



geologic maps and in the field, and to introduce you to tectonic analysis of geologic data. Understanding of geologic structures requires training and practice in three-dimensional visualization and analysis, and developing that ability is probably the most challenging part of this course. Most of the problems and exercises you will do involve some challenge in three-dimensional visualization, whether they involve working with map data or actually mapping structures in the field on a topographic map. Tectonic analysis requires an understanding of the tectonic processes and their consequences for local and regional structures.

Another important component of this course is scientific writing. Over the span of several weeks you will produce a geologic report on the Black Diamond field site. A draft version of this report, with your inked and colored map, is due February 20 at 9am in class. This will be graded and edited and returned to you. The final version, with response to these edits and a GIS-drafted geologic map, is due March 16 at 5pm.

This is not an easy course. The lab exercises are designed to encourage independent thought and creativity. You will be given the necessary tools to complete each exercise in the lab and class lectures. If you come across a stumbling block, try to work through the problem yourself or with classmates before asking the TAs. We are here to help guide you through the learning process, so please try to ask specific questions, and avoid asking simply “how do I do this?”

**Prerequisites:** The course work requires that you have completed Geology 50L or an equivalent laboratory in physical geology, and that you have taken, or are taking concurrently, Geology 101.

**Field Work:** The field work in this course will involve rigorous cross-country walking in fairly steep terrain and likely in inclement weather (e.g. cold, rain). By enrolling in this course, you are tacitly affirming that you are in adequate physical condition and have no disabilities that could prevent you from getting around in the field. Students who need accommodations must consult with the instructor before the field trips begin. Because of the nature and location of the field exercises, it is impossible to provide additional supervised field time, and any necessary accommodation will have to be agreed upon in advance. Participants in the course may be exposed to hazards on the field trips that are not usually associated with city life, but that are an inevitable part of field work. By enrolling in this course, you are agreeing to undertake these risks, to conduct yourself in a prudent manner, and not to hold landowners who have given us permission to use their land, or the university or its agents, responsible for injury or illness. These risks include, but are not limited to: risk of physical injury from walking in rough and steep terrain, risks from physical exertion, risks from exposure to inclement weather, and the risk of exposure to wildlife.

### **Field Exercises (Mandatory)**

**Trip #1: Black Diamond Project - January 27 and 28**

**Trip #2: Auburn Dam Site - February 25**

\* You must submit a class waiver form prior to attending the first field trip.

**\* Absolutely no alcohol/drugs or weaponry are allowed on the field trip.**

\* At the end of each field trip day you must hand in your notebook and map. Make sure your writing is legible, and your notes are organized.

### Required Materials

#### **LAB**

- Paper to take notes and work problems
- Ruler or engineer's scale, with English and metric units
- Protractor (6"/ 15cm protractor ruler ideal)
- Colored pencils (REQUIRED)
- Tracing paper (8"x11" for stereonets)
- Erasers (you'll use these a lot)
- Mechanical pencils (0.5 mm, 2H or harder)
- Tape, stapler, etc.
- Calculator
- Drafting pens (Micron 005 or 01)
- 8.5"x11" cardboard sheet for stereonet

#### **FIELDWORK**

- Field backpack
- 5"x8" *Rite-in-the-Rain* field book
- 0.3 or 0.5 mm mechanical pencil and lead
- Fine-tipped eraser
- Hand lens
- Ruler and protractor
- Map board
- Hiking boots and socks
- Hat, sunglasses, sunscreen
- Basic First Aid kit\*
- 2-3 L of water and container
- Sack lunch
- Appropriate field clothing†

\*Basic 1<sup>st</sup> aid kit: Ibuprofen, Ace bandage, Antihistamine, band aids, mole skin, Neosporin, Epi-pen if you are allergic to bee stings, any vital prescription medications you may need.

†Appropriate field clothing: Clothes suitable for hiking in rough, vegetated terrain, base/weather layers, including rain gear

**Lab Assignments:**

- Lab assignments are due one week from the lab period they are assigned, unless otherwise noted on the schedule. Labs are due **AT THE BEGINNING OF LAB** on the due date.
- It is recommended that you turn in your work on the due date. **Late work will be accepted, however, but will be penalized 1 full letter grade per day late.** If you are turning in late work, it **must be turned in to the GEL 101L dropbox by 5pm**, and you **must email the TA** to let them know that you are submitting a late assignment.
- All written answers must be typed or handwritten so that they are legible.
- All hand drawn figures must be neat and organized. You will be graded on neatness!
- We strongly encourage you to work together to complete the labs, but all work that is handed in must be your own! Refer to the Academic Policy below.

**Academic Policy:**

You are expected to turn in your own work. Everything you need to finish the labs will be provided for you. In the event that you need outside resources to demonstrate your point, ensure that they are properly cited. Further information can be found at <http://sja.ucdavis.edu/avoid.htm>. Anyone found submitting anything but his or her own original work will be referred to Student Judicial Affairs.

**Grading:**

Your grade will be determined on a 15% per full letter grade scale, weighted as follows:

**Lab Assignments (1-13): 65%**      5% per individual assignment

**Black Diamond Project: 30%**

- 15% for draft version due February 20
- 15% for final version due March 16

**Auburn Dam Site Fieldwork and Lab: 5%**

**Course Summary:**

Date	Details
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