

SYLLABUS

Geology 111A - Field Geology

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Office Hours:

General Course Information:

Field geology involves working out stratigraphy, structure, and geologic history from data you collect in the field. Often the final product of your labors is a geologic map and field report. In this course, you will acquire the basic skills necessary for conducting a field mapping project. Exercises will concentrate on specific skills such as the use of the Brunton compass, reading topographic and geologic maps, constructing topographic profiles and geologic cross-sections, and writing a geologic history based on map and field observations. In addition, you will produce examples of the figures that are common to most geologic reports, including a location map, stratigraphic column, cross-section, and map explanation.

Textbooks:

Compton, 1985, *Geology in the Field* (text is also used in Geol 111A & B)
Spencer, 2000, *Geologic Maps*, 2nd edition

REQUIRED
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Prerequisites:

GEOL 10, 10L, 12, 12L, and 100; concurrent enrollment in GEOL 103A and 111B.
Prerequisites will be strictly enforced.

Grading:

Assessment will be based on:

Lab Exercises	50%
Quizzes	20%
Final Exam	30%

Grade Distribution:

A	90 -100%
B	80 - 90%
C	70 - 80%
D	60 - 70%
F	Below 60%

(plus and minus grades will be given)

Your grade in GEOL 111A will be based on lab exercises, quizzes, and a comprehensive final exam. Exercises are due at the beginning of the next lab period unless I indicate otherwise. Late exercises will not be graded. I will also not grade exercises if you do not show up for lab the week they are due; because this is a hands-on course, attendance at lab is crucial to your understanding the material. Many of the lab exercises where we out mapping and measuring features around campus will be very difficult to make up. However, if you are deathly ill, or have a good excuse, please call me before class.

I expect the work on the graded exercises, quizzes, and exams to be your own; exercises that resemble your classmates will be given a zero.

SCHEDULE

WEEK	TOPIC	READING ASSIGNMENT
1	Introduction; Field Equipment; Brunton Compass; Pace and Eye Height Exercise	C p. 10-14, 16, 19-21
2	Base maps; UTM; Latitude/Longitude; Township/ Range; Scales; Topographic Profiles	C p. 99-101 S Chpt. 1, p. 16-24
3	Brunton Compass; Bearings (quadrant and azimuth); Calculating Height; Magnetic Declination	C p. 16-20, 38-39 S p. 22-23
4	Brunton Compass; Pace and Compass Exercise; Triangulation (intersection and resection methods)	C p. 20, 75-80, 105 S p.29-30
5	Techniques of Measuring Strike and Dip; Block Diagrams of Folds Exercise -QUIZ-	C p. 34-38, 80-83, 86-89, 249-255 S p. 32-35, 98-102
6	Geologic Maps and Cross Sections; Strike and Dip Measurements on Campus Exercise	C p. 89-92, 108-111 S p. 6-8, 35-40
7	Geologic Maps and Cross Sections; Board Mapping Exercise; Grid Mapping	C p.342-349; handout S p. 39-40, 62-63
8	Rule of V's; True Thickness of Beds; Tracing Contacts Through the Topography; Apparent Dip	C p. 106-107 S p. 73-90
9	Field Notes; Determining Strike and Dip from Geologic Map; Geologic Cross Section and Map Interpretation Exercise -QUIZ-	C p. 27-31; handout S p. 76-81
10	Faults and Unconformities on Geologic Maps; Faulting and Geologic Maps Exercise	
11	Mapping Sedimentary Rocks and Structures Geologic Cross Section Exercise	C p. 162-178, 180-193 222-232, 238-241
12	EASTER BREAK	
13	Geologic History; Geologic History Exercise	Handout
14	Mapping Igneous Rocks; Location Maps	C p. 272-293, 296-316 S p. 134-139
15	Geologic Report Writing	C p. 341-361; handout
16	FINAL EXAM	

PLEASE READ ASSIGNED READINGS BEFORE CLASS.....

Supplies Needed for G110A and G110B

This course involves a bit of an investment in terms of supplies needed. These materials will be used in this class, in Field Methods (G111B), in Structural Geology (G110A) and the other field courses: (G103B) Sedimentary Field, (G110B) Structure Field, Igneous Field (G102B), and in Field Camp. In addition, if you pursue a career in geology, you will not regret having these supplies.

Drafting Supplies:

C-Thru protractor rulers

triangle (inking edge is useful)

transparent scale (10 division per inch)

colored pencils (10 to 12 contrasting colors); Berol Prismacolor brand is best

drafting pens

drafting erasers

Optional: lettering stencil or rub on letters (block style for map titles, explanations, etc.)

graph paper (10 divisions per inch)

vellum paper (can purchase as loose sheets or as a tablet; such as Clearprint brand)

bound field notebook (lined on left page and metric grid (multiples of 5 or 10) on the right page)

Field Gear

non-magnetic clipboard (to hold working maps in the field)

field pens (permanent ink pens for note-taking and for marking samples)

field pencils (H hardness lead, or harder if you purchase a Write-in-the Rain field notebook; 0.5 or 0.3mm mechanical pencils)

handlens

rock hammer

sturdy boots (broken in) (*REI is a good place to buy boots*)

water containers (up to 1 gallon total capacity)

hat with a (very) broad brim and chin strap (for windy days)

backpack (book pack is fine)

belt pouch or something else to carry all those pencils, pens, and protractors

hammer holster (optional)

field vest (optional)

belt with non-magnetic buckle to put your Brunton compass (and holster and pouch) on; *compasses will be provided by the Geology Department*

Local Suppliers of Drafting and Field Equipment

Contract Geological Services, Inc. (800) 247-6853

1315 Greg St. Suite 107, Sparks, NV 89431

California Surveying and Drafting Supply 344-0232

4733 Auburn Blvd. (Near American River College)

Aaron Brothers 924-8831

2345 Arden Way

Michael's Craft Store

Various locations; often have a 50% off coupon in the Sunday Bee that can be used to buy pens/pencils, etc.