Outline of Geology Department Assessment Plan

OGS Goals	Geology Program Learning Goals	Program Learning Objectives	Measure	Eval. Tools	Stan. of perform.	When	Who
Disciplinary knowledge	Students will be able to read and digest complex scientific papers in the discipline, assess competing hypotheses and reach rational and logical conclusions.	1a) Evaluates the scholarly significance and relevance within and beyond the discipline 1b) Recognizes possible implications of the text for contexts, perspectives, or issues beyond the assigned task 1c) Compares and evaluates multiple and diverse sources and viewpoints according to specific criteria appropriate for the discipline. 1d) Articulates an understanding of the multiple interpretive possibilities particular to a text.	1) Instructor assesses and evaluates in-class presentations and discussions using detailed rubric for standardized evaluations. 2) Instructor evaluates written responses from students. 3) GEOL596 (Cumulative exit exam)	Reading, writing and oral rubrics	Advanced, Proficient and Beginning	See Course Map	Instructor
Critical thinking / analysis	Students will be able to evaluate and interpret real-world data sets and use discipline-specific analytical tools to generate insight into discipline specific geologic problems.	2a) Uses specific inductive or deductive reasoning to make inferences regarding premises. 2b) Thoroughly identifies and addresses key aspects of the problem, 2c) Insightfully uses facts and relevant evidence from analysis to support and defend potentially valid solutions.	1) Instructor assesses and evaluates the strength and detail of the technical reports using a detailed rubric.	Analysis rubric	Advanced, Proficient and Beginning	See Course Map	Instructor
Communi-cation	Students will develop presentation skills and the ability to relay technical data and scientific concepts to diverse audiences.	3a) Main points are clear and organized effectively and support a clear purpose. 3b) Language is familiar to the audience and appropriate for the setting. 3c) The delivery is natural, confident, and enhances the message - posture, eye contact, smooth gestures, facial expressions, volume, and pace.	1) Instructor assesses the student's knowledge of topics, clarity of discussion and connection and engagement of the audience in classroom presentations and thesis edits.	Writing and oral rubrics	Advanced, Proficient and Beginning	See Course Map	Instructor

Outline of Geology Department Assessment Plan

Information literacy	Students will demonstrate the ability to obtain, assess, and analyze information from a variety of sources	4a) Students compare and evaluate multiple and diverse sources and viewpoints according to specific criteria appropriate to the discipline. 4b) Effectively synthesizes and integrates information from a variety of sources.	1) Instructor assesses student's abilities to make information literacy decisions using a detailed rubric.	Writing Rubric	Advanced, Proficient and Beginning	See Course Map	Instructor
Professional -ism	Students will demonstrate an understanding of professional integrity	5a) Students consistently and accurately cite ideas and information of others correctly in written and oral exercises. 5b) Students are properly attired and present clear and cogent presentations to audience in oral exercises.	1) Instructor assesses these outcomes using detailed rubrics	Writing and oral rubrics	Advanced, Proficient and Beginning	See Course Map	Instructor
Intercultural / global perspectives	Students will demonstrate relevant knowledge and application of intercultural and / or global perspectives.	6a) Insightfully relates concepts and ideas from multiple sources and across geographic regions relative to geologic processes and hazards. 6b) Evaluates the scholarly significance and relevance within and beyond the discipline and geographic region.	1) Instructor assesses this outcome using detailed rubrics	Reading and analysis rubrics	Advanced, Proficient and Beginning	See Course Map	Instructor

Outline of Geology Department Assessment Plan

Program Learning Goals

The Geology Department has six Program Learning Goals (PLG's) that closely parallel the Office of Graduate Studies PLG's. The Geology Department goals are outlined as follows:

1. Students will be able to read and digest complex scientific papers in the discipline, assess competing hypotheses and reach rational and logical conclusions.

2. Students will be able to evaluate and interpret real-world data sets and use discipline-specific analytical tools to generate insight into discipline specific geologic problems.

3. Students will develop presentation skills and the ability to relay technical data and scientific concepts to diverse audiences.

4. Students will demonstrate the ability to obtain, assess, and analyze information from a variety of sources

5. Students will demonstrate an understanding of professional integrity

6. Students will demonstrate relevant knowledge and application of intercultural and / or global perspectives.

Program Learning Outcomes

These overall program learning goals are assessed throughout our graduate curriculum through a series of Program Learning Outcomes (PLO's). The PLO's are outlined below for each of the PLG's.

PLG 1 - Students will be able to read and digest complex scientific papers in the discipline, assess competing hypotheses and reach rational and logical conclusions.

PLO 1 - 1a) Evaluates the scholarly significance and relevance within and beyond the discipline.

1b) Recognizes possible implications of the text for contexts, perspectives, or issues beyond the assigned task.

1c) Compares and evaluates multiple and diverse sources and viewpoints according to specific criteria appropriate for the discipline.

1d) Articulates an understanding of the multiple interpretive possibilities particular to a text.

PLG 2 - Students will be able to evaluate and interpret real-world data sets and use discipline-specific analytical tools to generate insight into discipline specific geologic problems.

PLO 2 - 2a) Uses specific inductive or deductive reasoning to make inferences regarding premises.

2b) Thoroughly identifies and addresses key aspects of the problem.

2c) Insightfully uses facts and relevant evidence from analysis to support and defend potentially valid solutions.

PLG 3 - Students will develop presentation skills and the ability to relay technical data and scientific concepts to diverse audiences.

PLO 3 - 3a) Main points are clear and organized effectively and support a clear purpose.

3b) Language is familiar to the audience and appropriate for the setting.

3c) The delivery is natural, confident, and enhances the message - posture, eye contact, smooth gestures, facial expressions, volume, and pace.

PLG 4 - Students will demonstrate the ability to obtain, assess, and analyze information from a variety of sources.

PLO 4 - 4a) Students compare and evaluate multiple and diverse sources and viewpoints according to specific criteria appropriate to the discipline.

4b) Effectively synthesizes and integrates information from a variety of sources.

PLG 5 - Students will demonstrate an understanding of professional integrity

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PLO 5 - 5a) Students consistently and accurately cite ideas and information of others correctly in written and oral exercises.

5b) Students are properly attired and present clear and cogent presentations to audience in oral exercises.

PLG 6 - Students will demonstrate relevant knowledge and application of intercultural and / or global perspectives.

PLO 6 - 6a) Insightfully relates concepts and ideas from multiple sources and across geographic regions relative to geologic processes and hazards.

6b) Evaluates the scholarly significance and relevance within and beyond the discipline and geographic region.

Curriculum Map of Graduate Geology Courses

The curriculum map that follows outlines where in the graduate program the 6 PLG's are evaluated. Courses GEOL200, GEOL275 and GEOL290 are core, required classes for all students advancing through the M.S. Geology program. All students who successfully navigate the Program will either complete a master's thesis (GEOL500) or take the comprehensive exam (GEOL596).

COURSE	COURSE TITLE	PLG 1	PLG 2	PLG 3	PLG 4	PLG 5	PLG 6
GEOL200	Research Methods	X	X	X		X	X
GEOL275	Quantitative Research Methods	X	X	X	X		
GEOL290	Regional Geology of the Western US	X	X	X	X	X	
GEOL202	Aqueous Geochemistry	X	X	X	X	X	
GEOL208	Groundwater Modeling	X	X	X	X	X	
GEOL212	Geologic Remote Imaging	X		X	X	X	X
GEOL213	Advanced Structural Geology	X	X	X	X	X	X

GEOL218	Applied Geophysics	X	X	X	X		
GEOL220	Surficial Processes	X	X	X	X	X	X
GEOL227	Advanced Hydrogeology	X	X	X	X	X	X
GEOL240C	Advanced Volcanology	X		X	X	X	X
GEOL500	Masters Thesis	X	X	X	X	X	X
GEOL596	Comprehensive Examination	X	X	X	X		

Assessment Plan

The M.S. Geology program is just getting underway (Fall, 2015) after being administratively closed for several years. With the construction of this assessment plan, Geology will begin collecting assessment data in the Fall, 2016 semester. Pending the continued development of assessment at the graduate level, it is anticipated that the M.S. Geology program collect assessment data every semester that classes are held and will review and assess that data every five years.

Assessment Tools

The Geology Graduate Program has developed four different assessment rubrics to be used in the overall evaluation of the program. Those rubrics are reading, writing, oral presentation and analysis and ultimately address all six of the PLG's. Each rubric consists of three standard of performance levels (beginner (1), proficient (3) and advanced (5)) that will be assessed for each student on each rubric required activity. Numerical values are assigned to each standard of performance which allows the grader some range within each performance standard. Within the rubric are descriptions for each level of performance that assessors will look for. For example, when determining the problem solving skills in the analysis rubric of a student, the difference between the advanced, proficient and beginning standards are as follows:

Advanced - ***thoroughly*** identifies and addresses key aspects of the problem,
insightfully uses facts and relevant evidence from analysis to support and defend potentially valid solutions.

Proficient - identifies and addresses key aspects of the problem,
uses facts and relevant evidence from analysis to develop potentially valid conclusions or solutions.

Beginning - identifies and addresses ***some*** aspects of the problem;

develops possible conclusions or solutions ***using some inappropriate*** opinions and information from analysis.

The four assessment rubrics are located in Appendix A of this report.

Lines of Evidence

Direct lines of evidence will ultimately be used to reach assessment decisions regarding program effectiveness. The Geology Department is always open to indirect assessments that come our way regarding the effectiveness of the program but with the exception of occasional class queries will not be a primary source for assessment data.

Program Learning Outcomes	Direct	Indirect
1a) Evaluates the scholarly significance and relevance within and beyond the discipline 1b) Recognizes possible implications of the text for contexts, perspectives, or issues beyond the assigned task 1c) Compares and evaluates multiple and diverse sources and viewpoints according to specific criteria appropriate for the discipline. 1d) Articulates an understanding of the multiple interpretive possibilities particular to a text.	• Reading and presentation assignments in core and elective courses	Possible mid-course assessments Alumni surveys
2a) Uses specific inductive or deductive reasoning to make inferences regarding premises. 2b) Thoroughly identifies and addresses key aspects of the problem, 2c) Insightfully uses facts and relevant evidence from analysis to support and defend potentially valid solutions.	• Analytical assignments in elective courses. • G-500 thesis • G-596 comprehensive exam	Possible mid-course assessments Alumni surveys
3a) Main points are clear and organized effectively and support a clear purpose. 3b) Language is familiar to the audience and appropriate for the setting. 3c) The delivery is natural, confident, and enhances the message - posture, eye contact, smooth gestures, facial	• Presentation assignments in core and elective courses • Thesis defense	Possible mid-course assessments Alumni surveys

expressions, volume, and pace.		
4a) Students compare and evaluate multiple and diverse sources and viewpoints according to specific criteria appropriate to the discipline. 4b) Effectively synthesizes and integrates information from a variety of sources.	• Reading, writing and presentation assignments in core and elective courses	Possible mid-course assessments Alumni surveys
5a) Students consistently and accurately cite ideas and information of others correctly in written and oral exercises. 5b) Students are properly attired and present clear and cogent presentations to audience in oral exercises.	• Writing assignments • Thesis writing and culminating exam • Presentation assignments in core and elective courses • Thesis defense	Possible mid-course assessments Alumni surveys
6a) Insightfully relates concepts and ideas from multiple sources and across geographic regions relative to geologic processes and hazards. 6b) Evaluates the scholarly significance and relevance within and beyond the discipline and geographic region.	• Presentation assignments in core and elective assignments • Writing assignments in core and elective classes	Possible mid-course assessments Alumni surveys