

class web site: <http://magician.ucsd.edu/~ltauxe/sio100/>

SIO 100: Introduction to Field Methods

Class notes will be sent to your e-mail or provided during class.

Class room: 3030 York Hall, Fridays 12 pm to 3:50 pm

Including one week-end field trip (**25-26 October 2014**)

Instructors: **Prof. James Day**, 858-534-5431, jmdday@ucsd.edu,
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Required materials:

[Sokkia Field notebook \(or similar\)](#), [Silva Ranger CL \(Hi-Vis\) compass](#), clip board, protractor, ruler, pencils (colored and graphite), hand lens, tracing paper, sturdy BOOTS, day pack including: water bottle, water proof jacket, hat, sunscreen.

Recommended textbook:

[Lisle, R.J., Brabham, P. & Barnes, J., Basic Geological Mapping, 5th Edition, The Geological Field Guide Series, 2011.](#)

Structure of the class:

The SIO 100 (*Introduction to Field Methods*) class will consist of 9 projects, each worth from 5 to 10% of the final grade, and a mapping project of Torrey Pines State Park, which serves as a final exam and is worth 30% of the total allocated grade.

There will be some lectures, but we will try to get into the field as early and as often as possible – geology and field observations are best done in the field! For many of the projects, you will have to return to the field area on your own time, and after class.

Projects will usually (but not always) be due the Friday after they were assigned. There will be one **compulsory week end field trip** from **Saturday 25th to Sunday 26th of October**. Details will be given in class. Exercises completed during these excursions will count towards your grade, so please mark your calendars now.

Arrive at each class at the designated place **ON TIME** and be ready for the field with of all the required equipment noted above.

Grading:

1) Class participation: You will lose 5% off your assignment for every 5 minutes that you are late to class (by Instructor's watch), so show up on time every time please.

2) Notebooks. **Notebooks form a critical element of this class. DO NOT LOSE YOUR NOTEBOOK!** Your notebook is where you will record data and observations and all data included in your reports must come from - and be consistent with - your notebooks. Notebook entries must be dated and legible. A rubric of the basic elements of a well-maintained field notebook is included as a handout, and you should refer to this for noting and reporting data, and for sketching and log-sections – following the rubric is important for grading of notebooks.

3) Field reports (figures and text as required): Follow ALL instructions carefully. Turn in assignments on time please.

Absences and Missed Work:

There will be no make-up classes. In the case of legitimate conflicts, notification is required at least one week before the regularly scheduled class. In the case of deaths, accidents, or sickness, notification is appreciated as soon as possible and is required within one week of the regularly scheduled class time. *All excuses must be in writing.*

Classroom and Field Conduct:

Disruptions during lectures and in the field will not be tolerated. Disruptive behavior including talking over the instructors, excessive noise, poor behavior towards other students or instructor/TA, arriving late/leaving early, reading newspapers/non-class related material in class, texting, inappropriate language/comments in lecture/lab or on-line, or ringing cell phones will result in you being asked to leave the class. When you are in the field you should seek to uphold the high-standing of UCSD in the local community; don't litter, mess around or be generally anti-social. Continued disruption is a safety issue and will result in a failing grade and denial of re-enrollment. It is to your benefit to arrive on time because most announcements and assignments occur at the beginning of class.

SIO 100 schedule for Fall 2014

General Note: This syllabus is an outline of proposed events. It is subject to change; however, never without notification, and never to advance the due dates of assignments.

**IT IS CRITICAL THAT YOU BRING YOUR COMPASS
CLINOMETERS AND NOTEBOOKS TO ALL CLASSES!**

Class 1 - October 3rd: INTRODUCTION, PACE AND COMPASS MAPPING. [LT]

Location: 3030 York classroom at 12 pm sharp.

Class content: Welcome to "Introduction to field methods" logistics of the class, breakdown of course content, an introduction to pace and compass mapping, familiarization with notebooks, drawing, data and writing basics.

Handouts: Transit and Notebook Rubric

[Assignment # 1 – Pace and compass mapping project](#) (5% and due on October 10, 2014)

[handout 1](#), [handout 2](#), [handout 3](#)

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Class 2 – October 10: STRATIGRAPHIC SECTIONS. [LT]

Location: Meet at the corner of La Jolla Shores Drive and North Torrey Pines Road at 12 pm sharp in field clothes (comfy shoes or boots, hat, sunscreen if necessary, water, field notebook, pencil).

Class Content: Learning how to measure, describe and document a stratigraphic section.

Handouts: Suggested reading from Basic Geological Mapping

[Assignment #2– Stratigraphic section project](#) (10% and due on October 17, 2014)

Class 3 - October 17: FIELD WORK PREPARATION. [JD]

Location: York Hall 3030 at 12 pm sharp.

Class Content: Lecture on stereonet, measuring strikes and dips, measuring dipping sections, using air photos, geological maps, and topographic maps, preparation for field trip, Google Earth, GPS.

Handouts: Measuring dipping sections, stereonet, GPS Essentials.

[Handout 3.1](#), [Lecture notes](#)

Class 4 - October 24: MAKING OUTCROP SKETCHES. [LT]

Location: We will take the #30 Bus from N. Torrey Pines and La Jolla Shores at **11:58 am** (be at least 5 min. early!). Bring your validated UCSD ID! Also, bring your notebook, clipboard, colored

pencils and an eraser. We will return on the bus by <4 pm. Wear BOOTS and bring a hat and water. Rain gear if needed. If you have one, bring a camera. IT IS CRITICAL THAT YOU BRING YOUR COMPASS CLINOMETERS!

Class content: Outcrop sketches at Tourmaline Beach.

Handouts: Read section on outcrop sketches before class!

[Assignment #3](#)– Outcrop Sketching (10% and due on October 31, 2014) [Handout 4.1](#)

WEEKEND FIELD TRIP - October 25-26: Week end field trip to Anza Borrego State Park. Meet in Revelle parking lot at 7 am sharp on Saturday with sleeping bag, sleeping mat, tent (optional), boots, hat, sunscreen, water, lunch, long sleeve shirt and long pants. If you need camping equipment, you can rent it from Outback Adventures for a reasonable rate. We will return to UCSD by 6:00 pm on Sunday.

Day 1:

Project 1: Strikes/dips, GPS, aerial photographs and stereonets. Assignment #4 (5%)

Project 2: Measuring a dipping section. Assignment #5 (5%)

Day 2:

Project 3: Introduction to geological and topographic maps.

Assignment #6 (10%)

<i>Assignments 4,5 and 6 are due on November 7, 2014</i>

Class 5 - October 31: MEASURING STRUCTURAL FEATURES IN THE FIELD. [JD]

Location: Trip to Santee boulders. We will leave from the Revelle parking lot at 12pm sharp. Bring field gear!

Class Content: Measuring joints and fracture surfaces, using topographic maps, note taking skills.

[Assignment #7 – Structural Feature Mapping](#) (10% and due on November 7, 2014).

Class 6 - November 7: NARRATIVE NOTETAKING. [LT]

Location: Walk along the beach to Del Mar. We will leave from Scripps pier at 12 pm sharp. Students can either walk home (it is a nice walk) or return by way of the #101 bus from Torrey Pines State Park. For the bus, bring your validated student IDs. Also, bring a printout of your assignment on a clipboard, pencils (colored too), sharpener, sunscreen, water, hat, field boots, your compass clinometer and of course your NOTEBOOK!

Class Content: We will walk along the beach looking at the sea cliffs to better understand the geology of the San Diego region.

[Assignment #8 - Narrative note taking](#) (10% and due on November 14, 2014).

Class 7 - November 14: METHODS OF GEOLOGICAL MAPPING [JD]

Location: We will take the #101 bus from the corner of North Torrey Pines Road and La Jolla Shores Drive at 12pm to the Torrey Pines State Park and return no later than the 5 pm bus.

Bring: Validated student ID, sunscreen, water, comfortable walking shoes, notebook, and clipboard. BRING YOUR COMPASS!

Class Content: Introduction to mapping methods, review of existing mapping techniques.

[Assignment #9 Handout 9.1](#) (5% and due on November 21, 2014)

Class 8 – November 21: TORREY PINES STATE PARK MAPPING PROJECT INITIATION. [JD]

<i>Location:</i> We will take the #101 bus from the corner of North Torrey Pines Road and La Jolla Shores Drive at 12pm to the

Torrey Pines State Park (be there at least 5 minutes early!) and return no later than the 5 pm bus.

Bring: Validated student ID, sunscreen, water, comfortable walking shoes, notebook, and clipboard. **BRING YOUR COMPASS!**

Class Content: Introduction to Torrey Pines State Park, Initiation of final mapping project.

Handouts: Mapping handouts for Torrey Pines State Park. [handout for closure error](#)

FINAL MAPPING PROJECT (30% and due on December 19, 2014) **NOTE:** You will have to return to Torrey Pines State Park to complete the project on your own! Be sure to document each visit in your field notebook. You are required to make at least three visits (including today's) for a total of at least 10-12 hours of field observation. You may consult with other students in the field but all the data for the map must be based on your own observations as documented on the map, aerial photographs and notebook. You **MUST** map in pairs, at a minimum. Make a note of who your partner was in the field each time you go. Although you are working in groups, all observations and measurements must be in your own notebook in your own handwriting and in your own words. Do NOT copy your partner's notebook! The map you make is expected to be entirely your own work and will be graded on the basis of your notebook entries.

November 28: No Class – Happy Thanksgiving!

Class 9 - December 5: Continue mapping at Torrey Pines. [JD]

Class 10 - December 12: MAKING GEOLOGICAL CROSS SECTIONS. [JD]

Location: 3030 York for a lecture on how to make geological cross sections at 12 pm sharp. Bring your notebook, topographic sheet and aerial photographs and your map. Also bring a RULER, PENCILS and some graph paper.

Class Content: We will help you make a vertical cross section. A cross section is part of the final.

Handout: [Final Handout](#)

Class 10 – December 19: FINAL PROJECT (30%) due by 12pm in 3030 York. Late finals will NOT be accepted.