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HR: 0800h
AN: ED21A-0082
TI: Geologic Wonders of Yosemite at Two Miles High: an Undergraduate, Learner-Centered, Team Research Program at the University of Southern California
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This program is a multidisciplinary student research experience that is largely outside of the classroom, involving undergraduate students in an international-level research project looking at the magmatic plumbing systems formed underneath volcanoes. We bring together a blend of students across the disciplines, both from within and outside the sciences. Following a "learner-centered" teaching philosophy, we formed student teams where more advanced students worked with and taught those more junior, under the guidance of mentors, which include USC professors, graduate students, and visiting international scholars. This program truly covers the full breadth of the research process, from field work and data collection to analysis to presentation. In the summers of 2006 and 2007, research groups of undergraduates and mentors camped in the high Sierra backcountry and worked in small mapping groups by day, generating a detailed geologic map of the field area. Evenings consisted of student led science meetings where the group discussed major research problems and developed a plan to address them. Upon returning from the field, the research group transitions to more lab-based work, including rock dating, XRF geochemistry, microscope, and mineral microprobe analyses, and by spring semester the groups also begins writing up and presenting the results. The summer 2006 research group consisted of 5 undergraduate students and 5 mentors, and was a huge success resulting in presentations at a university undergraduate research symposium as well as the Cordilleran Section meeting of GSA. The summer 2007 group was even larger, with 10 undergraduates and 6 mentors, including two international scholars. Undergraduates also participated in research in China and Mongolia. Aside from rewarding research experiences, students learn rapidly through these research experiences, were much more engaged in the learning process, and benefited from teaching their peers. Several
students expressed that they felt more confident, independent, and knowledgeable about science techniques after returning from the summer field work continuing the research throughout the academic year to the conclusion of presenting their work on campus as well as at national scientific meetings.

DE: 0825 Teaching methods
SC: Education and Human Resources [ED]
MN: 2007 Fall Meeting