESS, make a decision and support that decision.
4. Improve skills of working in groups, giving a power point presentation, and teaching your peers.

### Course Information:

**Prof.** C. Ekstrom, 116E RT, Office Hours: M 9:30-10:30 am, Th 11-12  
or by appointment, phone 3089, home phone 458-6180  
before 9pm

email: [cekstrom@rhodes.edu](mailto:cekstrom@rhodes.edu)

**Time:** Lecture T,Th 9:30-10:45am Ken 207, Lab T 12:30-3:30pm 132E RT

**Text:** Press, et al, Understanding Earth, 4<sup>th</sup> edition

\$20 lab fee – pick up lab notebook in RT 213 before Tues.

**My Expectations of you:** This course will involve a combination of lecturing, hands-on activities, and group work during *both* lecture and lab meetings. I expect you to attend every class meeting and to be engaged and working during class time. There will be 3 excused absences. A weekend field trip to Ouachita Mountains in AR is required. In addition, there will be 5 hours of service.

There are no prerequisites for this class. We will use some simple math skills and cover some introductory chemistry. Please leave any math, chemistry or science phobias at the door ...they impede the learning process.

It is essential for you to keep up with the assignments and be prepared for each class. Your ability to understand class material is often dependent upon your preparation. In addition, there will be pop quizzes. The power point lectures will be available before class in Acad Dept\_ Pgm folder>Geology> Cekstrom>public. I recommend that you print a handout and bring it to class

I assume that students will work an average ~ 8 hours per week outside of class for a 4 credit course, on reading, assignments and group projects.

### **Course Evaluation:**

The work in lecture and lab is intertwined as closely as possible. You will receive the same grade for lecture and lab. A group grade will be given for the group project with input from the group, the class, and the Prof.

The following point scheme will be used to assign grades:

1.	3 lecture exams	40%
2.	Comprehensive Lab Final	20
3.	Group Project	20
4.	Quizzes, reports (3), Term paper	<u>20</u>
	Total	100

- Lab reports due at the end of lab. Assignments are due on due date. Late=30% off.
- Contact me before an exam if you are unable to take it, otherwise grade is 0.
- Grades will be posted on WebCT

**Group Project:** Public Hearing and Debate on Disposal of High Level Radioactive Wastes at Yucca Mtn., Nevada.

### **Primary Source Term Paper:**

Your term paper should consist of three parts:

1. A rock.\* (include its identification and location found)
2. Its orientation in space. If it is not found in place label it "float".
3. A short description and interpretation of the rock. No reference sources allowed.

This is a primary source term paper, ie. direct communication between you and the rock.

\*An alternate project could be a short piece entitled "Musings of a 'Geologist' on the Road to Fall Break". See me about examples before you leave.

	Lecture Topic	Assignment
R 8/25	Observations	
T 8/30	Observations and Earth System Science	4 questions, read text 12-15
R 9/1	Examples of ESS –Gallery Walk	Ch. 1, read “We are all Panamanians”, and “Indonesian Valve”
T 9/6	The Tectonic System – Plate Tectonics	<a href="http://terra.nasa.gov/">http://terra.nasa.gov/</a> Ch. 2
R 9/8	Plate Tectonics	GIS 1.2, Ch. 2, p. 379-389
T 9/13	<b>Name Quiz</b> , The Rock System	Ch. 4
R 9/15	Igneous Rx	Ch 5
T 9/20	Volcanoes	Ch 6
R 9/22	<b>Exam 1</b>	
T 9/27	Discuss exams, Sedimentary Rx	Ch 8
R 9/29	Weathering	Ch 7
T 10/4	Yucca Mtn. topics	<a href="http://www.ocrwm.doe.gov/">http://www.ocrwm.doe.gov/</a>
R 10/6	Work on Stratigraphic Profile	
T 10/11	Metamorphic Rx	Ch 9
R 10/13	Rx deformation	Ch 11
T 10/18	Fall Break	
R 10/20	Rx deformation	Ch 11
T 10/25	Arkansas Geology	
R 10/27	<b>Exam 2</b>	
<b>S and S</b>	<b>Oct. 29-30 Field Trip</b>	
T 11/1	Discuss exam, Geologic Time	Ch 10
R 11/3	Work on Field Trip report	
T 11/8	Geologic Time	Ch 10
R 11/10	Geologic Time	Ch 10
T 11/15	Rx and Minerals Cypress Middle School	
R 11/17	EQ	Ch 19
T 11/22	EQ	Ch 19
R 11/24	Thanksgiving	
T 11/29	Earth’s Interior	Ch 21
R 12/1	Presentation Preparation	
T 12/6	Public Hearing on Yucca Mtn.	
<b>M 12/14</b>	<b>Exam 3</b>	

Date	Lab	Assignment
8/30 1	Field Trip to Mississippi River	p. 277-280
9/6 2	The Earth’s Shape, PT movement GIS 1.2	
9/13 3	Minerals What mineral are you wearing?	Ch 3
9/20 4	Igneous Rx	Ch 5
9/27 5	Field Trip to Memphis Sand and Gravel Co	Ch 8, Miss. Geo. Survey articles
10/4 6	Field Trip to 3 <sup>rd</sup> Chickasaw Bluff	Ch 8 <b>Report due</b> , Jibson & Keefer article
10/11 7	Metamorphic Rx	Ch 9 <b>Mineral Quiz</b>
10/25 8	Elmwood and Zion Cemeteries	Ch 7 <b>Report due 10/27</b>
11/1 9	Work on FT report	<b>Rock Quiz</b>
11/8 10	Geologic Maps	<b>Field Trip report due</b> , Egyptian Scroll art.
11/15 11	Geologic Maps	Ap. 10-14
11/22	No lab to compensate for Field Trip	
11/29 12	Geologic Maps	<b>Structure Quiz</b> , Ap 10-14
12/6 13	Yucca Mountain Debate	
<b>12/10</b>	<b>Lab Final 8:30am</b>	