



GES 190: Research in the Field 2011

Albion-Raft River Range, Idaho

Instructors: Elizabeth Miller and grad students

*Held early summer; sign up for GES 190 in **Spring Quarter!!***



This ~two-week class will be taught from a tent camp in the Albion Mountains in the City of Rocks Preserve by Almo, Idaho, a world-class rock climbing destination. The closest large town is Burley, Idaho, which lies on the Snake River Plain. We will work as a team to make a geologic map and collect structural data on igneous and metamorphic rocks that form part of the Middle Mountain Shear Zone and its associated faulted and unconformably overlying Cenozoic clastic sedimentary and volcanic rocks. The Albion-Raft River-Grouse Creek represent an uplifted region of Cenozoic 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 that bear on the timing of fault displacement.

We welcome all undergraduates who have taken GES 105 (or equivalent) and all graduate students. This class is a great opportunity to learn first-hand about the geology of the west, extensional faulting, and core complexes. There will be opportunities for follow-up laboratory investigations, including microstructural studies, geochronology and thermochronology, and electron back-scatter diffraction studies of fault zone rocks.

The project has relevance to several ongoing studies. Stanford Structural Geology and Tectonics is investigating the question of fault geometries and total extension across the northern Basin and Range and its magmatic history. Stanford Geophysics deployed broadband seismic stations in the Ruby Mountains complex to study the deep crust:

http://pangea.stanford.edu/research/groups/crustal/research.php?rg_id=6&rgpr_id=122

We plan to leave the day after graduation (unless everyone can leave earlier) and return after two weeks of field work. We will meet with final schedule the beginning of Spring Quarter. **Please email me with your interest elmiller@stanford.edu** so that I can keep you up-to-date on plans.