

Geological Sciences 2011 Academic Program Review

Dean's Response

Strengths and Accomplishments

The self study and the external review reports provide substantial evidence of the strengths and accomplishments of the Geological Sciences program. The department continues a strong legacy of preparing students for success in professional careers and graduate school. The current chair, Jon Nourse, has led the department with vision and commitment over three difficult years, helping demonstrate to campus administration the value of the program to the university and the region. The faculty are professionally engaged, active in scholarship, and committed to excellence in teaching. In this small department, students and faculty have a close relationship that continues beyond graduation. The department publishes a periodic newsletter, and reaches out to alumni in various ways.

Most remarkable has been the department's positive response, through growth and engagement, to the threat of program closure (or merger) in 2009-10. Since then, enrollment has increased, a new tenure-track faculty member has been hired, and a new graduate program has been launched (Fall 2012). In the meantime, the department has maintained a high rate of grant production and scholarship, while continuing to leverage its expertise in seismology, hydrogeology and other areas of specialization represented by faculty research areas.

Identity and Alignment

The department plays an important role in the mission of the university, one that is closely tied to the concerns and priorities of the region in which we are located. The faculty have expertise critical to regional concerns. Faculty model earthquake processes using seismic data, study earthquake and flood hazards from a geological perspective, and examine the impact of human activities on natural resources, including water. Instructional methodology emphasizes field and lab experiences in keeping with the campus "learning by doing" philosophy. Graduates are in demand in various industry sectors, led by geotechnology and hydrogeology, with a significant fraction going on to graduate school.

Now that the department is growing, the role that the department plays would benefit from further collaborative discussions. In addition to serving its own majors, the department plays a service role in training engineers and in offering General Education (GE) courses to the wider community of students. A clearer definition of the scope of this service role needs to be developed, particularly in areas that overlap with Physics & Astronomy. The development of additional GE courses offered by the department should alleviate the resource issues that in the past have loomed large in this respect. Discussions between faculty colleagues in these two departments should continue, with the Dean's office facilitating these discussions as needed.

The goal would be to identify topic areas that clearly reside in one of the departments and those that overlap. Out of this analysis, a clearer sense of identity for the two departments will arise, distinguishing for instance between geology/earth science on the one hand and astronomy/cosmology on the other. Such an analysis would also serve to guide curricular development, lead to greater collaboration between the departments, foster creation of cross-listed courses, and overall better serve our students. It would be another positive example of collaboration between departments that was so successfully done with CSULA for majors in those 2 departments.

Strategic Planning: Curriculum, Capacity, Collaboration

The Department should take additional strategic steps in curricular development and faculty hiring. Tying graduate and undergraduate core curriculum development to emerging state and national workforce needs is critical. Widely appealing large GE courses within the scope of departmental expertise should continue to be explored, as noted above. In hiring, it is important to bear in mind that justification in terms of increased grant activity, innovations and efficiencies in curriculum and pedagogy, and strong interdepartmental and intercollegiate collaboration are more likely to lead to success than arguments based on numbers of retirees alone.

The department should actively explore opportunities for collaboration and cooperation as part of the campus response to the restructuring of our budget in recent years. In addition to sharing courses with other CSU campuses, the department should explore cross-listed courses with Physics & Astronomy. Using graduate TAs for large class sections would help build capacity while balancing workload. Using central advising services would also help to mitigate faculty workload.

Review Summary

The department has taken positive steps to address viability concerns raised by the prior 2009-10 *ad hoc* program review. However, strategic steps need to be taken to address curricular and capacity issues that remain. This requires the department faculty and staff to work closely with administration, particularly the dean and associate deans, to address and resolve these issues over a period of time, with the underlying goal of creating a strong, sustainable suite of departmental programs. Some of these steps are identified below.

Actions to be taken by the Dean's Office

- Support strategic hiring plans as outlined in department's response to external review
- Facilitate cooperation and collaboration discussions both within and outside the college
- With Advancement help, mine rich alumni base to foster department's development activities; assist department to use its links to industry to establish an Advisory Board
- Leverage departmental expertise in seismology, natural resources, water, and other areas to aid in advancement opportunities
- Support undergraduate and graduate program growth

- Work towards a long-term solution that addresses increasing demands for space to teach and do research in
- Continue support for grant writing

Actions to be taken by Geological Sciences

- Continue to develop curriculum within the major to reflect student demand and emerging state and national workforce needs
- Consider more strategic development of GE offerings to reflect the department's expertise and subsequent curriculum within the major
- Develop well-supported hiring plans reflecting strategic goals and capacity needs consistent with college and campus priorities and initiatives
- Grow and stabilize the graduate program to make it self-sustaining
- Develop cooperation and collaboration arrangements with other departments on campus and in system
- Use TAs and college advising center to balance workload; consider changes to curriculum to avoid overloading faculty with unrealistic supervisory demands, especially in senior projects and theses
- Develop and continuously refine a more comprehensive assessment plan that will measure the effects of:
 - a. growing enrollments
 - b. changes to curriculum on programmatic outcomes
 - c. one program on another (e.g. the graduate on the undergraduate program)