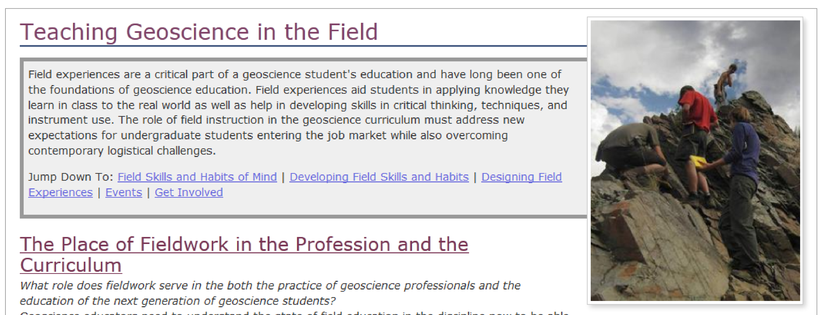
Online Resources for Teaching in the Field

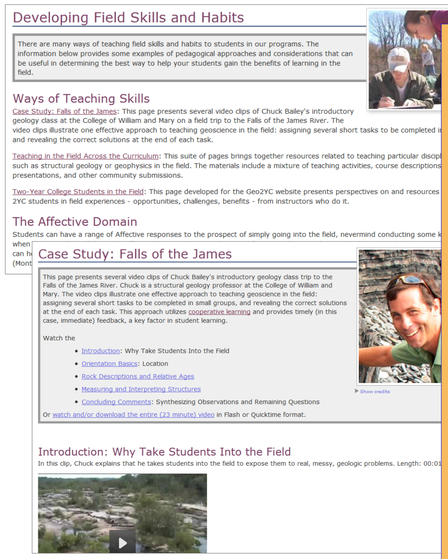
John R. McDaris, Science Education Resource Center, Carleton College

On the Cutting Edge

Professional Development for Geoscience Faculty 2012-13



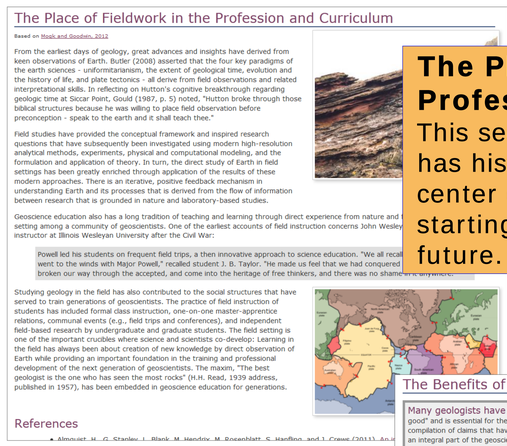
Teaching Geoscience in the Field
Field experiences are a critical part of a geoscience students' education and have long been one of the foundations of educating majors and non-majors alike. With obstacles to taking students into the field becoming more common, it is important that educators have access to high-quality teaching resources and pedagogical guidance to make it as easy as possible to give students the benefits of connecting their "book learning" with the real-world.



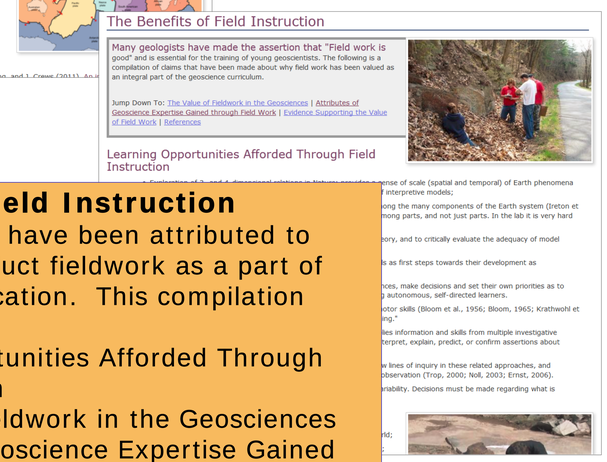
Developing Field Skills and Habits
There are many ways of teaching field skills and habits to students in our programs. The pedagogical approaches and considerations presented here can help shape the experiences we design to expose our students to fieldwork in the geosciences.

Case Study: *Falls of the James* consists of video shot during a field trip conducted by Chuck Bailey with his Introductory Geology class as well as footage of Dr. Bailey talking to the camera about how and why he teaches in the field.

Teaching Geoscience in the Field Across the Curriculum speaks to how infusing field experiences into all aspects of the geoscience curriculum can help address programmatic goals for departments. It is also the jumping off point for a suite of pages that provide ideas and advice on how to teach particular subjects in the core curriculum in the field.



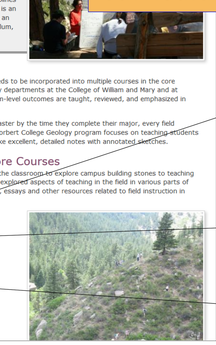
The Place of Fieldwork in the Profession and Curriculum
This section discusses why fieldwork has historically always been at the center of geoscience education as a starting point for discussions of the future.

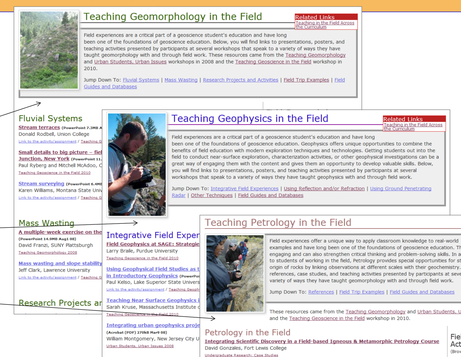


The Benefits of Field Instruction
A long list of benefits have been attributed to having students conduct fieldwork as a part of their geoscience education. This compilation looks at:

- Learning Opportunities Afforded Through Field Instruction
- The Value of Fieldwork in the Geosciences
- Attributes of Geoscience Expertise Gained through Fieldwork

In addition, information is provided about research that documents the effectiveness of fieldwork in these areas.





Designing Effective Field Learning Experiences
This tutorial was developed to help lead educators through the process of designing field experiences from start to finish. The tutorial uses the "backwards design" of Wiggins and McTighe (2000) starting with learning goals and then developing assessments and activities to support them.

- Before We Start
- Define Learning Outcome Goals
- Assessing Student Learning in the Field
- Preparing to Go in the Field
- During the Field Trip

To help in constructing new field experiences, there are also collections of course descriptions, assessments, activities, and field trip descriptions submitted by other educators. There is also helpful advice on field safety as well as a catalog of literature references on teaching and learning in the field.

This work is supported by the National Science Foundation (NSF) Division of Undergraduate Education under grants #0127310, #0127141, #0127257, #0127018, #0618482, #0618725, #0618533, #1022680, #1022776, #1022844, and #1022910.

http://serc.carleton.edu/NAGTWorkshops/field/