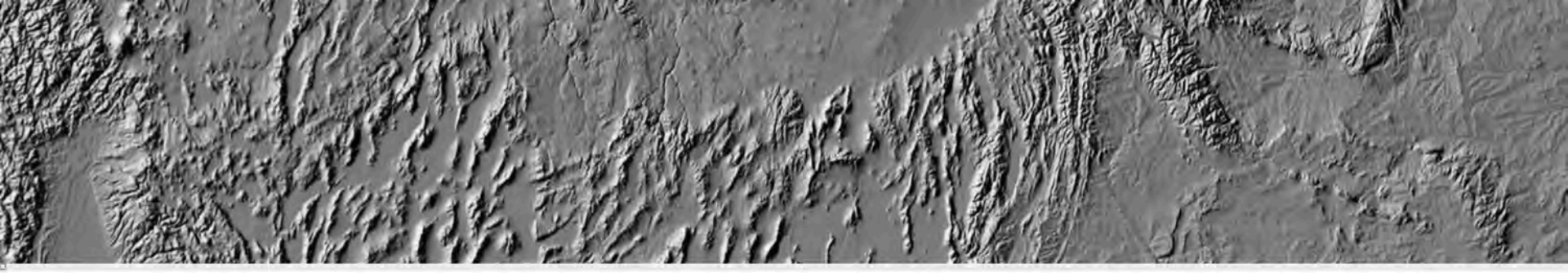
Join us in Zoom Winter Quarter for some serious couch potato geology!

Elizabeth Miller, Trevor Dumitru, Steve Graham, Marty Grove, Matt Malkowski and others

Photo: Black Rock Desert Playa, NW Basin and Range, NV. On screen, Frenchman Mt. Cambrian to Triassic section, Las Vegas

GEOLSCI 210: GEOLOGIC AND TECTONIC EVOLUTION OF THE WESTERN U.S. CORDILLERA (Tu & Th 4:15 – 5:45)



TECTONIC EVOLUTION OF THE U.S. CORDILLERA: A VIRTUAL FIELD TRIP ACROSS THE WESTERN STATES
GEOLSCI 210 Winter 2021

Why study mountain belts? They tell you a lot about the history of the earth and the influence of plate tectonics on the evolution and deformation of continental crust. This lecture course, taught via zoom, covers the geologic history and tectonic evolution of the western U. S. Cordillera from its inception as a rifted continental margin in the Late Precambrian (when the west became the west!) to its Cenozoic to recent history of Basin and Range extension and San Andreas transform motion. This history spans more than 600 million years of geologic time! The Cordillera, studied and described in much detail, provides insight into lithospheric and crustal-scale processes and the plate tectonic driving forces responsible for deformation, magmatism and sedimentation in this and other mountain belts. In addition to the historical narrative, lectures address the latest views on characteristic deformation-related structures formed during crustal shortening, extension and strike-slip faulting; the relationship of sedimentary basins to deformation; plate tectonic controls on magmatism and deformation; the link between deep to shallow crustal processes and highlight the unique nature of continental deformation. Unlike the narrow boundaries between plates in the world's oceans, continental deformation is often spread across very broad regions of the continents. The course will deliver a comprehensive overview of the geology and tectonics of the western U.S. at the upper undergraduate and graduate level with a range of interests and background. If circumstances permit, the class will be followed by a real Spring Break field trip, "Across the Cordillera from Las Vegas to Whitney Portal" –a separate (optional) one unit class.

The course meets on **Tuesday and Thursdays from 4:15 to 5:45** and will involve zoom lectures followed by questions and discussion. For those taking the course for one unit, a P/NP grade will be assigned based on regular attendance. A term paper exploring a topic of interest or a critical written review of the literature will be required of those taking the course for three units and a letter grade.
FIRST CLASS MEETING: Tuesday Jan 12! 1 unit-sign up is P/NP Option, 3 units for letter grade requires writing a research paper. **Taught by E.L. Miller and a host of others. Questions? Email:** elmiller@stanford.edu