

***GE 351 – Geology of the Mojave Desert – Fall 2003***  
Wednesday and Friday: 10:10 to 11:30

Instructor: Kyle Nichols

Office: 178 Dana

Phone: x5194

Email: [knichols@skidmore.edu](mailto:knichols@skidmore.edu)

Office hours: Monday 1:30 to 2:30 and Wednesday 1 to 2 or by appointment

**About the course**

Each region of the world is an integration of geological processes that operated over different spatial and temporal scales. What we see and study at Earth's surface, often an amalgamation of different geological processes, reflects this integration. Because it is difficult to understand all of the different processes that comprise the geology, geologists usually specialize in one discipline and many times only work in a few areas of the world. It is through the synthesis of different studies that we can begin to understand the geological framework of large regions.

This class will provide a unique opportunity to study, in depth, the geology of one of the most studied deserts in the world, the Mojave Desert. You will be read numerous papers on different aspects of the geology of the Mojave Desert and synthesize the information to understand a more complete picture. You will become the "expert" of one field area and will be responsible to put your field study in a "big picture" perspective. If inclined, you may join a trip to the Mojave Desert before Spring Semester to see in the field what you were reading about all semester.

**Class structure**

This is a 300-level course, it will be difficult and time-consuming, but rewarding. All readings will be from primary literature written in all of the geological jargon. I suggest you purchase a Geologic dictionary to help with unfamiliar terms. The class will be seminar-style (similar to many graduate courses) and is heavily dependent upon your preparedness and participation. We will discuss the readings in the context of in-class group exercises.

**Quizzes**

There will be no quizzes.

**Exams**

There will be no exams.

## **Assignments**

You will be responsible to complete all readings and assignment sheets. The quality and thoughtfulness of your answers will determine your assignment grade.

You will also be responsible to facilitate one class period on a geological topic and field location of your choice. I will hand out the grading criteria for this at a later date. Prior to the class that you facilitate, you will hand in an annotated bibliography of at least ten articles that relate to your topic and/or field location.

## **Required books**

There are no required books. However, I suggest that you purchase a dictionary of geological terms.

Suggested book: Bates, Robert and Jackson, Julia A. eds. 1984, Dictionary of Geological Terms, 3<sup>rd</sup> edition: Anchor books, New York, 571 p.

I will hand out reading materials during class.

## **Grading**

Grading percentages are as follows:

Assignments: 50%

Bibliography: 15%

Class facilitation: 15%

Class participation and attendance: 20%

Please notice that class participation is a large part of your grade. These points are not awarded automatically; you must participate in class discussions to receive the best grade possible.

Obviously, if you are absent you cannot participate in class so, please come to every class. At the end of each class (or soon after by email) I will give you your class participation grade for that class.

## **Attendance**

Since this is a 300 level class, I will not take attendance. Just a word of caution, participation is a large part of your grade.

## **Email**

It is very important that you have, use, and check your Skidmore email account frequently. I will use email for announcements about class activities (at least one day in advance).

## **Mojave Desert Trip**

In early January we plan on taking a trip to the Mojave Desert to see what we were studying in the classroom. This is not a mandatory trip, but it will greatly enhance your understanding of the subject matter. Unfortunately, there is no funding for this trip and you will have to pay for all expenses. I am anticipating the trip to cost ~\$400 to \$500 for all expenses. The price depends on the number of people, airfare, and transportation. We should be able to get round trip airfare in the

\$200 to \$250 range. We will have a planning session during the second week of classes to iron out some of the details. We will try to go to all of the locations that you choose as your in depth study topic.

### **Student Objectives**

- Read and understand all assignments before class so you can participate and ask good questions.
- Understand the technical terms so the class can communicate and ask good questions effectively.
- Become an active and critical thinker by asking good questions.
- Finally, ask good questions.

### **End of course self-assessment (learning goals)**

By the end of the semester you should be able to:

1. Be comfortable reading and analyzing primary geological literature
2. Differentiate the different geological processes of the Mojave Desert
3. Synthesize the links between geologic disciplines
4. Ask critical questions
5. Conduct an independent and thorough literature search and synthesize the information

## ***GE 352: Geology of the Mojave Desert***

Meeting time: Wednesday and Friday: 10:10 to 11:30

Room: DA 167

### **WEDNESDAY**

### **FRIDAY**

---

September 3

---

September 5

---

Introductions and  
Geologic Time

---

Early Mojave Tectonics

---

September 10

---

September 12

---

Later Mojave Tectonics

---

Mojave Climate  
Mojave Trip logistics

---

September 17

---

September 19

---

**No class**

---

**No class**

---

September 24

---

September 26

---

Mojave Climate

---

Pediments

---

October 1

---

October 3

---

Alluvial fans  
(Lesson on GeoRef)

---

Piedmont history and process

---

October 8

---

October 10

---

Pavements and varnish  
Hand in topic for in depth study

---

Eolian processes (sand dunes)

---

October 15

---

October 17

---

Disturbance (Off Road Vehicles/Army)

---

National Parks  
(Death Valley/J-Tree)

---

October 22

---

October 24

---

Yucca Mountain

---

**No Class**

---

October 29

---

October 31

---

Student-led class  
(Kelso Dunes)

---

Student-led class  
(Pack-rat middens and paleoclimate)

---

November 5

---

November 7

---

**GSA No Class**

---

Student-led class  
(Cima Dome)

November 12 Student-led class (Soil Compaction)	November 14 Student-led class (Landers Earthquake)
November 19 Student-led class (Racetrack Playa)	November 21 Student-led class (Blackhawk Landslide)
November 26 <b>Turkey Time</b>	November 28 <b>Turkey Time</b>
December 3 Student-led class (Pack-rate middens)	December 5 Student-led class (Yucca Mountain)
December 10 Student-led class (Little Rock Creek and San Andreas Fault)	December 12