

# Geol 307 Geophysics and Field Methods Spring 2013

*Instructor:* Kim Olsen, GMCS 231A, ph 619 594 2649  
*TA:* Kyle Withers, [quantumkylew@aol.com](mailto:quantumkylew@aol.com), GMCS 220

*Grading Policy:* Homework/quizzes 50%, Midterm 20%, Final Exam 30%

## INSTRUCTOR CONTACT INFORMATION

**Instructor:** Kim Olsen **Phone:** (619) 594-2649  
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**Fax:** (619) 594-4372 **Office:** GMCS-231A  
**Office Hours:** Mon, Wed 9:00-11:00am or by appointment (see Kyle or myself).

**COURSE DESCRIPTION:** The course is intended as an overview of 4 selected geophysical methods – electrical resistivity, gravity, magnetics, and refraction and reflection seismic exploration methods. We will spend 3-4 weeks on each method, including a field survey (preferably during lab session). Lectures will describe the theory behind the selected methods, accompanied by homework in lab sessions, including computer modeling.

## **COURSE MEETINGS**

Lecture: CSL 422; Tue Thu 09:30 – 10:45am  
Lab: GMCS Computer Lab or CSL 422; Tue 1:00 – 3:40pm

## **TEXT BOOK AND COURSE MATERIALS**

Burger, H. R, Sheehan, A. F., and Jones, C. H, 2006, *Introduction to Applied Geophysics*, W.W. Norton & Co., New York, 554 p. plus appendices.

Lawrence Berkeley Labs web notes: <http://appliedgeophysics.lbl.gov/>

Colorado School of Mines wed notes: <http://galitzin.mines.edu/INTROGP/>

Notes, homework assignments, data, web sites, readings, etc. will be exchanged via the SDSU Blackboard information system.

## **LEARNING OBJECTIVES**

**As a result of this course, the student is expected to be able to**

- Understand the techniques behind geophysical surveying
- Be acquainted with the field methods associated with these techniques
- Understand the potential for these methods to do exploration

## **TENTATIVE LECTURE AND LAB CALENDAR**

Week 1	Overview of course objectives
Week 1-4	Gravity
Week 5-7	Electrical Resistivity

Week 8-10	Magnetics
Week 11-14	Refraction and reflection seismics

### **GRADING**

- This course is graded on the following scale:

Grade	Percentage (%)	Grade	Percentage (%)
A+	97-100	C+	77-79.9
A	93-96.9	C	73-76.9
A-	90-92.9	C-	70-72.9
B+	87-89.9	D+	67-69.9
B	83-86.9	D	63-66.9
B-	80-82.9	D-	60-62.9
		F	<59.9

- Grades will be based on the following point system:
  - Midterm 20%
  - Homework/Quizzes 50%
  - Final Exam 30%

### **Keep records of all work:**

- Maintain a record of your course work (homework and exam grading) at least until you have received your grade following completion of the course. If you believe an error exists contact me immediately.

### **MIDTERM AND FINAL EXAM/PROJECT**

- Course grades will be based on the performance in the student presentations, midterm and final exams/project. The midterm and final exams will be given during a class period and will last approximately 2 hours. The final exam will be given during finals week and will last approximately 2 hours. The final exam will be cumulative with an emphasis on the material covered after the midterm. The final exam may occasionally be replaced by a class project, if agreed upon by instructor and students, and is carried out during the last couple of weeks of the course in consultation with the instructor.
- Any material covered by lectures, student presentations, videos and lecture notes may be included on the exams.
- If you know that some obligation will prevent you from attending class on the date of an exam, it is your responsibility to inform the instructor at least one week before the scheduled exam date.

### **Homework**

- Weekly homework exercises will be assigned throughout the semester.
- Late assignments will receive reduced credit unless late delivery is agreed upon by the instructor.

### **Class Website**

- Lecture notes and homework assignments will be handed out in class. Computer programs and matlab scripts required in the homework can be downloaded from the Blackboard.

### **Planning Time:**

- Students that get A's, B's, and C's use their time wisely. The standard formula for college coursework is that every hour of in-class time will result in two to three hours of homework, so a three unit class will do an average of six or more hours of homework per week. As a result, successful students plan their time wisely so that they keep up with assignments. They also meet with the instructor during office hours so that they can get much needed feedback on their work.

### **Plagiarism:**

- Always make sure your work is original. An instructor must be able to gauge what the student has learned. Therefore, copying the work of another person is considered plagiarism.
- Plagiarism is a form of cheating. Any time a student uses someone else's work and does not give that person credit, it is plagiarism. Anyone who plagiarizes will receive a "0" on the assignment. If you are "suspected" of plagiarism, you will bear the burden of proof. You must be able to present rough drafts or related materials and discuss the topic intelligently.
- Students who violate university standards of academic integrity are subject to disciplinary sanctions which include failure in the course and possible suspension from the university. Since dishonesty in any form harms the individual, other students and the university, policies on academic integrity are strictly enforced. I expect that you will familiarize yourself with the academic integrity guidelines found in the current student handbook. Any violation of SDSU academic integrity will be reported to the Student Affairs Office.

### **Classroom Conduct:**

- Please **turn off all beepers, cell phones, and watch alarms** that make noise before coming into class; they are a serious distraction in college classes and will not be tolerated.

### **USE OF CLASSROOM TIME**

#### **Communicating in Class:**

- I encourage students to communicate with me and to work out difficult questions or problems. I am always approachable, so please do not feel or assume that I am "too busy" to talk with you. If I am too busy at that particular moment, I will tell you and offer an alternative time. Let me know if you are going to miss a class or if you are having trouble completing an assignment.

#### **Attendance:**

- Grades are dependent on homework, exams and student presentations. Attendance is required for the field sessions. Please be ON TIME as a courtesy to other students.

#### **Dropping the Class:**

- Students who choose not to continue the course are responsible for dropping the course by the specified dates (listed above and on the Schedule of Classes). Please do not assume that I have filed a drop card. Failure to officially drop the course may result in an "F". When in doubt, communicate with me.

### **YOUR INSTRUCTOR**

#### **Information about me:**

- If you would like to know more about me and my academic or professional history, or would like to read any of the articles I have published, please take a look at my website.

#### **What to expect from me outside the classroom:**

- In order to meet all of my professional obligations, I plan my schedule carefully. While I might wish to be available for your questions 24/7, that is simply not possible. Please be advised that I regularly check my e-mail messages throughout the day during the week. When

emailing me, please type 'GEOL 307' in the subject line, as it may easily get lost among the many emails I receive.

**What you can expect when grading your homework:**

- I will make every effort to return homework on a weekly basis and return exams and quizzes within one week. Occasionally, other professional obligations make this impossible. I make written comments to explain erroneous answers in the homework and exams. If these comments are insufficient for you to understand your grade, please make an appointment to discuss your work.

**Questions about course content**, grading, study habits, and so forth are welcome.