

## UNIVERSITY OF SAN DIEGO / ENVIRONMENTAL AND OCEAN SCIENCES

### EOSC105: **NATURAL DISASTERS LAB**, FALL 2019

**Wednesday 9:00 am to 11:50 am** SCST262

**Instructor:** Ray Rector  
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**office hours:** Wed.: 12:00-1:00; Friday: 1:30-2:30 and by appointment

#### MAJOR AND CORE INFORMATION

EOSC105 lab component is an introductory lab course in geoscience designed as a preparation course for the Environmental and Ocean Sciences majors and minors. EOSC105 will also fulfill the Core Curriculum Explorations Science and Technological Inquiry requirement and the Core Curriculum Quantitative Reasoning competency for all majors. Students who are taking this course under the new core must be enrolled in EOSC105 lecture.

#### COURSE DESCRIPTION

This laboratory course will introduce students to skills and methods used to study natural disasters. Students will learn to identify rocks and minerals, employ map skills to study faults, coastal erosion, landslides, flooding, and other natural hazards, and interpret meteorological and climate data. Natural hazards in San Diego will be examined through local field trips.

#### REQUIRED TEXTBOOKS & SUPPLIES

- **Required Textbooks: BRING BOTH TO EVERY LAB! Both available only at the USD bookstore.**
  - Natural Disasters custom Lab Manual by Pearson (*lava on the cover*).
  - Course material packet (READER) by Baker Treloar
    - Cover will say **EOSC105 LAB**, with a **GREEN** cover, not bound (do not confuse with EOSC110 or EOSC105 lecture).
- **Supplies:** Pencils, colored pencils, calculator, clipboard for field trips. Phones are not allowed for calculations during exams. If you do not have a calculator, there are calculators in the lab to borrow for exams.

#### COURSE LEARNING OUTCOMES

By the end of this course, students should be able to:

- Understand the basic concepts of earth science and the process of scientific inquiry.<sup>ST13</sup>
- Articulate the physical processes of and the roles of human activities associated with various natural disasters.<sup>ST13,4</sup>
- Discuss strategies of risk assessment, mitigation, and adaptation to hazardous events.<sup>ST14, QR1-5</sup>
- Apply basic scientific inquiry skills (i.e., design, observation, measurement, hypothesis testing) in problem-solving.<sup>ST11,2, QR1-5</sup>

For example:

- Explain how to calculate plate motion and identify major plate boundaries based on geologic features.
- Identify common rock-forming minerals and rocks in hand specimen and rock outcrops.
- Interpret topographic, geologic, and simple weather maps.
- Describe potential geologic hazards using topographic and geologic maps.
- Describe the geologic history and hazards of the San Diego region.
- Perform calculations including velocity, relief, and gradient.
- Reading and interpreting data from graphs.

#### POLICIES

##### Lab Exercises, Exams, Quizzes:

- Please turn in before leaving the lab, unless a portion has been assigned as a take-home assignment.
- Take time to **review** the exercises and appropriate **introduction to topics in lab manual before coming to lab** (see pages on syllabus). Your time in the lab will be more productive if you are prepared.
- Missing a lab without notifying your instructor with a valid university-approved excuse and documentation will result in **zero points** for the lab exercise. You must **contact the instructor within one week of your absence**.
- Exam/quiz makeups: Contact the instructor **before** a scheduled exam if unavoidable circumstances arise that will prevent you from taking an exam at the scheduled date. **If an emergency arises** on the day of the exam or quiz, you must contact the instructor **within one week** to arrange a makeup exam. To make up an exam, you must have a valid university-approved excuse and documentation of an illness or critical emergency. **Without a documented excuse, you will not be allowed to make up an exam/quiz and will receive a zero.**

Communication:

OVER→

- Check your email daily and Blackboard regularly for announcements and important information about the course.
- Please reply to emails in a timely manner.
- Remember that your instructors are here to help you succeed. If you are dealing with issues that are affecting your attendance and/or performance in the class, please communicate as soon as possible.

#### **Lab and Field Safety:**

- When an emergency happens while you are in SCST 262, do not use the elevators or the central staircase. Evacuate the building using the west stairway (turn to your left as you leave lab) and exit on the 1st floor. Go to the assembly area in front of the KIPJ immediately and report to your instructor.
- **Always, wear closed-toed shoes** in lab and in the field.
- **No food or drinks in the lab.** Leave all food and drinks on table outside the entrance to lab.
- Please contact your lab instructor immediately for any safety or health issues of concern.

#### **Mandatory weekend field trip:**

- The field trip is **Saturday November 9th**. The trip will be a half-day, 1:00 to 5:00 PM.
- Water, snacks, and transportation will be provided.
- No one is allowed to drive a personal vehicle on the trip.
- Possession or use of illegal drugs or alcohol on the field trips will be considered a violation of academic integrity.
- The field trips are an essential component of the course. Reading a text or writing a paper cannot replace what you learn in the field.
- If you believe you have a valid university-approved and documented reason to miss the field trip, contact your instructor as soon as possible well in advance of the trip.
- Conflicts due to participation in sports practice are not valid.
- If you are unable to attend due to a critical emergency, valid documentation of the emergency must be presented.
- If a student **misses** the field trip **without a university-approved valid and documented reason**, the lab portion of the course grade (30%) will be reduced by 20% (e.g., from a 80 to a 60).

#### **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.
- Please review the Academic Integrity Policy in USD College of Arts and Sciences.

<https://www.sandiego.edu/conduct/documents/HonorCode.pdf>

#### **EVALUATION AND GRADING POLICY**

Lab grade is based on the following (subject to change):

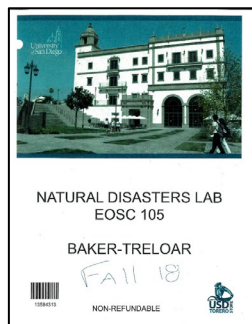
- Lab exercises, take-home assignments, *and punctuality, participation, and effort*: **25%**
- Exams, quizzes, and weekend field trip: **75%**
- **NO EXTRA CREDIT** assignments
- Points will be deducted (or zero points):
  - Lab assignments turned in late.
  - Missing lab without giving notice and valid excuse: no credit for lab exercise
  - Leaving lab or the field early without completing and turning in the exercise.
  - **Forgetting to bring lab manual or reader** to lab more than twice.
- The grade you receive in lab will be **30% of your total grade for EOSC105**



# EOSC 105 WEDNESDAY MORNING LAB SCHEDULE—FALL 2019

Subject to change, includes exam dates

	Wednesday AM Lab	TOPICS	CUSTOM LAB MANUAL AND READER Please review BEFORE class by reading information in chapters
1	9/11	Safety Training / Introduction to Course Geologic Time Scale Minerals	<b>LAB MANUAL:</b> p. 14; <b>READER:</b> p. 3-5 <b>LAB MANUAL:</b> p. 15-35; <b>READER:</b> p. 6
2	9/18	<b>Mineral Quiz</b> Rocks <b>Take-home:</b> Conversion exercise	<b>LAB MANUAL:</b> p. 39-58; <b>READER:</b> p. 7-9 <b>READER</b> p. 10, conversion chart on p. 11 in READER.
3	9/25	Plate Tectonics Earthquakes  <b>DUE:</b> Conversion exercise	<b>LAB MANUAL:</b> p. 61-76; <b>READER:</b> p. 12-17 <b>READER:</b> p. 17-23
4	<b>10/2</b>	<b>Exam 1</b>	See study guide
5	10/9	<b>Hazard Assessment:</b> Big Island of Hawaii	<b>READER:</b> p. 27-34
6	10/16	<b>Field Trip:</b> Sunset Cliffs and SD River <b>Take-home:</b> SD River/Sunset cliffs field trip summary	<b>BRING:</b> <b>READER:</b> p. 22-26; Handout day of trip.
7	10/23	Topographic Maps / Rivers  <b>DUE:</b> Coast/River field trip summary	<b>LAB MANUAL:</b> p. 77-97; <b>READER:</b> p. 18-19 <b>LAB MANUAL:</b> p. 111-132; <b>READER:</b> p. 20-21
8	<b>10/30</b>	<b>Exam 2</b>	See study guide
9	11/6	Pre-field Lecture San Diego Hazard and Geologic Maps	<b>READER:</b> p. 35-38
	<b>11/9</b> <b>Saturday</b>	<b>Field Trip:</b> Geologic history and hazards of the San Diego region.	Field Trip Guide: Handout day of trip <i>Bring backpack, personal items, and water bottle.</i>
10	11/13	No Lab	
11	11/20	Climate Change <b>Take-home:</b> Landsat summary	<b>READER:</b> p.39-47
12	11/27	No lab: Thanksgiving Break	Enjoy!
13	12/4	Weather Maps and Hurricanes Review <b>DUE:</b> Landsat summary	<b>LAB MANUAL:</b> p. 144-148; <b>READER:</b> p. 48-54
14	<b>12/11</b>	<b>FINAL: Exam 3</b> (last lab meeting	See study guide



**READER (GREEN COVER)**