



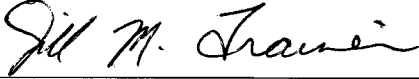

Program Review Pilot Study, 2007-2009 Self-Study Proposal

Academic Organization (Department): Geology	Academic Group (College): Natural Sciences & Mathematics	Date: May 14, 2008
Department Chair: David Evans	College Dean: Jill Trainer	Review Team Chair: Bruce Bikle

Self-Study Option

<p>Option A <input type="checkbox"/></p> <p>Option B <input type="checkbox"/></p> <p>Option C <input checked="" type="checkbox"/></p> <p>Hybrid of Options <input type="checkbox"/> (please provide brief description):</p>

Approval signatures:

Department Chair: 	Date: May 14, 2008
Review Team Chair: 	Date: May 14, 2008
College Dean: 	Date: 5/28/08
Associate Vice President and Dean for Academic Affairs: 	Date: 6/2/2008

Distributions: Academic Affairs (original), Department Chair, College Dean, Review Team Chair. Dean's office to send original after approval to Academic Affairs, at mail zip 6016.

Self-Study Proposal Department of Geology

May 13, 2008

The Department of Geology has chosen to conduct their Self-Study in accordance with Option C: Focused Inquiry, as described in the "Program Review Pilot Study, 2007-2009 – Manual of Procedures."

Following the Option C format, our Self-Study will include three main sections:

I. "General information about the program, e.g., data on students, faculty, staff, facilities, etc. (most of which is supplied by Office of Institutional Research)"

The Office of Institutional Research has already provided the Department with a hardcopy of the relevant *Factbook* (also available electronically at the OIR website www.oir.csus.edu). The Department will contact OIR as additional data requirements arise during the self-study.

II. "A statement of intended student learning outcomes at the program level; methods for assessing them, including the use of direct measures; assessment results to date; and documentation of the use of assessment results in efforts to achieve program improvement (assistance with the preparation of which is available from the University Assessment Coordinator)"

Our department adopted its current Assessment Plan in May, 2000. At that time, we identified five program goals:

- That students are prepared for professional and /or graduate study in the geosciences;
- That students develop a deep understanding of Earth systems: how Earth systems work and how they interact;
- That students develop their ability to solve geologic problems through the use of scientific method;
- That students develop a deep curiosity about how the Earth works, and a lifelong appreciation of the Earth's place in space and time; and
- That students develop their technical communication skills: seeking and processing technical information; and communicating technical information and conclusions in both oral and written form.

The methods we chose to measure our progress toward these goals include development of a common rubric for assessing writing; development of a rubric to assess field mapping skills; collection of student field camp grades (like many small geology departments, we do not offer this capstone course, so our students take this required course at other institutions); and alumni surveys. To date we have collected and evaluated data on student writing skills; collected field camp data; and carried out alumni surveys. We abandoned the attempt at a field mapping rubric in favor of relying on field camp grades. We found it very difficult to develop a rubric that could be used across different mapping classes focused on different aspects of geology. We believe the field camp data provides a sufficient measure of students' mapping skills.

We are further developing our inquiry into student writing skills this Spring. We have already used our assessment data to identify areas of student weakness, and have adjusted writing instruction and assignments accordingly. We are now assembling a student guide to technical writing for students to be used in all courses with writing assignments to ensure consistency in our approach to improving student writing skills.

We have also decided to add two new components to our assessment plan. We are in the process of identifying a small set of critical knowledge and skills essential to understanding geology. This information will be compiled into a booklet for students. We will then track students longitudinally by testing them on this set of knowledge and skills at several points during the major. We believe this strategy will effectively communicate to students just what they should be learning about geology, and will allow us to track their progress in mastering this body of knowledge. We also plan to identify a few key assignments already embedded in our courses that exemplify critical skills in geology. We will track student performance on these key assignments to evaluate our success in teaching these critical skills. We plan to implement these aspects of our Assessment Plan in Fall 2008 as part of our self-study.

III. "The results of a focused inquiry addressing issues of particular interest/concern to the program itself, in the context of what is currently important to the college and university."

The discipline of Geology is a licensed profession in California and most other states. By the same token, the science of Geology is fundamental to understanding environmental change, earth and energy resources, water supply, and land use. Consequently the Geology program at Sacramento State must balance training of professional geologists (i.e., "teaching to the test"), preparing a citizenry to be knowledgeable in earth processes, and preparing future scientists to be successful in research and graduate school. Our proposed focus inquiry is intended to address issues related to striking an appropriate balance of these needs.

Specifically, we will explore the following focused inquiry questions:

1. How well does the content and structure of our curriculum train students to solve geologic problems?

By way of responding to this question, we will

- a. More thoroughly investigate our students' performance in summer field camps. Although we collect grades of our students as part of our on-going assessment activities, we have not systematically investigated what aspects of field camp our students excel in or struggle with. As part of this proposed self-study, we will have students who take field camp in summer 2008 to respond to a short questionnaire designed to have them assess their preparation for this capstone experience. At the same time we will conduct interviews with their field camp instructors in order to get an external evaluation of our students' preparation.
- b. We will review and evaluate embedded assignments in our curriculum (which are collected as part of our ongoing assessment) to find existing assessment tools that measure synthesis and creative problem solving.

- c. We will conduct focus groups with current students and recent alumni to get their perspective on how knowledge acquired in core courses is transferred and used across the curriculum.
- d. We will develop a series of longitudinal questions to be administered to all students at critical stages in the curriculum (as discussed in the previous section).

2. How well does the content and structure of our curriculum meet the workforce needs of California?

In responding to this question we will

- a. Examine the guidelines and preparation material that the licensing board for Professional Geologists provides to candidates who apply to sit for the PG examination. We will compare the content areas of the PG exam with the content in our curriculum and identify areas where the two are not aligned.
- b. Examine the geology curricula at other universities, including other CSUs, and weigh them against our curriculum.
- c. Collect statistics on the employment status of our graduate from the past 5 years. Anecdotal evidence indicates that our students are in high demand by employers. However, it has been several years since we systematically tracked the job placement of our graduates.
- d. Conduct focus group discussions with selected professional geologists. The focus group will include a geologist from a large firm that employs our students, geologists from state and federal agencies, a geologist in sole practice, and an alumnus. Questions to the focus group will be aimed specifically how our curriculum aligns with workforce needs.

3. How well does the structure of our programs meet the needs of our faculty to maintain fulfilling professional lives?

In responding to this question we will

- a. Systematically examine trends in scholarly productivity of our faculty over the past six years.
- b. Distribute a questionnaire to our faculty to quantify their perceptions of workload and job satisfaction.
- c. Distribute a questionnaire to students to evaluate their view of the advising, student research opportunities, faculty engagement in department activities, and other factors that impact workload, student satisfaction, and department collegiality.

Concluding Remarks

The Geology Department faculty unanimously embrace the opportunity to look critically at the department curriculum, advising and workload. We expect that the outcome of this program review will be curricular changes that better meet the needs of the professional geology community as well as the scientific community in which we participate.