



Memorandum

Date: May 24, 2012

To: Dr. Claudia Pinter Lucke, Vice President of Academic Programs,
via Dr. Mandayam Srinivas, Interim Dean, College of Science

From: Dr. Jonathan A. Nourse, Chair, Department of Geological Sciences *Jon Nourse*
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Subject: Geology Department Response to External Evaluators' Report on 2010-11
Academic Program Review

External evaluators Vicki Pedone and Mathew Shumaker visited the Geological Sciences Department on May 13, 2011 in association with the 2010-11 Academic Program Review. Geology faculty members who participated in the external visit have carefully read and digested the evaluators' External Review Report. Below is our collective response:

Summary:

The external review report is generally positive, complimenting the Geology Department for its constructive strategies in reacting to the severe budget constraints of recent years. In addition to promoting a new vision to the Cal Poly Pomona campus and making substantial gains in recruiting Geology majors, the Department is commended for multiple endeavors that exemplify the University core values:

1. Developing a forward-thinking curriculum with concentration areas to develop skills necessary for professional employment and/or graduate school and allow growth of interdisciplinary collaboration,
2. Identifying and relieving curriculum bottlenecks while increasing efficiencies,
3. Producing an impressive quantity and quality of scholarly activity,
4. Involving students in research and presentations at prestigious professional conferences,
5. Developing strong faculty-student relationships through advising and mentorship, and 6. Providing an important inter-college service to departments of Civil Engineering, Liberal Studies and Regenerative Studies.

Overall, the report contains abundant language indicating that the Geology Department excels at preparing its students for successful careers that will benefit society. However, the evaluators outline four "Challenges" faced by the Department and later reiterate these in their Recommendations section and their discussion of the "Suggestions for Action" contained in the original self-study report. Three of the four challenges stem from recent attrition in the full-time faculty base. To quote from their Final Summary: *"As previously noted, our top concern is the*

small size of the faculty. Additional tenure-track faculty are needed to provide the depth and breadth of specific expertise required of top-quality undergraduate and graduate programs.”

Below we address the challenges identified by the evaluators and discuss our strategies for alleviating these challenges:

Response to Challenges:

1. Full-time faculty attrition

The evaluators point out a fact we are well aware of: looming FERP retirements could leave the Department stretched very thin in terms of instruction and thesis supervision. We responded to this challenge in 2010-11 by making a successful Assistant Professor hire in the strategic area of Hydrogeology and Aqueous Geochemistry. Our new faculty member, Stephen Osborn, is having a banner year in terms of teaching accomplishments and grant productivity. Recently the Department requested approval for a tenure-track faculty position in Petrology / Mineral Resources. That request is still pending. Next year we will seek a faculty position in Earth System Science / Sedimentary Processes. Meanwhile, we continue to recruit and train a high quality pool of adjunct instructors.

2. Reliance on part-time Faculty

Concerns were raised that the Department may become too dependent on part-time instructors; also, that adjunct faculty would be unable to conduct research and supervise undergraduate or graduate theses. Recognizing the constraints posed by shrinking tenure-track faculty lines, we have built up a talented pool of well-qualified and dedicated adjunct instructors who contribute significantly to our teaching mission. These instructors hold PhDs from Caltech, Stanford, University of Wyoming, University of Cincinnati and Stony Brook University as well as California State certification as Professional Geologist (3), Engineering Geologist (3) and Professional Clear in Physical Sciences (1). The Department Chair provides oversight and feedback to lecturers to promote their professional development and ensure quality and consistency of instruction across the curriculum.

Part-time Geology instructors are encouraged to participate in scholarly research. One instructor is currently supervising four undergraduate students on senior thesis projects related to his work in the geotechnical industry. Another lecturer has submitted a grant proposal to the USGS Earthquake Hazards program. These endeavors are beneficial to the Geology mission. Because lecturers are Unit 3 faculty, Cal Poly Pomona guidelines provide a mechanism for such motivated adjunct faculty to contribute to research and thesis supervision. However, there are limitations; e.g., lecturers are not permitted to chair Master's Thesis committees.

Considering the sudden reductions in part-time instructional budgets that have occurred in the past, the Geology Department wants to avoid a situation where we are overly reliant on adjunct faculty. A major Department priority continues to be the maintenance and growth of tenure-track faculty ranks. As the Geology BS and MS programs grow, we will use that growth to justify new faculty positions at the appropriate time.

3. Potential negative impacts of new MS program on instruction of the undergraduate program.

The Geology Department has sufficient capacity to sustain the undergraduate and graduate program with existing faculty. We have designed a 3-year teaching plan that balances graduate instruction with the needs of the undergraduate program. The evaluators suggest that current tenure-track faculty would be pulled away from upper-division courses required for the BS program, causing these courses to be taught less frequently. This concern has been addressed as follows: The graduate curriculum includes 15 units of Technical Elective 400-level GSC courses that are also offered to Geology BS majors. These courses will be taught by tenure-track faculty and populated by both graduate and undergraduate students. Enrollments will actually be greater, thus it may be feasible to offer these courses more often. Undergraduates will also benefit from synergies related to having motivated graduate students enrolled in the same courses.

In addition to tenure track faculty, the adjunct instructors described in Part 2 above contribute significantly to our teaching mission. Several of these lecturers currently teach upper division courses for Geology majors, maintaining a high level of standards. We are also confident that those instructors currently involved with senior thesis supervision are prepared to guide Master's theses. Adjunct faculty involvement in thesis guidance will be carefully planned and monitored in light of fluctuating part-time budgets. The Department wants to ensure that continuity is maintained through the thesis supervision process in the event that lecturer contracts are reduced due to fiscal constraints.

4. Increasing enrollment and associated SFR and FTES/WTU

This is an issue facing all of us in the CSU: how to continue increasing enrollment and SFR while preserving program quality. The evaluators point out that we have already made substantial gains in enrollment, with related ratios ranking high in the College of Science. Geology BS enrollments continue to grow, with the Fall 2012 entering class triple the size of the previous year. To further increase FTES, we have proposed two new Area B1 GE courses ("Earthquake Country" and "Water in a Changing World") that we expect to be popular. However there is a limit at which the various GE course offerings are saturated across campus. Current GE demand seems reasonably well satisfied; hence, increased enrollments in one class may take away from another. Real growth in GE related FTES may hinge upon increasing overall university enrollment.

Amendments to Suggestions for Action:

In light of the evaluators' comments we have amended the original Suggestions for Action in our self-study document as follows:

1. Seek approval for a tenure-track faculty searches in two specific discipline areas, in priority order: **a.** Petrology / Mineral Resources, **b.** Earth System Science / Sedimentary Processes. Successful hires are needed to fill a void soon to be created by two retiring FERP faculty and to preserve Department strengths in its core disciplines. The petrology position is placed first in priority because of difficulty in finding part-time instructors capable of teaching upper division courses in that discipline. The ideal candidate will for position **b** will have sufficient experience in Paleontology to maintain our endowed Lane Paleontology Laboratory.

- 2.** Develop a plan for a third tenure-track faculty search in a strategic growth area related to geotechnical engineering or water resource management. This third hire will increase our full-time faculty base to seven, the minimum number recommended by the external evaluators.
- 3.** Resurrect GSC 145L (Hand Specimen Petrology Laboratory) as a required core course. This course will ensure that all Geology majors develop skills in detailed rock classification and comprehensive understanding of the environment of rock formation. The evaluators noted that Geology majors in the new Geophysics/Earth Exploration and Environmental Resources tracks are not required to take a traditional Petrology course. GSC 145L will correct this deficiency. A Miscellaneous Curriculum proposal was initiated in March 2012 to add GSC 145L to the core curriculum. Other changes to the core or emphasis areas involving Petrology are being considered. The specifics will depend on the particular expertise composition of our next faculty hire(s).
- 4.** Expand efforts to recruit retired industry professionals as part-time lecturers. One such person from the petroleum industry has been cultivated recently to present a guest lecture at our noon seminar series. Potentially this person might contribute to instruction of future petroleum and sedimentary-related courses. The geotechnical and environmental industries offered another pool of working professionals with practical industry experience.
- 5.** Explore avenues to develop a self-support mechanism for graduate instruction. The objective is to alleviate a potential problem of diverting state resources away from the growing Geology BS program to a relatively small new MS program.
- 6.** Finish the process of approving two new Area B1 GE courses: “Earthquake Country” and “Water in a Changing World.” The Earthquake course has been approved by the University GE committee and is due for Academic Senate vote; the Water course is currently undergoing review by the University GE Curriculum Committee. Both courses offer opportunity to boost lower division enrollments and should enable the department to increase FTES.