

PROGRAM ASSESSMENT ANNUAL REPORT 2012-13

DIRECTIONS

Information from departments should be submitted as a Word Document in electronic form to both their College Dean's Office and to Claudia Pinter-Lucke (clpinterluc@csupomona.edu) no later than May 31, 2013.

The Academic Program Assessment Committee will review the reports in the fall 2013 quarter and return the reports with comments to the departments at the end of the fall quarter.

This report should be completed by the department assessment committee, department assessment coordinator, and/or the department chair in consultation with department faculty. Enter information for each undergraduate and graduate program on separate forms.

1. College	
Department Report	Science
2. Department	
Department Report	Geological Sciences
3. State the type of degree (BA, BS, et.) and program name in full with acronyms in parentheses as appropriate.	
Department Report	BS Geology
Committee Comments	
4. Cite all locations where SLOs are published (URL, ECO's, Syllabi, etc.) URL link should take the user directly to the outcomes, either to a separate page or to the location on a more general page.	
Department Report	Program Learning Outcomes: http://geology.csupomona.edu/academics.htm CSC Course Learning Outcomes Complilation: Posted under "Assessment" at http://geology.csupomona.edu/academics.htm
Committee Comments	
5. Cite all locations where curriculum matrices are published. URL link should take the user directly to the outcomes, either to a separate page or to the location on a more general page	
Department Report	Matrix linking Geology Program Learning Objectives to specific GSC courses is posted under "Assessment" at http://geology.csupomona.edu/academics.htm Matrix linking Geology Program Learning Objectives to University Learning Outcomes is posted under "Assessment" at http://geology.csupomona.edu/academics.htm
Committee Comments	
6. List all tools, strategies, and methods to collect DIRECT data/evidence used to determine students' progress to meet learning outcomes.	

<p>Department Report</p>	<ol style="list-style-type: none"> 1. Spreadsheet of students awarded Geology BS degrees--Department updates this annually. See also Department web posting, updated annually: http://geology.csupomona.edu/GradSchoolBoundFall2012.pdf 2. 3-yr and 6-yr graduation rates; time to graduation; pass rates in GSC courses—Data available from IRAP 3. Senior Presentation rubric results—see Item 8.1 below 4. Graduate Writing Test (GWT) results—data available University Writing Center 5. Student Evaluations: Students enrolled in all GSC courses are asked to complete an Instructional Assessment form at the end of the quarter. Responses to question #7 “Considering your level of knowledge prior to taking the course, how much have you learned this quarter? provide direct evidence of how well students believe they are achieving the course learning outcomes 6. Evaluation Spreadsheets: All Geology faculty members keep careful records of scores on homework assignments, laboratory reports, examinations and presentations—all direct measures of student achievement. In many cases this data is itemized such that it can be linked to specific program outcomes. Because such data is organized on spreadsheets it can be extracted to statistically analyze student performance related to specific learning outcomes when such information is requested.
<p>Committee Comments</p>	
<p>7. List all tools, strategies, and methods to collect INDIRECT data/evidence used to determine students’ progress to meet learning outcomes.</p>	

<p>Department Report</p>	<ol style="list-style-type: none"> 1. Survey of Geology majors designed to link student career interests with specific academic advisor—see Item 8.2 below 2. Survey of Geology majors designed to gauge student interest in student thesis vs. senior project vs. additional course work in meeting the senior capstone requirement—see Item 8.2 below 3. Student Successes—These are listed in our 2012 Annual Report. In addition we showcase selected news items on our Geology Department home page http://geology.csupomona.edu/default.htm and provide highlights and descriptions in our annual Alumni Newsletter: <ol style="list-style-type: none"> A. Internships and graduate school placement of Geology majors—descriptions on Department website are updated regularly: http://geology.csupomona.edu/InternshipsAndFieldExperiencesSummer2012.pdf B. Student presentations at professional conferences: These are another positive measure of progress toward achieving outcomes of the Geology program. Refer to examples highlighted in our 2011 Alumni Newsletter: http://geology.csupomona.edu/newsletter/Mylonite2012Final.pdf C. Faculty mentored student research: Geology faculty have ample opportunity to assess student outcomes achievement through working with student assistants on a multitude of research projects. Some good examples from 2010-11 are showcased at http://geology.csupomona.edu/newsletter/Mylonite2012Final.pdf D. Scholarships are another reflection of student achievement of learning outcomes. See descriptions and photos of award ceremony at http://geology.csupomona.edu/newsletter/Mylonite2012Final.pdf E. Spreadsheet of placement of graduating students in Geoscience-related jobs—Department updates this annually—an example is posted at http://geology.csupomona.edu/AttachmentsQualitativeCriteriaGSC.pdf <p>Employment information is important for assessing the relevance of our learning outcomes to actual areas of fruitful employment. Employers hire our students because of what they have learned, thus the data provides validation here.</p> 4. Faculty discussions and anecdotes about student learning progress and achievements in specific GSC courses
<p>Committee Comments</p>	<p style="background-color: #cccccc;">8. Provide at least one example from the last two years of a learning outcome that has been evaluated, the evaluation method used, and the data/evidence collected. Give a short description of the process used to collect and interpret the evidence.</p>

<p>Department Report</p>	<p>1. Senior Presentation rubric--During Fall 2012 we developed a new rubric (see Attachment) for faculty evaluation of GSC 462 oral presentations. This rubric improves on the previous rubric (see 2012 Geology Assessment report) in that it contains specific criteria for different levels of achievement in the various categories. Individual faculty members score the presentations, with data tabulated by Department Chair to yield composite score. Copies of the scored rubrics are returned to the faculty supervisor, who shares results with the student</p> <p>2. Geology Major Questionnaire—We designed a questionnaire for Geology majors (see Attachment) during Fall Conference, 2012 and implemented it at our annual student meeting on October 4. The survey was also e-mailed to majors unable to attend the meeting. 30 responses were received from ~75 majors, with results compiled by the Department Chair. Intents of the questionnaire were to a) gather information about background and academic preparation of our majors, b) assess career interests for better matching of faculty academic advisors, and c) assess degree of student interest a written senior thesis vs. senior project vs. additional course work in meeting the senior capstone requirement.</p>
<p>Committee Comments</p>	
<p>9. Provide at least one example from the last two years of a finding that resulted from evaluation of an outcome and how the finding was used to revise the program and/or assessment plan. Give a short description of the analysis and the revision.</p>	

Department Report	<p>1. The new Senior Presentation rubric (Part 8.1 above) was implemented for six GSC 462 presentations during Winter and Spring quarters of 2013, with varying populations of Geology faculty participating. Faculty scores for these presentations ranged from 16 to 23, equivalent to a grade range of C to A. At this point, the sample size is probably too low to give meaningful statistics on individual learning categories. Upon reflection, most faculty participants indicated this rubric may be a better way to collectively assign student grades, rather than the grade being arbitrarily assigned by the advisor who may favor the student. Another common comment was that the rubric is too wordy and should be simplified and consolidated. That is a task for next year.</p> <p>2. Results of the questionnaire in Part 8.2 above were used to modify academic advisor assignments in some cases for those who responded. Evaluation of this part of the survey was somewhat difficult, thus a simpler numerical system will be used next year to rank student career interests. Of the 30 of 75 majors who responded the majority were interested in completing some kind of faculty-mentored research experience for their senior capstone requirement. Several indicated low interest in writing a formal senior thesis. The Geology Curriculum Committee considering these results n in revising the senior capstone requirement during Winter 2013. Other factors included scarcity of faculty resources and budgetary constraints on one-to-one supervision. A new miscellaneous proposal for the Senior Capstone was formalized and sent through consultation process. This will be implemented during the 2014-15 curriculum year:</p> <p>Current Structure: The current structure for meeting the “Senior Capstone” core requirement in the Geology Major provides for two alternatives. <u>Alternative 1:</u> GSC 461 (Senor Project-2 units) and GSC 462 (Senor Presentation-2 units) and GSC 463 (Senor Thesis-2 units), or <u>Alternative 2:</u> GSC 461 (Senor Project-2 units) and GSC 462 (Senor Presentation-2 units) and an approved Technical Writing class selected from ENG 301(Writing for the Professions-4 units) or COM 216 (Report Writing-4 units) or CE 362/A (Technical Communication and Documentation-3 units)</p> <p>Proposed Modification: Create an “Elective Core Course” category within the core course structure for the Geology major. Students would select 6 units from an approved list of courses. The proposed Elective Core structure retains the ability to satisfy Alternatives 1 and 2 while introducing a third alternative for meeting the “Senior Capstone” requirement by allowing enrollment in additional upper division GSC courses.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: left;">Elective Core Courses</th> </tr> <tr> <th style="width: 60%;">Course</th> <th style="width: 30%;"></th> <th style="width: 10%; text-align: center;">Units</th> </tr> </thead> <tbody> <tr> <td colspan="3"><i>6 units from:</i></td> </tr> <tr> <td>Senior Project/Presentation</td> <td style="text-align: center;">GSC 461/GSC 462</td> <td style="text-align: center;">(2/2)</td> </tr> <tr> <td>Senior Thesis</td> <td style="text-align: center;">GSC 463</td> <td style="text-align: center;">(2)</td> </tr> <tr> <td>300-400 level GSC course(s)</td> <td></td> <td style="text-align: center;">(2-6)</td> </tr> <tr> <td>Writing for the Professions or Tech Com. & Documentation</td> <td style="text-align: center;">ENG 301 CE 362/362A</td> <td style="text-align: center;">(4) (2/1)</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total Units</td> <td style="text-align: center;">6</td> </tr> </tbody> </table> <p>Meanwhile, given the recent 3X to 4X increase in Geology majors who require a senior capstone, Geology faculty are moving toward a model in which groups of students are mentored together on a common research project, with individuals presenting results of specific parts of the project</p>	Elective Core Courses			Course		Units	<i>6 units from:</i>			Senior Project/Presentation	GSC 461/GSC 462	(2/2)	Senior Thesis	GSC 463	(2)	300-400 level GSC course(s)		(2-6)	Writing for the Professions or Tech Com. & Documentation	ENG 301 CE 362/362A	(4) (2/1)	Total Units		6
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Committee Comments	
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10. Description of program assessment activities to be undertaken in the next year. Be reasonable, but be active!

<p>Department Report</p>	<ol style="list-style-type: none"> 1. Revise and consolidate/ shorten Senior Presentation rubric given comments provided by Dr. Richard Kallan, Professor of Communications 2. Design and implement survey for incoming Freshman and Transfer students to be given during orientation. This will provide data on student background and course preparation as well as student career interests useful for matching the student to an appropriate faculty academic advisor 3. Design and implement Poster Presentation rubric for GSC 462 students who opt to present a poster rather than talk 4. Experiment with group mini-research projects to satisfy the Senior Project requirement; discuss potential methods to assess student learning beyond the standardized presentation rubrics
<p>Committee Comments</p>	<p style="background-color: #cccccc; height: 30px;"></p>

Oral Presentation Assessment Rubric for Geoscience Talks

Total Score: /24

Presenter: _____ Date: _____ Presentation Title: _____ Evaluator: _____

Achievement Level	Organization / Clarity	Science Content	Style / Delivery	Use of Visual Aids	Integration of Knowledge	Response to Questions
Excellent (4)	<ul style="list-style-type: none"> -Well thought out and balanced presentation of introduction, methods, data presentation, results, discussion and conclusions -Introduction clearly states project objectives -Project significance well-articulated -Conclusions are clear and relevant -Uses proper technical language 	<ul style="list-style-type: none"> -Identifies the research question and objectives -Has advanced understanding of experimental approach and significance -Critically evaluates methods, results and/or conclusions -Addresses alternative interpretations -Recognizes implications for future work -Scientifically rigorous with previous works well-researched and cited 	<ul style="list-style-type: none"> -Uses time wisely and efficiently -Logical progression of topics with smooth transitions -Speaks with good pacing -Makes eye contact and does not read from notes -Uses engaging tone and vocabulary 	<ul style="list-style-type: none"> -Excellent, well-placed images -Charts or maps summarize data and/or conclusions -Well-sized and with clear labels and/or legible text -Good contrast and color choices -Minimal use of text -Figures and images well-explained and described in detail -Sources of borrowed figures or data are cited 	<ul style="list-style-type: none"> -Integrates research findings into a broader context -Understands implications of data or method -Acknowledges unresolved questions and identifies future avenues for investigation -Convincingly supports arguments or explanations with data and/or references to other works 	<ul style="list-style-type: none"> -Anticipates most audience questions -Understand audience questions -Can integrate knowledge to answer questions -Thoroughly responds to all questions posed
Good (3)	<ul style="list-style-type: none"> -Spends too much time on introduction -Clear separation of introduction, body, conclusions -Understands significance of project -Conclusions make good sense -Uses proper technical language 	<ul style="list-style-type: none"> -Identifies the research question -Has basic understanding of experimental approach and significance -Critically evaluates methods, results and/or conclusions -Acknowledges alternative interpretations -Previous works well-researched but not formally cited 	<ul style="list-style-type: none"> -Good eye contact -Finishes with sufficient time for questions -Reads from notes occasionally -Speaks well but sometimes backtracks -Uses good tone and vocabulary 	<ul style="list-style-type: none"> -Excellent images but not well placed -Charts or maps display relevant data -Size and labels are clear -Good contrast and color choices -More text than needed, but generally legible -Most figures and images well-explained 	<ul style="list-style-type: none"> -Supports arguments or explanations with data -Minimally integrates research findings to a broader context -Shows some understanding of implications of data or method -Identifies some future avenues for investigation 	<ul style="list-style-type: none"> -Does not anticipate audience questions -Understands most audience questions -Can integrate knowledge to answer questions -Responds to most questions posed
Adequate (2)	<ul style="list-style-type: none"> -Talk a bit disorganized -Introduction presented but project objectives and conclusions not clear -Project significance somewhat uncertain -Some effort to use proper language 	<ul style="list-style-type: none"> -Research question a bit unclear -Description of experimental approach is somewhat confused -Methods, results and/or conclusions presented but not evaluated -Alternative interpretations not acknowledged or addressed -Some previous works mentioned but not formally cited 	<ul style="list-style-type: none"> -Presentation poorly timed (either too long to accommodate questions or too short) -Jumps from topic to topic with abrupt transition -Makes little eye contact -Some hesitation and uncertainty apparent -Speaks with monotone; non-engaging delivery -Presentation 	<ul style="list-style-type: none"> -Some labels and legends are unclear -Some charts or maps irrelevant or redundant -Size of some illustrations too small -Too much detail, not always legible -Large blocks of text difficult to absorb -Figures could use better explanation -Contrast and color choices need work 	<ul style="list-style-type: none"> -Does not integrate the work or method into a broader context -Incomplete support for arguments or explanations -Makes some errors in interpretation and application of data or method -Makes few connections between data, method and conclusions 	<ul style="list-style-type: none"> -Does not anticipate audience questions -Misunderstands some questions; answers something else instead -Some basic knowledge lacking in responses -Often responds poorly to questions
Inadequate (1)	<ul style="list-style-type: none"> -Haphazard presentation of information -Talk difficult to follow -Does not understand significance of project Introduction and/or conclusions are missing or insufficient -Unclear language 	<ul style="list-style-type: none"> -Does not understand research question -Does not understand experimental approach or significance -Results are incomplete and poorly presented -Previous works not mentioned 	<ul style="list-style-type: none"> -Presentation poorly timed -Jumbled topics with no logical progression -Makes no eye contact; reads from notes -Hesitation and uncertainty are obvious -Speaks with monotone; non-engaging delivery 	<ul style="list-style-type: none"> -Insufficient illustrations; too many text slides -Labeling is unclear -Images too small to see -No logical placement of images -Most text is illegible -Figures poorly explained -Poor color contrast 	<ul style="list-style-type: none"> -Does not integrate the work or method into a broader context -Makes little effort to support arguments or explanations -Misinterprets information -Makes no connections between data, method and conclusions -Lacks logic 	<ul style="list-style-type: none"> -Either makes no effort to respond to questions or does so poorly
No Effort(0)						

General Comments:

Questionnaire for Geology Majors—October 4, 2012

****Please return to the Geology Department Office, Room 8-242****

The Geology faculty are exploring possible changes to Student Academic Advising procedures and the Senior Thesis requirement of the Geology curriculum. We request student input below. Your responses are not binding because we know your priorities and interests may change over time.

Name: _____ Academic Level (senior, junior, etc) _____

How did you join the Geology Department? (Circle one) **Freshman** **Transfer** **Change of Major** **Double Major**

If you started as a **freshman**, please indicate your high school here: _____

If you **transferred**, please indicate your previous institution(s) here: _____

If you **changed major** or **double major**, please indicate your previous/other major here: _____

What attracted you to the Geology major? (circle all that apply) **Job opportunities** **Field work** **Curriculum**
Other (please explain)

What attracted you to this school? (circle all that apply). **Location** **Reputation** **Other (please explain)**

Academic Advisor Assignment. Our approach has been to randomly assign an academic advisor. However, it may be possible to assign an advisor based on your career interests. Please **mark an X** next to those geoscience disciplines of current interest to you. You may also use numbers **1, 2, 3**, etc. to prioritize your favorite disciplines. **If you leave this section blank, an academic advisor will be randomly assigned to you. You may choose to change academic advisor at any time.**

Hydrogeology/Groundwater Processes General Geophysics/Shallow Exploration Methods
 Seismology/EQ Studies Geochemistry/Water Quality Mineral Exploration/Mining
 Neotectonics/Quaternary Geology Structural Geology/Tectonics Paleontology
 Geomorphology/Landscape Evolution Oceanography/Marine Science Atmospheric Science/Climate
 Engineering Geology Mineralogy/Petrology Sedimentary Geology Petroleum Geology

Senior Thesis Requirement. Given the large number of Geology majors and shortage of faculty members available to supervise individual projects, we are thinking about offering **three options** to satisfy the Senior Thesis curriculum requirement. Currently the 6-unit sequence consists of **GSC 461-Senior Project + GSC 462-Senior Presentation + GSC 463-Senior Thesis**, with an option of taking a technical writing course in lieu of GSC 463.

Please **rank** the three options below from **1 to 3**. Use **1** for **Most Likely to Pursue** and **3** for **Least Likely to Pursue**:

Option 1. Complete GSC 461, GSC 462 and GSC 463 under supervision of a Geology faculty member. GSC 461 involves acquiring and organizing data from the laboratory or field, or from on-line or library sources. GSC 462 involves analyzing and interpreting the data and presenting results in poster or oral format. GSC 463 requires completion of a formal written thesis document, formatted to Geology Department standards. Examples of past Geology Senior theses are posted on the Geology Department web site <http://geology.csupomona.edu/thesis.htm>. This full thesis option is recommended for students intending to apply to graduate school.

Option 2. Complete GSC 461 and GSC 462; also take an approved Technical Writing class in lieu of GSC 463

Option 3. Complete one additional 4-unit Upper Division GSC course in lieu of GSC 461 and GSC 462; also take an approved Technical Writing class in lieu of GSC 463