GEOL 112, Geophysics For Geologists, Fall 2018

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Office Hours: Tu 10:30-11:30, We 10:30-11:30, Th 10:30-11:30 and by appointment.
Lecture: Placer Hall 1013
Tu, Th 9:00 - 10:15 am

How to use this syllabus:
This syllabus provides you with information specific to this course, and it also provides information about important university policies. This document should be viewed as a course overview; it is not a contract and is subject to change as the semester evolves.

Catalog Description:
Introduction to the principal geophysical concepts and techniques useful to geologists in the study of tectonics, the Earth's interior and rresource exploration. Includes the study of seismology, heat flow, gravity, borehole geophysics, electromagnetism and geodynamics. Fee Course/Field Trip.

Prerequisite:
GEOL 5 or GEOL 10 and GEOL 10L, PHYS 5A, PHYS 5B which may be taken concurrently.

Specific Learning Objectives:
Students will be able to quantitatively solve problems of gravity, heat flow, magnetics, and seismology. They will develop an intuition for how these properties vary based on geologic structure. Students will understand the structure of the Earth and how we can determine the structure through geophysical methods.

Textbook:
Looking into the Earth: An Introduction to Geological Geophysics
Mussett & Khan ISBN-13: 978-0521785747

Assignments:
Your final grade will be based on the following grading scheme:
Weekly Problem Sets 50% ; Hour Exams 30% ; Final Exam 20%; Daily Quiz Bonus!

Percent	94 - 100	90 - 93	87 - 89	83 - 86	80 - 82	77 - 79	73 - 76	70 - 72	67 - 69	63 - 66	60 - 62	<60
Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

Problem Sets:
Weekly problem sets will be assigned to give the students practice working with real geophysical data and to reinforce the concepts from lecture. Some lecture periods will be designated as a lab period and we will work through certain aspects of data processing as a group. A basic calculator with trig functions and a ruler with a scale will be necessary for some problem sets. Software will be provided for the problem sets that require it.

Exams:
There will be two in class exams during the semester and a final exam during finals week. The dates of these exams are shown on the class schedule . Any changes to these dates will be announced in class and on the class web page. The exams will test your basic understanding of the terminology and concepts as well as practical application and problem solving.

Attendance and Class Rules

- Regular attendance is required for you to do well in this class.
- Please arrive on time. If you are late, please enter quietly to minimize disruption to the class.
- If you need to leave class early (i.e. for an appointment), please let me know beforehand.
- Please turn all electronics OFF while in class (including laptops and cell phones).

SacCT
Online material for this course may be available through SacCT (I will let you know when). You can log in to SacCT at http://sacct.csus.edu. In order to access the course website you will need a saclink account. If you do not have one you can get one by going to https://mysaclink.csus.edu, clicking on register and follow the instructions.

University Policies

About this Syllabus

This syllabus is not a contract. The instructor reserves and retains the right to alter the course requirements and/or assignments based on new materials, class discussions, current events or other legitimate pedagogical objectives.

Notice of Nondiscrimination

The California State University does not discriminate in its programs and activities on the basis of race, religion, color, national origin, gender, age, sexual orientation, marital status, political affiliation, status as a veteran, genetic information or disability. The following person has been designated to handle inquiries regarding nondiscrimination policies: William Bishop, Director, Office for Equal Opportunity, Del Norte Hall 3001, telephone (916) 278-5770.

Academic Integrity

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom.
Read more about Sac State's Academic Honesty Policy and Procedures
http : //www.csus.edu/umanual/AcademicHonestyPolicyandProcedures.htm
A first case of academic dishonesty will result in a grade of F for the assignment or examination. A second violation will result in a grade of F for the course.

Disabilities

If you have a physical, psychiatric/emotional, or learning disability that may impact on your ability to carry out assigned course work, I encourage you to contact the Services to Students with Disabilities (SSWD). The office is located in Lassen Hall, room 1008, (916) 278-6955. SSWD will review your concerns and determine, with you, what academic accommodations are necessary and appropriate for you. All information and documentation of your disability is confidential and will not be released by SSWD without your written permission.

Please feel free to come to me directly with any comments or concerns about the course or bring them to my attention through the ombudsperson.

Tentative Schedule

Week	Date	Topic	Reading
1		Introduction	Ch 1
2		Data Acquisition	Ch 2
		Data Reduction	
3		Geophysical Surveys	
		Data Processing	Ch 3
4		Filtering	
		Gravity	Ch 8
5		Small Scale Gravity	
		Gravity Survey	
6		Isostacy	Ch 9
	2-Oct	EXAM	
7		Global Seismology	Ch 4
		Seismic waves	
8		Earthquakes	Ch 5
		Data Processing Lab	
9		Data Processing Lab	
		Refraction	Ch 6
10		Refraction	
		Refraction	
11			
12		Reflection	Ch 7
	13-Nov	EXAM	
13		Magnetism	Ch 10
		Magnetism	
14		Magnetic Surveying	Ch 11
		Resistivity	Ch 12
15		Electromagnetic	Ch 14
		Presentations	
Final Exam	11-Dec	10:15 am -12:15 pm	