WASC Rubric for Department of Geology

Comprehensive List

The Department’s Comprehensive List is Developed.

The Comprehensive List has reasonable outcomes and direct expectations for the M.S., B.S., and B.A. degrees that are compatible with the broad categories of gaining geological knowledge and skills, written and oral communication, critical thinking, and information and quantitative literacy. Expectations for M.S. students are clearly higher than those for the Undergraduate degrees. There are no national disciplinary standards, but the outcomes are in part designed to meet the expectations of the California State Licensing Board for Professional Geologists.

The undergraduate SLOs 1, 4, 5, and 6 and graduate SLOs 2, 4, and 5 specifically address student ability to understand concepts and content of geological topics. The level of sophistication increases with the graduate SLOs; for example, undergraduate SLO 2 (using scientific method) and graduate SLOs 2 and 4 (solving sophisticated geological problems) touch on broadly similar themes, but the requirement of a M.S. thesis for all graduate students leads to a much higher level of achievement. Written and oral communication are addressed by undergraduate SLO 3 and graduate SLOs 1 and 3, again with an increase in depth for the graduate program. Critical thinking is an important component of most of the SLOs, and particularly SLOs 2, 4, 6, and 7 for the B.S./B.A. program and 2, 4, 5, and 6 for the graduate program.

The main shortcoming of the outcomes is that the faculty has not developed formal standard criteria for evaluating the level of student mastery of individual outcomes. We intend to develop a grading rubric for oral presentations and written assignments in our upper-division courses in the Spring 2012 semester.

Assessable Outcomes

The Department’s Assessable Outcomes are Emerging with many characteristics of Developed for the M.S. program.

All of the undergraduate learning outcomes explain in a general sense how students can demonstrate their learning. This is primarily done by stating what classes allow students to meet the individual outcomes, but some of the outcome assessments are perhaps too qualitative. For example, many assessment statements refer to students developing skills by applying them in geologic situations with instructors evaluating skills and providing feedback. We will strengthen the assessment by developing rubrics for some classes and more specifically outlining expectations in greensheets in all classes that meet a particular SLO. For example, in Geology 120 (Mineralogy) the greensheet would state approximately how many minerals a student will be expected to learn and the grading expectations for tests/labs involving classification (SLO 5).
The M.S. outcome assessments range from relatively vague to specific. Qualitative statements similar to those for the undergraduate SLOs are made, although the successful completion and rigorous evaluation of a M.S. thesis (required of all M.S. students in Geology) by a three-member committee is in our view a strong form of assessment for most of the SLOs. Some of the SLOs, such as #3 (present results of scientific research in oral format), are more explicit, as all M.S. graduates must present the results of their research to the Department as part of the weekly speaker series, and these are evaluated by the committee and the faculty as a whole. The Department has developed an evaluation form for the speaker series, which can also be used for thesis presentations.

Alignment

The Department’s Alignment Plan is Developed.

The undergraduate program is designed so that students receive an increasing degree of sophistication as they advance through the curriculum. The Department has developed a curriculum “road map”, which shows 3 tiers of required classes that satisfy the seven SLOs: 1) Introductory Level; 2) Reinforcement; and the 3) Capstone experience (Geology 129) where students synthesize material in a 4-week field geology course. Students are required to take the introductory classes first before moving on to all subsequent required classes, and the capstone course should be the last class taken before graduation. A similar “road map” has been developed for the M.S. program, which utilizes classes that meet the Graduate Writing Requirement, the required graduate seminar, thesis writing, and the oral presentation (thesis defense). To attain “Highly Developed Status”, a clearer explanation of grading and student support services is needed.

Assessment Planning

The Department’s Assessment Planning is Developed.

At the time the SLOs were developed by the Department, a multi-year assessment plan was written. Data collection has occurred following that plan. In the plan, SLOs were presented in a matrix of required courses and the corresponding SLO to be assessed in the course. The level at which the BS/BA SLOs were to be evaluated was assigned to the “Introductory” or “Reinforcement” category depending on the course’s occurrence in the sequence of courses in the major. The results of the assessment have been reported annually for the SLO(s) to be assessed in a given year, according to the schedule. These results are reported to UGS in the Program Assessment Report. That report details how the SLO is incorporated into that specific course and what portion of the students enrolled achieved adequate mastery of that SLO. The report also documents modifications made to the course to improve mastery of the SLO. Further, the results of the modifications are evaluated for evidence of enhanced student learning.

The evaluation of the MS SLOs is more complicated since many of the MS outcomes are primarily related to the thesis work. We have been completing the annual Program Assessment
Report for the SLO corresponding to each year, but often the assessment does not fit well into the standard reporting format of Evidence of Learning, Changes to Pedagogy, and Evidence After Changes. This is because each individual thesis advisor works independently with each MS student, tailoring the learning experience to that individual student’s strengths and weaknesses. This on-going, dynamic relationship works well, as evidenced by the Department’s reputation on campus for producing high-quality theses and the number of our theses that have won the University Outstanding Thesis Award.

As the Department completes the first cycle of evaluating the SLOs since developing the assessment plan, it will be examining the success of that plan as part of its Program Plan review. This examination will include a discussion of whether any rubrics need to be developed to aid in the evaluation of achieving specific SLOs. The Department will make any changes to the assessment plan deemed necessary.

**The Student Experience**

**The Department’s Student Experience is Emerging.**

Students are somewhat aware of the SLOs, although most of this awareness is a function of their interaction with individual faculty members. Relevant BS/BA SLOs are stated on the greensheets for the respective core courses and discussed at the beginning of the semester. The Undergraduate Advisor also addresses the SLOs in individual discussions with the advisees. For the MS SLOs, the primary way that students become aware and evaluate their own progress is through interaction with their thesis advisor, and to a lesser extent the other members of the thesis committee, as most of the SLOs are evaluated through thesis research work. The indirect consequence of the informality of making SLOs known to students is that the students may not be aware of the relationship between how they are assessed and the SLOs that apply to a certain course or activity.

The respective Curriculum committees (Undergraduate for the BS/BA, Graduate for the MS) will develop a plan to increase student awareness of SLOs by involving them, on a course-by-course (for the BS/BA) or thesis-by-thesis (for the MS) level, in defining what it means to be competent in a certain SLO. They will then evaluate themselves with respect to their individual competency in each relevant SLO at the end of the semester.

The Department will post the SLOs on links on the respective programs (BS/BA or MS) on the web pages of the Department’s website. This will allow students to see the Department’s expectations before applying or early in their time in the Department.
**ROADMAP OF PROGRESS ON WASC PROGRAM OUTCOME RUBRIC -- GEOLOGY**

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