Abstract:
After an absence of more than two decades, the Earth and Environmental Sciences program at Montclair State University reinstated the Field Camp course in the summer of 2014. We offer two week summer field camp programs, one at our New Jersey School of Conservation (NJSOC) and the other at the University of Montana and Montana State University. Students use field camps offered by other universities, or were allowed independent study opportunities, in the region or with international research excursions with faculty.

We undertook planning to offer our own field camp, modeled on the traditional field camp experience, after seeing the success of field camps offered (e.g., Geosciences program, Montclair State University since the 1930s), we reinstated our own field camp program. In 2009, the NJSOC experience

The NJSOC experience

- Geology is entirely Late Pleistocene and Holocene glacial and post-glacial deposits, no bedrock.
- First day involves a walk through of site of geomorphic interest, origin unknown to students. They are asked to observe landscape and sediment features.
- Remainder of field investigation involves intense survey of a small site of geomorphic interest, near NJSOC. The approach is "research-like", exploring the geomorphology of the site. We introduce the premise of a site investigation for a client. Use of field technology.

The Montana and Wyoming experience

- Geology is mostly sediments, with intersecting structures.
- Classic, well-studied locations with fairly obvious exposures.
- Simple reconnaissance mapping with Brunton, compass and topographic maps to delineate formations.
- Students produce maps, measured stratigraphic sections, and 2-dimensional cross-sections.

Background

• The Earth and Environmental Studies (EES) department saw an opportunity to address a need for a capstone field course for the Geoscience (now Earth and Environmental Sciences) BS program.
• Parallel trend in demand for "field" experiences nationwide (figure below, from Whitman, Majak, and Pyle, 2009).
• At the same time, geoscience educators noted a decrease in the number of field camps offered (Blair, 2008). "Status Report on Geoscience Summer Field Camps," AGU Geoscience Workshops, Report (GW-06-005).
• 2003, Montclair State initiated a field camp experience in the Geoscience curriculum. Students used field camps offered by other universities, or were allowed independent study opportunities, in the region or with international research excursions with faculty.
• Following experience with "kiss and run" field trips in the US West, and a successful NSF REU program at the New Jersey School of Conservation (Montclair State’s field campus since the 1930s), we undertook planning to offer our own field camp experience, modeled on the traditional field camp experiences.
• 2014, offered our initial, six-week summer field camp program. Two weeks in residence at the New Jersey School of Conservation, followed by four weeks in Wyoming and Montana.

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Successes and not quite successes:
• All sites are good for use of all field technology, requires scope of field investigation.
• Students teams (3-4 students) work well, especially when given non-overlapping territory, each team produces a final report and oral presentation on their site, applying all methods.
• Students learn more in a "hands-on" approach, takes up to six weeks to complete.

The Montclair State and Montana University

- Enrollments:
  • Average cohort size: 25.
  • Variable per year.
- Inclusion:
  • Has increased from 25% to 45% in 2 years.
  • Dominantly undergraduate, though 10% graduate students take as well.
- Educational outcomes:
  • $1,000/credit.

EAEs 404 Field Geology format

- 2 semester credits. Fees: $4100 include tuition and special fees, van transportation, field and lodging, but not fees to BYU.
- Prerequisites: Stratigraphy, Petrology, Structural Geology. Involves O'Connor and Whitman book. "Death marches".
- 10 days in residence at the New Jersey School of Conservation in Bridesville, NV. Focus on surficial geology, use of surfacial geologic maps, topographic maps, geologic monuments, map-reading and interpretation.
- Followed by ~3 weeks in residence at the University of Montana in and around the Bighorn Basin.
- Field mapping (Brunton with topographic and Google Earth reference maps) in classic exposures near Dillon, MT.

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