FIELD RESEARCH AND OUTDOOR EDUCATION IN THE HIGH SIERRA NEVADA WITH UNDERGRADUATE TEAM RESEARCH AT USC

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A diverse group of undergraduates with varying levels of geologic knowledge collaborated as an Undergraduate Team Research (UTR) group at the University of Southern California. Beginning with two weeks of field research, students presently continue their studies with a year long research experience working in teams focused on specialized research projects such as geochemical investigations, structural analysis, dating, and microprobe studies of both igneous and metamorphic rocks. Mentors consisting of professors, visiting scholars and graduate students aid in focusing the research.

Field mapping and sample collection occurred near Yosemite in a geologically diverse region with many project opportunities for students. Students are directly exposed to rocks and mapping, but can choose anything to study in this natural laboratory. For many students, it is the first outdoor opportunity to experience field research. Learning occurs through visual and hands-on activities, culminating in the construction of a detailed geologic map and presentation of research results at various conferences. Students are encouraged to think independently and through a learner-centered, hands-on, approach to assist the beginners, thereby learning by teaching their colleagues in the field.

UTR also has a large social component that facilitates student maturation, both academically and socially. Because of the different personalities, academic level and backgrounds, working together to overcome problems allowed students to discover characteristics about themselves. For some students this was their first camping and they had to adapt to a “simpler” lifestyle. In addition to increasing appreciation for the conveniences of home, field research promoted environmental awareness, personal responsibility, and respect for nature. Students learned the value of collaborative effort, working as a team in the field and in camp helping with collecting firewood, filtering water, cooking, drafting the field map, and leading campfire discussions. Because of the success of the UTR program, we are convinced that a field oriented program is more conducive to students developing a better and more comprehensive understanding of the scientific method and the application of geologic knowledge than a traditional introductory geology class.