

Geosciences 251 Physical Geology Spring 2019

Course Description: *Introduction to Earth's materials; surface and internal geologic processes; plate tectonics; and geologic time. Includes practical experience in rock and mineral identification, topographic maps, and applied problems in geosciences.*

Pre-requisites: none

Lecture: **Tuesday/Thursday, 11:00-12:15 AM;** Gittings 201
Labs (in GS 201): Monday (includes Honor's Section) 12:00-2:50 (Pablo)
 Tuesday 12:30-3:20 (Nitzan)
 Tuesday 4:30-7:20 (Nitzan)
 Wednesday 12:00-2:50 (Kapil)
 Thursday 12:30-3:20 (Pablo)
 Friday 12:00-2:50 (Kapil)

Instructor: George Gehrels: ggehrels@email.arizona.edu
 Office Hours: Tues & Thurs 12:30-2:00 in GS 529

TAs:

Pablo Martinez Sosa (1/2-time; pmartoza@email...; Office Hours 9:00-10:00 on Wednesday and Friday in GS 519; Teaching Monday and Thursday labs)

Kapil Galla (1/2-time: kgalla@email...; Office Hours 11:00-12:00 on Wednesday and Friday in GS ___; Teaching Weds and Fri labs)

Nitzan Yanay (1/2-time: nitzanyanay@email...; Office Hours 10:00-12:00 on Monday in GS 136; Teaching Tuesday labs)

Preceptors: (in Geos 397A, section 6, for 2 units if lab-only, 3 units if lab & two field trips)

Kayla Chaudoir (kchaudoir@email.arizona.edu) Prefers Weds lab.

Abdulrahman Dulaim dhoom73@email.arizona.edu Prefers Friday Lab

Ahmad Alahmari (akalahmari@email...) Prefers Tues 4:30 lab

Shatha AlShehri (salshetri@email.arizona.edu) Tuesday 12:30 lab

Ivo Lima (ivolima@email.arizona.edu):

Lecture Textbook: Required: Understanding Earth (6th or 7th ed.) by Grotzinger & Jordan

Lab text: no text, but you will need to print out lab materials before each meeting. They will be available from D2L on Friday before the next week of labs.

Lecture Attendance and Note-Taking:

Students are required to attend lecture sessions and take good notes. This is the only way that you will learn the basics of geology, and do well on homework assignments and exams. To encourage attendance and taking notes, we will post names of twenty randomly selected students at the end of each class period. You will need to show your notes for that class period to earn up to five points. Every student will have the opportunity to earn 20 points (four opportunities @ five points each).

University policies regarding attendance are as follows:

- <http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop>

- <http://policy.arizona.edu/human-resources/religious-accommodation-policy>
- <https://deanofstudents.arizona.edu/absences>

Lecture Assignments

Textbook readings are given in the schedule. These are not optional and should be finished before the subject is covered in lecture.

Lecture Exams, Quizzes, & Homeworks

There will be two mid-term lecture exams (100 pts each) as noted on the lecture schedule. There will also be a cumulative final exam (150 pts), as noted on the lecture schedule -- this is the only opportunity to take the final exam. There will also be four unscheduled quizzes of 10 points each, eight homework assignments of 10 points each, and four opportunities to earn five points (each) for taking good notes during lecture. Note that homework assignments are collected right at the beginning of class on the day they are due. Late papers are not accepted because the answers are provided during class, and the answer key is posted right after class.

Laboratory

This class has a required laboratory associated with it that is taught in the afternoons in Rm. 201 in Gould-Simpson. Your lab instructors and preceptors are listed above. The instructors are all graduate students with lots of experience in geology. The preceptors are undergraduates in geology who have taken and excelled in this class. The instructors are entirely in charge of grading the labs and assigning your final lab grade, which is a big chunk of your overall class grade. See the lab schedule on D2L.

Extra Credit

Please try to attend a few seminars offered by Geosciences or other departments this semester. You can write up a summary of one presentation and earn up to 10 points of extra credit (see Seminar form on D2L). Other extra-credit opportunities may be available during the semester.

Make-ups

Exams and lecture note evaluations be made up where the excuse is legitimate. Labs can be made up only during the week that they are scheduled, as materials are removed on Friday afternoons. Consult with your TA if you miss a lab.

Field Trips

There will be three all-day field trips, each of which will be run on a Saturday and again on the following Sunday (see lecture schedule). You are required to attend only **one** of these one-day trips, but you may go on others if you like (and if space is available). You can't make up any of these trips, so please don't be a no-show! Please sign up in advance using the Field Trip Sign-up Option on D2L.

Honors Students

Honors students in this class will have an opportunity participate in a research project, which will involve determining ages of igneous rocks in the Catalina Mountains. Our project will begin with a field trip to see the geology of the Catalina Mountains on September 14. We will then return on September 29 to collect samples. You will then spend October separating zircons from your sample, November analyzing the samples for U-Pb age, and December preparing a poster describing your results. To receive Honor's credit, you will need to be engaged in all aspects of the project, and you will need to be enrolled in the Monday lab section (although you can attend

any of the lab sections). Please see Anne Chase (achase@email.arizona.edu) or Shawna Matteson (smatteson@email.arizona.edu) to enroll in the Monday lab.

Course grade

Letter grades are awarded in the usual way: 89.5-100=A, 79.5-89.5=B, 69.5-79.5=C and so forth. A total of about 805 points are available in this class, composed of:

200 pts: two mid-term exams (100 points each)
150 pts: one cumulative final
40 pts: four quizzes (10 points each)
80 pts: eight homework assignments (10 points each)
40 pts: Saturday/Sunday field trip (only one required)
20 pts: approval of lecture notes (four opportunities, five points each)
275 pts: Lab exercises

A few tips for doing well in this course: 1) attend all lectures, labs, and at least one fieldtrip, 2) take careful notes during every lecture, 3) keep ahead of the required reading, and 4) see your instructors or TA's if you have questions or need assistance. Lecture attendance and note-taking is vital for a good grade in this class given that the exams are based mainly on lecture material.

Code of Academic Integrity

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: <http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

UA Nondiscrimination and Anti-harassment Policy

The University is committed to creating and maintaining an environment free of discrimination; see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

Accessibility and Accommodations:

It is the University's goal that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let me know immediately so that we can discuss options. You are also welcome to contact Disability Resources (520-621-3268) to establish reasonable accommodations.

Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable

Classroom Behavior: The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See <http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

Websites

Course materials will be posted on D2L.
U of A Geosciences Department: www.geo.arizona.edu

Subject to Change Statement

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.

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Geos 251 LECTURE SCHEDULE (Fall 2019)

<u>Date</u>	<u>Lecture Topic</u>	<u>Reading</u>
August 27	1. Introduction	Chapter 1
29	2. Evolution of Our Planet/Plate Tectonics	Chapter 2
September 3	3. Minerals: the building blocks of rocks	Chapter 3
5	4. Rocks: records of geologic processes	Chapter 3
10	5. Igneous Rocks	Chapter 4
12	6. Magmatic Processes	Chapter 4
14-15	<i>Catalina Mountains Field Trip (9:00-5:00)</i> <i>(George & Pablo; Res #MP20192106; 72471-42472)</i> <i>Note: Honor's students should attend the Saturday trip!!</i>	
17	7. Volcanism	Chapter 12
17	<i>Review session for exam 1 @ 7:00-8:30 (optional exam 8:30-10:00)</i> <i>(Location = MCPRK 105)</i>	
19	Mid-term #1	
24	No class (GSA)	
26	No class (GSA)	
19	<i>Honor's student trip to collect samples (9:00-5:00)</i> <i>(Res #MP ___; ___)</i>	
October 1	8. Weathering and Erosion/Sed. Rocks	Chapter 16
3	9. Sedimentary Rocks	Chapter 5
8	10. Sed Rocks & Geologic Time <i>(last call for part 1 grading issues)</i>	Chapter 8
10	11. Geologic Time	Chapter 8
15	12. Metamorphic rocks	Chapter 6
17	13. Rock Deformation	Chapter 7
19-20	<i>Tucson Mountains Field Trip (9:00-5:00)</i> <i>(George & Kapil; Res #MP20192106; 72473-72474)</i>	

	22	14. Rock Deformation	Chapter 7
	22	<i>Review session for exam 2 @ 7:00-8:30 (optional exam 8:30-10:00) (Location = MCPRK 105)</i>	
	24	Mid-Term #2	
	29	15. Faults & Earthquakes	Chapter 13
	31	16. Earthquakes	Chapter 13
November	5	17. Magnetism <i>(last call for part 2 grading issues)</i>	Chapter 14
	7	18. Water	Chapter 15
	12	19. Rivers	Chapter 17
	14	20. Rivers	Chapter 18
	16-17	<i>Tucson Mountains Field Trip (9:00-5:00) (George & Nitzan; Res #MP20192106; 72475-72476)</i>	
	19	21. Shallow Ocean	Chapter 20
	21	22. Deep Ocean	Chapter 20
	26	23. Deep Ocean	Chapter 20
	28	<i>Thanksgiving Holiday</i>	
	3	24. Deserts	Chapter 19
December	5	25. Paleoclimate & Glaciers	Chapter 21
	10	26. Earth History & Careers	Chapter 2
	12	<i>Review session @ 6:00-8:00 (Location = MCPRK 105) No optional exam.</i>	
	17	FINAL EXAM, 10:30-12:30 AM; Gittings 201	
	19	<i>(Last call for grading issues with Part 3 material is 5:00 PM)</i>	