Department of Geology and Geophysics, University of Utah
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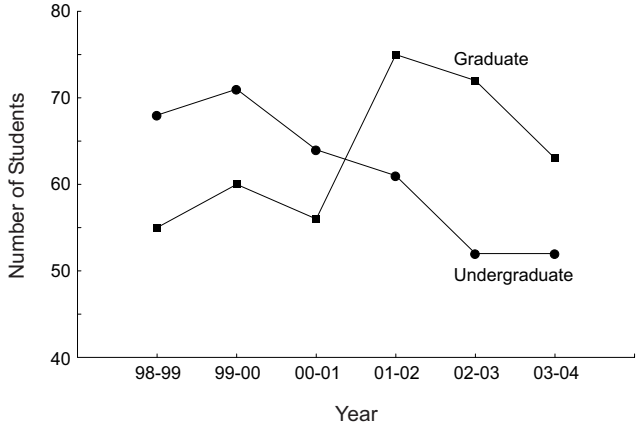
The standing of the Department of Geology and Geophysics at the University of Utah traces back to the 1970s. A combination of factors, including a strong chair who ruled for 12 years, a clear vision, rigorous hiring practice, and uncompromising emphasis on excellence in both teaching and research, established a departmental culture that has persisted through the last three decades. Maintaining that culture through a constant rotation of the chair (typically three year tenure), changes in the University's administration and funding paradigms, swings in undergraduate enrollment, and changing emphasis in funding areas, has been a challenge. Our responses to these challenges may mirror many other departments in the country.

Profile

The Department of Geology and Geophysics (GG) has 22 regular faculty, 2 lecturers, 8 research faculty, and 15 adjunct faculty. The faculty are active scholars, averaging 2.5 papers and 4 abstracts per year. Annual research funding hovers around $3M. Over the past five years the department has averaged 61 undergraduate majors and 63 graduate students. The average graduation rate has been 17 B.S., 11 M.S., and 6 Ph.D. degrees.

We offer five undergraduate majors: Geology, Geophysics, Geological Engineering, Environmental Earth Science, and Composite Earth Science Teaching. Each, it is argued, offers separate career paths and is therefore an important aspect of maintaining an attractive opportunity for prospective students. Geology, Geological Engineering, and Environmental Earth Science, each at one time in the last two decades has accounted for the majority of our undergraduate majors. Overlapping courses serve multiple majors and so the marginal costs in maintaining them has never been a compelling reason to reduce our offerings to simply a single Earth Science degree.

The total number of majors in all options, however, is problematic. Whereas our students believe the student to faculty in GG of 6.4 leads to many benefits, the University must respond to pressures of much higher student to faculty ratio of 29.2 overall. The high quality and steady number of graduate students, about 75% US citizens recruited from top schools is considered a strength of the department and has provided some insulation against criticism about overall numbers.



Initiatives

Initiatives that provide students, staff, and faculty opportunities to grow intellectually and creatively, are a major part of any department's vitality. The three examples below illustrate how initiatives play a part in the current vitality of our department at the University of Utah.

1. Reviews of Earth Science – a new graduate seminar..

In 1999, we created a new course, Reviews of Earth Science, for all incoming graduate students. The student-centered seminar had many objectives: (a) to bring students of disparate backgrounds in the geosciences and related subjects to a common, high level of understanding in a core of knowledge in Earth Science, (b) to introduce new students to many faculty in the department, (c) to promote cooperative learning and a sense of community among graduate students, (d) to stress the importance of synthesis, integration, and presentation, and (e) to build and sharpen communication skills. Seven topics are addressed in the semester (Earth systems approach – Lake Bonnevile as an example; tectonics of Western North America; 6 Billion and counting - humans as agents of geologic change; global energetics of the Earth (energy fluxes); global mass fluxes and cycles; lithosphere-hydrosphere interactions; geology and human health. Each topic is broken down into sub-topics with students responsible for obtaining data and presenting the data with some description to the group each week (typical AGU/GSA presentation). Three groups of students in the seminar were sufficiently motivated by this student-centered approach to continue with another semester centered on preparing for a field trip: New Zealand in 2000, East Africa in 2003, and Italy in 2005.

2. GK-12 project "WEST"

In 2003 the department was successful in landing an NSF GK-12 grant for a project titled WEST "Water, the Environment, Science, and Teaching." WEST has created a partnership between the departments of Geology and Geophysics, Meteorology, and Biology (Ecology and Evolution), the Museum of Natural History, and the Salt Lake School District. In addition to the mandatory time in classroom, WEST graduate student fellows are organizing field trips, creating inquiry based field and classroom experiments, and participating in a graduate seminar on water and the environment.

3. Strategic Planning

As part of a university wide activity the department has developed a strategic plan with the goal of building and maintaining a competitive research program that produces top-quality undergraduate and graduate students with internationally recognized research programs and a modern teaching program. Strategic objectives include: (1) building integrated science and engineering alliances that provide interfaces among earth science, engineering, ecosystem science, and social science; (2) increase undergraduate experiences beyond the classroom; (3) increase the number of student majors;(4) increase the number of, and funding for, graduate students; (5) focus future faculty appointments on areas of selected strengths; (6) relocate the department in a new building with state-of-the-art faculities; (7) aggressively seek funding to meet instructional, computational, and instrumentation needs. Obective # 5, in particular, has energized faculty as we have recast the more classic titles of faculty positions in the past (economic geologist, igneous petrologist, seismologist, etc.) into five general areas of strength:

internal processes and dynamics of the Earth, surface processes and paleoclimate, water-Earth systems, Earth history and paleobiology, and Earth resources and exploration.