

GEL 105, WINTER 2017
EARTH MATERIALS: IGNEOUS ROCKS

Meeting times

Lectures: Tues. and Thurs. 11:00-11:50, Earth and Physical Sciences 1348

Labs: Earth and Physical Sciences 1314

Section 1: Tues. and Thurs. 1:10-4:00 pm

Section 2: Tues. and Thurs. 4:10-7 pm

Section 3: Mon. and Weds. 4:10-7 pm

Instructors and Contact Information

Instructor: Kari Cooper (Office: Earth and Physical Sciences 3127)

Email: kmcooper@ucdavis.edu

Office Hours: Tuesdays 3:30-4:30 pm, Wednesdays 2:30-3:30 pm

TAs: Kevin Schrecengost (kschrec@ucdavis.edu), Catt Wesoloski (cwesoloski@ucdavis.edu) and Tyler Schlieder (tdschlied@ucdavis.edu)

Office Hours/Location: TBA (see lab syllabus for details)

Required Text and Reading

(1) Winter, J. D., An Introduction to Igneous and Metamorphic Petrology

(2) Laboratory Exercises & Problem Sets (see lab syllabus for details)

Additional Readings: Ehlers - *The Interpretation of Geological Phase Diagrams*, W. H. Freedman and Co., 1972 (out of print - relevant chapters provided on class website)

Grading

Midterm Exams I & II	30%
Final Exam	20%
Problem Sets	10%
Labs/quizzes	25%
Final Project	15%

Exams

First Midterm (lecture/lab) – Thursday, Feb 2 (during lab period)

Second Midterm (lab/lecture) - Tuesday, Feb. 28 (during lab period)

Final Exam – Wednesday, March 22 at 8:00 AM, EPS 1348

Problem Sets

You are responsible for completing and submitting solutions to topical problems. There are a total of five problem sets that will be handed out and/or posted on the class Canvas site. They are due at the **start** of lecture on the due date indicated in the class schedule. You are welcome to turn in your problem set early; however, **no credit** will be given for problem sets turned in late.

Laboratory

The laboratory sessions meet twice a week. These sessions are an integral part of this course and you are **required** to attend. The previous lab exercise is due at the beginning of the first session of a new lab exercise. You are welcome to use the laboratory whenever lectures or other labs are not in progress. See the laboratory syllabus for more information. The final two weeks of the laboratory section will be devoted to your term project. The final project report is due to the TAs on **Friday, March 17 by 5 pm. No late projects will be accepted.**

A 10x hand lens is essential for this course. If you do not already own one, now is the time to buy one. The bookstore may still carry them, or ask the TAs or instructor for advice on where to find one.

Schedule

The schedule appears at the end of this syllabus. I will try to adhere to the attached schedule in terms of topics, but this may be updated during the quarter based on how the class evolves. The blue shaded boxes highlight the critical due dates and exam dates. The exams must be taken on the exam dates; **there are no make-up exams**. It is your responsibility to keep up with the reading assignments.

Code of Conduct

You should read the UC Davis CODE OF ACADEMIC CONDUCT (<http://sja.ucdavis.edu/cac.html>) and comply with that code in all matters related to this course.

For additional guidance on what constitutes good academic conduct, please adhere to the following policies:

- Show respect for your instructors and fellow classmates.
- Please arrive on time to class and stay for the entire class period.
- When class begins, please stop your conversations.
- Wait until class is completely over before putting your materials away in your backpack, standing up, or talking to friends.
- Do not disturb others by engaging in disruptive behavior.
- No talking on cell phones, text messaging, or emailing on laptops during class.
- No listening to iPods or other MP3 players, and no use of electronic recording devices during class.
- You are expected to write emails to the instructors and/or other students as you would in any professional correspondence. Email communication should be courteous and respectful in manner and tone.
- Do not expect an immediate response via email (normally, I will respond within two business days). If your email question is sent at the last minute it will not be possible to send you a response before an assignment is due or a test is given.

GEL 105: Course Schedule - Winter 2017						
	Lecture	Reading	Problem Sets	Exams	Laboratory	Lab Days
Week 1: Jan 10 & 12	Magmas and planet Earth	Chapters 1 & 2 (Winter)			Lab 1: Igneous Minerals Lab 2: Magmatic Differentiation	Mon/Tues: 1/9 - 1/10 Wed/Thurs: 1/11-1/12
Week 2: Jan 17 & 19	Thermodynamics of magmatic systems	Chapters 3-5 (Winter)	Prob. Set 1: Due Thurs. (Jan. 19)		University Holiday: No Lab Lab 2: Magmatic Differentiation	Mon/Tues: 1/16-1/17 Wed/Thurs: 1/18-1/19
Week 3: Jan 24 & 26	Thermodynamics; Phase diagrams	Chapter 6 (Winter) Chapters 1 & 2 (Ehlers)	Prob. Set 2: Due Thurs (Jan. 26)		Lab 3: Igenous Textures Lab 4: Basalts	Mon/Tues: 1/23-1/24 Wed/Thurs: 1/25-1/26
Week 4: Jan 31 & Feb 2	Phase diagrams	Chapter 3 (Ehlers), Chapter 7 (Winter)		Midterm I (Thurs, Feb 2)	Lab 4: Basalts Midterm I	Mon/Tues: 1/30-1/31 Wed/Thurs: 2/1-2/2
Week 5: Feb 7 & 9	Phase diagrams	Chapter 3 (Ehlers), Chapter 7 (Winter)	Prob. Set 3: Due Thurs. (Feb 9)		Lab 5: Plutons and Batholiths	Mon/Tues: 2/6-2/7 Wed/Thurs: 2/8-2/9
Week 6: Feb 14 & 16	Chemical Petrology (trace elements and isotopes)	Chapters 8 & 9 (Winter)			Lab 6: Trace Element Geochemistry	Mon/Tues: 2/13-2/14 Wed/Thurs: 2/15-2/16
Week 7: Feb 21 & 23	Chemical Petrology (trace elements and isotopes)	Chapters 8 & 9 (Winter)	Prob. Set 4: Due Thurs. (Feb. 23)		University Holiday: No Lab Lab 7: Arc Volcanism	Mon/Tues: 2/20-2/21 Wed/Thurs: 2/22-2/23
Week 8: Feb 28 & March 2	Chemical Petrology (trace elements and isotopes)	Chapters 10, 13-15 (Winter)		Midterm II (Tues Feb 28)	Midterm II Stillwater Term Project	Mon/Tues: 2/27-2/28 Wed/Thurs: 3/1-3/2
Week 9: Mar 7 & 9	Chemical Petrology (trace elements and isotopes)	Chapters 10, 13-15 (Winter)	Prob. Set 5: Due Thurs. (March 9)		Stillwater Term Project	Mon/Tues: 3/6-3/7 Wed/Thurs: 3/8-3/9
Week 10: Mar 14 & 16	Applications and Case Studies	Chapters 10, 13-15 (Winter)			Stillwater Term Project Due (Friday, March 17; 5 pm) NO LATE WORK ACCEPTED!	Mon/Tues: 3/13-3/14 Wed/Thurs: 3/15-3/16
	Last Day of Classes: March 16	Final Exam - Wednesday, March 22 8:00-10:00 am				