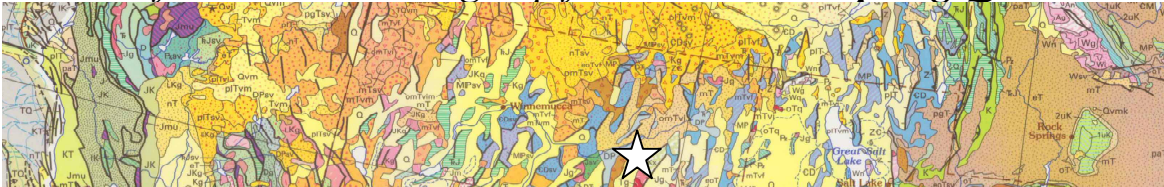


## **GES 190, 2011: Research in the Field Pinon Range and Ruby Mts., Nevada**

**Instructor: Elizabeth Miller and grad students**

*In the field 6/13-6/29, sign up for GES 190 in Spring Quarter*



This ~two-week class will be taught from a tent camp in the Pinon Range, SW of Elko, Nevada. We will work as a team to make a geologic map and collect stratigraphic data on Cenozoic lacustrine and clastic sedimentary rocks and determine their relations to volcanic rocks along the western side of the Ruby Mts. The Ruby Mts. are an uplifted region of metamorphosed and intruded deep crustal rocks, called a “core complex”, e.g.: <http://www.annualreviews.org/doi/abs/10.1146/annurev.ea.10.050182.001021>

The geometry and motion history of the normal faults that bound this metamorphic complex are highly controversial topics. Our project aims at collecting data on the Cenozoic paleogeography of the region, the timing of faulting and the displacement of this fault system by mapping sedimentary and volcanic rocks in the upper plate or hanging wall, deposited as a function of slip along this normal fault system. These strata may have overlain the metamorphic complex prior to faulting, and, in part, were deposited adjacent to it during fault uplift.

The area that we will study has never been mapped in detail, so our contribution will be substantial. We also hope to spend a day or two making detailed maps and observations of the igneous rocks in the Ruby Mountains core complex itself.

The project has relevance to several ongoing studies. Stanford Geophysics is investigating the deep crustal structure of the Ruby Mountains and has deployed broadband seismic stations across the region:

[http://pangea.stanford.edu/research/groups/crustal/research.php?rg\\_id=6&rgpr\\_id=122](http://pangea.stanford.edu/research/groups/crustal/research.php?rg_id=6&rgpr_id=122)

It is also part of an active project by the U.S. Geological Survey: <http://geology.usgs.gov/postdoc/profiles/colgan/index.html>.

The closest town, Elko, is famous for its winter cowboy poetry festival amongst other attractions: <http://www.elkocva.com/>. **Questions? [elmiller@stanford.edu](mailto:elmiller@stanford.edu)**



*Volcanic ash flow tuff units exposed in the Pinion Range*