Local Research Projects Foster Student Learning in a Growing Undergraduate Department

Earth and Oceanographic Science
Bowdoin College
Brunswick, Maine

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Local research projects foster student learning

- Connecting students with place
- New curriculum for majors
- Examples
  - Research projects in introductory courses
  - Real-time data
  - Student research during the semester and summer
  - Departmental field seminars
- Results
  - 4-fold increase in # of majors
  - Students skilled in observational & analytical techniques
  - Students familiar with how earth’s systems operate in local area

Students collecting sample during profile of Somes Sound. Departmental Field Seminar 2011.
Connecting students with place
Connecting Students with Place: a new curriculum

- Capitalizes on college’s coastal Maine location
- In line with college’s mission: “To count nature a familiar acquaintance” *
- Supported by administration
- Emphasizes student research
- Helps students learn how earth’s systems operate

* Selection from “Offer of the College” by William DeWitt Hyde, President of Bowdoin College 1885 – 1917.
New Curriculum

Approved in 2010; 2014 class is first to graduate under new requirements.
Examples

Small group petrology and structural geology research projects in field and lab.

Investigating Earth – introductory course
Examples

Service-learning projects using real-time water-quality, lake profiling, and stream-flow data.
Examples

Students conduct research using data obtained from the college’s real-time oceanographic mooring.

Students use MatLab to visualize data they collect from ships in local coastal waters.
Examples

Students design, propose, implement and present their own projects by applying analytical techniques introduced in the course.

For example, using nutrient spectrophotometry to analyze local soil or water samples.
Examples: department field seminars

Launching the CTD: Somes Sound profile 2011.
Results: Pre- & Post- Field Seminar Survey

Knowledge survey: 1 = I have no idea; 3 = I think I know this; 5 = I’m certain of this answer

Grand Manan 2012 Field Seminar
Results: increase in number of faculty

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Results: large increase in number of majors

Results: Students are...

- excited to do science.
- asking questions.
- making observations.
- testing hypotheses.
- conducting analyses.
- making interpretations.
- working together.
- learning about the region.

*Grand Manan 2012 Departmental Field Seminar. Students filtering water for total suspended solids and chlorophyl analyses.*
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