

GEL101 SYLLABUS

Structural Geology

Winter, 2022

Lectures: T-Th 9:00-10:20, EPS 1316

Instructor: Mike Oskin, meoskin@ucdavis.edu, EPS 3123

Office Hours: T-Th 12-1:30pm (office hours will be held in 3123 or 1316 if more space is needed)

Lecture TA: Holli Swarner, vbprush@ucdavis.edu

Office Hours: F 1-3pm

Course Objectives:

The objective of this course is to develop your skills as a structural geologist by teaching you to (1) visualize and interpret structural geometries and their kinematic evolution during progressive deformation, and (2) apply the principles of rock mechanics to quantitatively relate the distribution of forces (stress) to deformation (strain) within the lithosphere. The laboratory, GEL101L, is closely coupled to this course. In the laboratory your focus will be to learn how to make and present structural geology observations and interpretations. I expect you to read and understand the assigned sections from the textbook even though **not everything on the problem sets or exams will be covered in lecture.**

Pre-Requisites:

GEL 50, 50L or an equivalent are required to be completed prior to taking GEL 101. Concurrent enrollment is not sufficient to meet the pre-requisite requirement. A basic background in mathematics (algebra, geometry, and trigonometry) and physics (mechanics) is needed to solve problems that you will be presented with in this course. The formal requirement is Math 17B and Physics 5A, 7A or 9A, both of which may be taken concurrently. Familiarity with linear algebra is helpful but not required.

Grading:

4 Problem Sets	30 %
Midterm	30 %
Final (Comprehensive)	40 %

NOTE: Grading scale is 5% per step (A+ = 95-100%, A = 90-95%, etc.). *This does not mean that grading is easy. Expect the tests to be difficult! 50% is a passing (D) grade.*

Honor Code:

I expect you to follow the UCD student responsibilities and conduct standards as well as the Code of Academic Conduct (<https://supportjudicialaffairs.sf.ucdavis.edu/code-academic-conduct>). I take this very seriously and have reported people to Student Judicial Affairs for suspected cheating in the past.

Textbook:

Required: Twiss & Moores (2007). Older edition OK.

Optional: Dictionary of Geological Terms

Rules for Problem Sets:

- Your answers must be your own work written in your own words.
- You are allowed to discuss assignments with your classmates. However, to ensure that you can complete the exam questions, I strongly advise that you work the problems on your own before consulting fellow students.
- The material you turn in should be a final representation of the solution of the problem. Use scratch paper for initial attempts to solve the problem and then neatly rewrite the final solution on a clean copy of the problem set once you have a complete solution.
- I expect you to clearly and systematically walk me through your logic of your solutions on both problem sets and exams.
- Most problems have several parts. Look over the problem sets well before the due date to plan enough time to do the problems and attend office hours if needed.
- Do the problem sets well and you will also do well in the course overall. Problem sets are 30% of the total course grade, and they prepare you for exam questions.
- **Problem sets are due at 5:00pm in the GEL 101 drop box on their due date. Late problem sets will be docked one full letter grade (15% of the maximum possible score) per weekday that they are late.**

Communication:

I will respond to email as soon as I reasonably can. E-mail is not a substitute for office hours. If your query requires a long answer I will ask you to come to office hours.

Class Etiquette:

Please ask questions! The more we discuss the material, the more likely that everyone will retain and understand. Use of electronic devices that are disruptive (e.g. usage of cell phones, using laptops for anything other than taking notes) is strictly prohibited. If you must send a text, there is little I can do to prevent you from being distracted by your compulsion. I ask is that you do so in a way that does not disrupt anyone around you.

Online Resources:

I try to minimize the use of printed handouts in the class. All resources are available online. These include detailed notes for each lecture, lists of terms that you should know from each chapter, and the solutions to problem sets and midterm exam (posted after the due date / exam date).