

# **2012-2013 Undergraduate Academic Assessment Plan**

Geological Sciences

Liberal Arts & Sciences

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# B.S. Geological Sciences: CLAS Undergraduate Academic Assessment Plan

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## Mission Statement

The Department of Geological Sciences is part of the College of Liberal Arts and Sciences. Our principal mission is to train students broadly in Earth Sciences and lead them to an understanding into the history of our planet, its resources (and their sustainability), the marine and terrestrial environments and global climate change (both past and present). Our students will be prepared to enter the workforce or continue on to graduate programs across the country and throughout the world. Our mission aligns with the UF and CLAS missions to discover, teach and engage our students.

## Student Learning Outcomes (SLOs, CK=Content Knowledge, CT=Critical Thinking; C=Communication)

<https://catalog.ufl.edu/ugrad/current/liberalarts/alc/geology-bs.aspx>

Existing SLOs in the 2012-13 undergraduate catalog:

1. Know the basic concepts, theories and observational findings related to earth materials and processes.
2. Understand minerals and rocks.
3. Understand geologic time, stratigraphy and landforms.
4. Analyze data in the published literature.
5. Synthesize analog and digital datasets to produce geologic maps.
6. Apply the scientific method to the analysis of published and self-generated data.
7. Use computers for the presentation of geologic maps and data.
8. Work in teams to solve geologic problems and to present the results of such collaboration effectively.

Revised SLOs for the 2013-14 undergraduate catalog:

Content

1. Identify, describe and define the basic concepts, theories and observational findings related to earth materials and processes.)
2. Identify and describe minerals and rocks.
3. Define geologic time, stratigraphy and landforms.

Critical Thinking

4. Analyze data in the published literature.

5. Synthesize analog and digital datasets to produce geologic maps.
6. Apply the scientific method to the analysis of published and self-generated data.

Communication

7. Use computers for the presentation of geologic maps and data.
8. Solve geologic problems in teams and present the result of such collaboration effectively.

New/Revised SLOs, 2013-14*	Link to 2012-13* SLOs
<b>Content</b>	
Identify, describe and define the basic concepts, theories and observational findings related to earth materials and processes.)	Know the basic concepts, theories and observational findings related to earth materials and processes.
Identify and describe minerals and rocks.	Understand minerals and rocks.
Define geologic time, stratigraphy and landforms.	Understand geologic time, stratigraphy and landforms.
<b>Critical Thinking</b>	
Analyze data in the published literature.	Analyze data in the published literature.
Synthesize analog and digital datasets to produce geologic maps.	Synthesize analog and digital datasets to produce geologic maps.
Apply the scientific method to the analysis of published and self-generated data.	Apply the scientific method to the analysis of published and self-generated data.
<b>Communication</b>	
Use computers for the presentation of geologic maps and data.	Use computers for the presentation of geologic maps and data.
Solve geologic problems in teams and present the result of such collaboration effectively.	Work in teams to solve geologic problems and to present the results of such collaboration effectively.

\*undergraduate catalog dates

## Curriculum Map

Curriculum Map for: Geological Sciences

Program: Bachelor of Science

College: Liberal Arts & Sciences

Key: Introuced

Reinforced

Assessed

Courses SLOs	GLY2010C	GLY2100C	GLY3200C	GLY4310C	GLY4790C*
<b>Content Knowledge</b>					
#1	I	R	R	R	A Observation
#2	I	R	R	R	A Observation
#3	I	R	R	R	A Observation
<b>Critical Thinking</b>					
#4	I	R	R	R	A Observation
#5		I		R	
#6	I	R	R	R	A Observation
<b>Communication</b>					
#7		I		R	A Observation
#8	I	R	R	R	A Observation

**\*GLY4790C- Capstone course includes 6 weeks of practical field exercises and mapping including observation and data collection in New Mexico and western USA.**

## Assessment Cycle

The assessment cycle is shown in tabular form (see below). Evaluation of SLOs will consist of review by a team of faculty (one Full, one Associate, one Assistant Professor along with the Chair). Faculty will be asked to provide materials (described in methods and procedures) for the evaluation process. Materials will be made available to the team in August-September of the assessment year and the team will formulate a list of improvement actions by December and disseminate those materials in January of the following year. Full review (all areas will be conducted every 5 years).

## Assessment Cycle Chart

Assessment Cycle for: Geological Sciences

Program: Bachelor of Science \_\_\_\_\_

College: Liberal Arts and Sciences \_\_\_\_\_

Analysis and Interpretation:

August-September

Improvement Actions:

December

Dissemination:

January

SLOs	Year	10-11	11-12	12-13	13-14	14-15	15-16
<b>Content Knowledge</b>							
#1		x			x		x
#2		x	x			x	x
#3		x		x		x	x
<b>Critical Thinking</b>							
#4		x			x		x
#5		x	x	x		x	x
#6		x			x		x
<b>Communication</b>							
#7		x	x		x		x
#8		x			x		x

## Methods and Procedures

Previous

### SLO Assessment Matrix for 2012-13

2012-13 Student Learning Outcome	Assessment Method	Measurement Procedure
Identify, describe and define the basic concepts, theories and observational findings related to earth materials and processes.	Observation	
Identify and describe minerals and rocks.	Observation	
Define geologic time, stratigraphy and landforms.	Observation	
Analyze data in the published literature.	Observation	
Synthesize analog and digital datasets to produce geologic maps.		
Apply the scientific method to the analysis of published and self-generated data.	Observation	
Use computers for the presentation of geologic maps and data.	Observation	
Solve geologic problems in teams and present the result of such collaboration effectively.	Observation	

### Corrected

### SLO Assessment Matrix for 2013-14

2012-13 Student Learning Outcome	Assessment Method	Measurement Procedure
Identify, describe and define the basic concepts, theories and observational findings related to earth materials and processes.	Labs, Exams, Projects	Projects, labs and exams scored according to rubric
Identify and describe minerals and rocks.	Labs, Exams, Projects	Projects, labs and exams scored according to rubric
Define geologic time, stratigraphy and landforms.	Labs,, Exams, Projects	Projects, labs and exams scored according

		to rubric
Analyze data in the published literature.	Paper/Project, Exams	Projects, labs and exams scored according to rubric
Synthesize analog and digital datasets to produce geologic maps.	Labs, Projects, Exams	Projects, labs and exams scored according to rubric
Apply the scientific method to the analysis of published and self-generated data.	Labs, Projects, Exams	Projects, labs and exams scored according to rubric
Use computers for the presentation of geologic maps and data.	Labs, Projects, Exams	Projects, labs and exams scored according to rubric
Solve geologic problems in teams and present the result of such collaboration effectively.	Labs, Projects, Exams	Projects, labs and exams scored according to rubric

## Direct Assessments

- (1) Projects (in GLY4790) to reinforce a holistic understanding of the Student Learning Outcomes (especially communication and critical thinking).
- (2) Projects, Exams and Self-Evaluations conducted in the capstone course GLY4790 (Field Camp, New Mexico). Students work individually and in teams to produce industry/publication quality maps and reports on targeted field regions. Projects/Reports increase in complexity and scope during the class. All areas of the Student Learning Outcomes are evaluated by 4-5 instructional staff (typically two professors and two-three upper-level graduate students).
- (3) Lab Component: Performance in most of our courses are based on both theory (generally lecture-based) and practice (lab-based). The latter are particularly well-suited to reinforcing SLO's 4-8.

## Indirect Assessments

- (1) Review of Course Syllabi to check for appropriate inclusion of student learning outcomes.
- (2) Review of End Course examinations (grade distribution) to check for appropriate levels of success in meeting the student learning outcomes.
- (3) Meet with Departmental Advisory Committee (composed of individuals in industry, government and academia) for a discussion on how our graduates are performing on the job.
- (4) Document (through exit interviews) the number of graduates continuing on in higher learning, industry, government and other occupations.
- (5) Senior Thesis- Students who wish to pursue research projects (usually for Honors designation, but not exclusively) will conduct independent research projects under the direct supervision of a faculty adviser. Research projects are often submitted for publication/presentation. We maintain a record of these research projects and the quantity and quality of the resulting publications (via citation records) are available.



Rubric (GLY4790: Field Camp Projects)

	Satisfactory	Unsatisfactory
Knowledge	Meets or excels in responding appropriately to the assignment. Is able to produce professional quality (accurate/detailed) geological maps, stratigraphic columns along with written reports.	Fails to respond appropriately to the assignment. Produces inferior quality or inaccurate maps/reports.
Critical thinking	Guides the reader through a logical sequence of reasoning and interprets evidence. Explains connections between the evidence and the main idea. Makes key observations/connections to regional geology on field projects.	May not consistently show a logical progression of ideas. Has trouble creating a big picture of regional geology in the context of the project.
Communication	Effective presentation of field projects/summary of findings along with answering questions in the field posed by instructors/teaching assistants in a clear and concise manner.	Presentations lack detail and clarity. Unable to answer questions in the field in a clear and concise manner.

## Assessment Oversight

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