

GEOL 701A: Climate and Tectonics of the Sierra Nevada

Wednesday 5 to 7 PM

Fall 2015, 2 credits

Instructors:

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Course Objectives

This course will explore what we know about climate, tectonics, and surface processes, and how they conspired to form the Sierra Nevada and surrounding terrains. During the course students will learn:

- How to critically read the scientific literature;
- How to formulate testable hypotheses regarding complex Earth systems;
- How to identify important problems worth solving;
- And hopefully, how the Sierra Nevada formed.

Student Learning Outcomes

Students will demonstrate they have developed the skills to critically read the scientific literature, formulate testable hypotheses, and identified important problems by writing a scientific paper and presenting this work in an oral presentation.

Format

The course will be taught seminar style. Each week we will read one to two journal articles discussing some aspect of the Sierra Nevada. During class meetings, students will present and critically discuss assigned journal articles.

Required Work and Grading

100%-90% = **A**; 89%-80% = **B**; 79%-65% = **C**; 64%-51% = **D**; 50% or below = **F**

Paper/presentation	50%
Class participation	50%

Students are expected to read assigned papers and participate in discussion at EVERY meeting. The final project will consist of a two-page paper and a 10-minute presentation given to the group. Both the paper and the presentation must concisely answer these three questions:

1. What is the most important outstanding question pertaining to the evolution of the Sierra Nevada?
2. Who cares if we can answer it?
3. How can it be answered?

Statement on Academic Dishonesty: Cheating, plagiarism or otherwise obtaining grades under false pretenses constitute academic dishonesty according to the code of this university. Academic dishonesty will not be tolerated. Penalty for academic dishonesty will be an F for the course or for the assignment. For more details, see the University of Nevada, Reno General Catalog.

Statement of Disability Services: Any student with a disability needing academic adjustments or accommodations is requested to speak with me or the Disability Resource Center (Thompson Building, Suite 101) as soon as possible to arrange for appropriate accommodations.

Statement for Academic Success Services: Your student fees cover usage of the Math Center (784-4433 or www.unr.edu/mathcenter/), Tutoring Center (784-6801 or www.unr.edu/tutoring-center), and University Writing Center (784-6030 or <http://www.unr.edu/writing-center>). These centers support your classroom learning; it is your responsibility to take advantage of their services. Keep in mind that seeking help outside of class is the sign of a responsible and successful student.

Statement on Audio and Video Recording: Surreptitious or covert video-taping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may have been given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded.

Potential topics:

How did the Sierra Nevada form?

Timing of uplift: young versus old

- paleoaltimetry

- paleobotany

- palotopography

Mechanisms of uplift

- Delamination

- Tilting

- Rift flank

- Climate vs tectonics

General tectonic and geologic setting

Ancestral Sierras

Volcanism and stories told by volcanic rocks

- Calderas and super volcanoes

- Bishop Tuff

Plutonism/Granite

- magma emplacement/magmatic processes

- plutons, chronology

Influence of rock strength on landforms

- domes

- erosion rates

Quaternary faults

Modern seismicity and geodesy

Nevadaplano

Modern and paleo-river systems

- gold bearing gravels

Glaciations