

UNIVERSITY OF SAN DIEGO
ENVIRONMENTAL STUDIES 110 LAB / INTRODUCTION TO EARTH SYSTEMS
FALL 2011

LAB INSTRUCTORS:

Thursday Lab (ST 262): Warren Smith

Office: Shiley 250 and ST262

Email: usdwarrens@gmail.com

Office hours: Thursday 1:30-2:30 and by appointment

Friday Lab (ST262): Ray Rector

Office: Shiley 262 (the lab)

Email: geoprof@terrasonics.com

Office hours: Friday 1:30-2:30 and by appointment

TEXTBOOKS & SUPPLIES

REQUIRED TEXTBOOKS:

1. GEOS Custom Lab manual (the pearson custom library for geography & geology)
2. Baker-Treloar, USD Course Materials ENVI 110 L (Lab Reader).

Supplies:

Sharp pencils, eraser, **field notebook**, ruler calibrated in metric and English units (always have in lab), protractor, and calculator (**No cell phones allowed for calculations during exams or for texting distractions during lab.**)

REQUIRED FIELD TRIPS

1. Tourmaline Beach: Thurs. 9/29 and Fri. 9/30 during lab time. Students will carpool
2. San Diego River: Thurs. 11/10 and Fri. 11/11, during lab time. Students will carpool
3. Desert Field Trip: 7:00 AM Saturday Nov. 5 to Sunday Sun. Nov. 6 ~ 5:00 PM. Transportation provided. You will need to bring camping equipment and pay a fee (TBA)

GRADES

Lab grade constitutes 33% of course grade. Lab grade is based on the following (subject to change):

- 5% Weekly prelab assignments and prelab quizzes
- 15% Field trip participation and notebook
- 35% Lab assignments
- 45% Quizzes, 2 Exams, and Final

POLICIES

1) Attendance & Participation:

Attend your scheduled laboratory section. If you miss your lab due to an illness you need to get prior permission of both lab instructors in order to attend the other section. **Unexcused absences will adversely affect your final grade. No make-up labs.**

2) Check your email regularly:

Announcements and important information about the course will be sent as email. Please provide your email on the list circulated during the first two lab meetings.

3) Field trips:

The field trips are an essential part of the course, a great learning experience, and a lot of fun. What you learn on the field trips cannot be replaced by book learning or writing a paper. **NO STUDENT CAN PASS THIS COURSE WITHOUT ATTENDING THE REQUIRED FIELD TRIPS.** If you are ill on the field trip dates, you will need a doctor's note and you will need to talk to your instructors about arranging alternate field experience to make up for the missed trip. In most cases, the only alternative field trip will be the ENVI 110 field trip offered the following semester. In this case you will receive a grade of Incomplete this semester, which will be changed to a grade when you make up the field trip. **NO ILLEGAL DRUGS OR ALCOHOL WILL BE PERMITTED ON FIELD TRIPS. No one is allowed to drive his or her own car on the weekend field trip.** Students will be asked to carpool on field trips during lab time.

4) Prelabs and assignments:

Prelab assignments are due at 2:30 as you walk into lab. No prelabs will be accepted after that time. Prelabs are designed to help prepare you for the lab; it is to your advantage to work through each prelab carefully prior to lab, not 15 min. before class starts. **There will be unannounced (pop) prelab quizzes.**

Pay attention to when lab assignments are due, some must be turned in before leaving lab, others the following week. **Points deducted for late assignments.**

5) Communication:

Remember that your instructors are here to help you succeed. If you are having problems that are affecting your attendance or performance in the class, please communicate with us about the problem as soon as possible. **EMAIL CORRESPONDENCE IS RECOMMENDED.**

6) Academic Integrity:

You are responsible to have read and fully understand the meaning and expectations of academic integrity. Any suspected violations of academic integrity will be referred to the Dean of Arts and Sciences and may result in a failing grade for the course. No probations or second chances will be given. Please review the Academic Integrity Policy in USD College of Arts and Sciences Handbook

<http://www.sandiego.edu/honorcouncil/integrity.php>

ADDENDUM: It has become NECESSARY to REPEAT & CLARIFY LAB POLICIES.

Policies for this laboratory class The ESSENTIAL, important, fine print below:

1. All assignments are due at scheduled time.

In oceanographic work, if you miss the sailing time, you miss the boat.

Missed exercises cannot be made up for credit but should be done for your own topic knowledge.

Late homework will not be accepted under any circumstances – do not even ask. All homework is submitted either in person or via email. It is your responsibility to be sure you have completed and submitted the assignment prior to the deadline. Computer glitches, web site downtime, being off campus, etc. are not acceptable excuses for late homework.

2. Attendance is both required and needed in order to succeed in this study. Lab attendance will be recorded each lab period.

3. Excused absences require previous notification and doctor's verification in case of illness.

4. The use of cell phones and laptops is strictly forbidden during class unless authorized by the instructor.

5. No make-up exams unless there is a legitimate reason for missing an exam and you inform your instructor prior to the exam.

There will be 3 exams and a few quizzes during this semester as shown on the course schedule.

Exam questions will be drawn from the lab topics and the textbook, in-class-discussions, & course field trips. Questions may utilize scantron forms and will be multiple choice, short answer questions, figure or photo description, video questions, and some may require sketches or writing.

Your course grade will be based on participation in discussions, lab assignments, field trips, homework, quizzes, & exams. For added resources and on-line assignments, visit your webCT/Blackboard frequently.

This grade system is used for the lab assignments:

90-100% = A;

60-69% = D;

80-89% = B;

59% and below = F

70-79% = C;

(Letter grade +/- also utilized).

STUDENT LEARNING OUTCOMES

1) Geologic Time Literacy: Students will be familiar with the geologic time scale, and will be able to name several of the major time divisions in Earth history. Students will be able to properly place in sequence several of the major events in Earth history that shaped the San Diego region. Students will be able to interpret a several kinds of “unconformities” that represent differing scales of missing time in the rock record.

2) Survey of Minerals and Rocks: Students will be able to identify and interpret important common rock-forming minerals in hand specimen and rocks. Students will be able to classify and interpret field specimens of rocks into the three major rock groups.

3) Structural Geology & Geologic Map Literacy: Students will be able to read and interpret geologic maps. Students will be able to create a crude structural cross section from a geologic map showing interpreted subsurface rocks and structures. Students will be able to interpret past stress fields from successful identification of a variety of deformation structures. Emphases will be placed upon understanding the diverse geology of California and the San Diego region.

4) Plate Tectonic Processes: Students will be able to identify the major tectonic plates and plate boundaries on a physiographic map of the planet.

5) Topographic Maps and Spatial Literacy: Students will be able to read, interpret, and create topographic maps. Students will be able to accurately draw a topographic profile from a line transect of a topographic map. Students will be familiar with the notion of scale, orientation, and the UTM coordinate system.

6) Landforms: Students will be able to accurately describe large-scale landforms of the planet and relate their structure to underlying geology and surface processes, such as weathering, erosion, mass wasting, and rivers. Students will be able to identify the major landforms and surface processes in landscape images and in the field.

7) Weather and Climate: Students will be able to gather weather data using simple weather instruments. Students will be able to correctly interpret a weather map for pressure centers, wind direction, cold and warm fronts, and general movement of storm systems. Students will be able to explain why the Earth has seasons.

8) Processes of Science: Investigate, observe, use curiosity and creativity to test scientific hypotheses - systematic analyses of scientific problems that lead to verifiable results. Lab and field exercises will give students the opportunity to develop a basic understanding of scientific observations and analyses, again cumulative learning is needed. The commonly used & misleading term, “Scientific Method”, will be analyzed. See: **Science is a Process, Page 3 of 4** <http://evolution.berkeley.edu/evosite/nature/llprocess3.shtml>

9) Quizzes listed in Syllabus Schedule: Quiz 1 is next week (2nd week of lab).

READ LAB SCHEDULE TO KNOW

2 Quizzes *** Be sure to check DATES ***** 3 EXAMS**

ENVI 110: INTRODUCTION TO EARTH SYSTEMS LAB—Fall 2011; SUBJECT TO CHANGE, SEE EXAM DATES

Lab Num.	Thursday Friday	TOPIC	GEOS CUSTOM LAB MANUAL plus READER 1) Refer to READER for prelabs 2) READER has Exercises you will work on in lab class
1	1Sept. 2Sept.	Safety Training Geologic Time / Relative Time Home-work on Geology Sense	Prelab 1 due at the end of lab (an exception to rule!) <u>Reader Exercise:</u> Geologic Time (p. 4-7) <u>Lab manual:</u> p.33-50; p.34-35 (unconformities) <u>Geologic Time Scale:</u> See p. 6 in lab manual
2	8Sept. 9Sept.	Geologic Time Scale Quiz Plate Tectonics / Isostasy	Prelab 2 due <u>Lab Manual:</u> p. 53-78; 20-21 <u>Reader Exercise:</u> Isostasy and Plate Tectonics
3	15 Sept. 16 Sept.	Minerals & Igneous Rocks	Prelab 3A/B & Mineral Web assignment <u>Lab Manual:</u> p.79-110 / p. 111-134 <u>Reader List:</u> Mineral and Igneous Rock ID
4	22 Sept. 23 Sept.	Quiz on Minerals Sedimentary/Metamorphic Rocks (Organize FT groups)	Prelab 4 due Sedimentary/Metamorphic Rocks. <u>Reader List:</u> Sedimentary and Metamorphic Rock ID
5	29Sept. 30 Sept	Field Trip: Tourmaline Beach Sedimentary Environments & Coastal Processes	Prelab 5 due Bring Tourmaline Beach exercise (See Reader p. 26 - 33)
		Study Sessions: TBA	
6	6 Oct. 7 Oct	Plate Tectonics/Mineral & Rock & Tourmaline Exam #1 Topographic Maps	Prelab 6 due (p. 38) <u>Lab Manual:</u> p. 183-214 <u>Reader Exercise:</u> p. 34-37
7	13 Oct. 14 Oct.	Intro Struct Exercise Fall Holiday: Friday lab only off	Extra Structure Exercise & Strike/Dip assignment. Good idea to spend some time reviewing structure
		Study Sessions: TBA	Extra Structure Introduction (See Struct. Practice, p. 48-53)
8	20Oct. 21Oct.	Earthquakes / Structure	Prelab 7 and Desert Group Outlines due <u>Lab Manual:</u> p. 243-256 <u>Reader Exercise:</u> 40-47
9	27Oct. 28Oct.	Topo + Geologic Maps Weather instruments	No Prelab due <u>Reader Exercise:</u> p. 53-56 <u>Lab Manual:</u> p. 183-214, 235-242
		Study Sessions: TBA	
10	3 Nov. 4 Nov.	Quake/Maps/Structure Exam #2 Weather instruments?? Field Trip Prep	Prelab 9 Desert Field Trip, p. 63-65 is Lecture assignment!! Bring blank field notebook and reader to lab.
	5-6 Nov,	Mountain-Desert Field Trip	Group presentations in field. Field Notebook due at the end of the trip.
11	10 Nov. 11 Nov.	Field Trip: San Diego River	Prelab 8 due (p. 57) <u>Reader Exercise:</u> p. 58-62 (bring with you).
12	17 Nov. 18 Nov.	Atmosphere Circulation	Prelab 10 due (p. 88) See Lab Manual p. 287-304, also Lecture Text for help with prelab. Lab exercise will be handed out in class.
	24 Nov. 25 Nov.	THANKSGIVING HOLIDAY	
13	1 Dec. 2 Dec.	Weather Maps & Severe Events	Lab exercise will be handed out in class. SD River Report Due.
		Study Sessions: TBA	
14	8 Dec. 9 Dec.	FINAL EXAM #3:	Topo and Geol. Maps; River Trip; Atmosphere and Weather; Desert Field trip

Please bring GEOS CUSTOM LAB MANUAL and “Laboratory Reader” to each lab class.

Summary of LAB SCHEDULE – Fall 2011 ENVI 110

Weeks of lab & topics – Refer to Reader & Lab Manual for exercises, prelabs and notes.

1. Lab/Field Safety; Geologic Time / Relative age Dating **DUE:** Prelab 1
2. **Quiz on Geologic Time.** Learn Plate Tectonics & Isostasy. **DUE:** prelab 2
3. Learn Minerals & Igneous Rocks. **DUE:** prelab 3
4. **Quiz on Minerals.** Learn Sedimentary & Metamorphic Rocks. **DUE:** prelab 4.
5. Field Trip to Tourmaline Beach. **DUE:** prelab 5.
6. **LAB EXAM 1** (Relative Time, Plate Tectonics, Minerals/Rocks, Tourmaline FT).
Learn Topo Maps. **DUE:** prelab 6

Fall Holiday Break, **FRIDAY ONLY, 14 October 2011.**

7. **An introduction to Structure for Thursday lab (13 Oct); Friday students welcome.**
8. Earthquakes & Structure. **DUE:** prelab 7.
9. Topo + Geologic Maps
10. **EXAM 2 (Quakes/Structure/Maps)**
Weekend Field Trip Prep. - Assemble field books.
- 10A. **MOUNTAIN – DESERT Field Trip** Field book **DUE** at end of trip. **Prelab 9 now Lecture Assignment.**
5 - 6 November weekend.
11. Field Trip San Diego River (Cabrillo Monument?). **DUE:** prelab 8; 17 or 18 Nov.
12. Atmosphere layers & Circulation. **DUE:** prelab 10
THANKSGIVING Holiday
13. Weather Maps & Climate. NO PRELAB.
14. **Lab Final EXAM** (Topo & Geologic Maps; SD River Trip; Mount-Desert Trip; Atmosphere & Weather.) 8 or 9 Dec (last lab meeting – not during normal Finals Periods)