

Reconsidered Geology Department Assessment Plan

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Department Student Learning Statement

The Geology Department serves a large number of both non-majors and majors at Macalester College. Our goal is to prepare students for a life of engaged citizenship in a rapidly changing and increasingly globalized world through a scientific understanding of the Earth, its history, natural systems, resources, human interactions with the earth, and recent global change. In the context of the liberal arts tradition, we also endeavor to inspire in our students to an appreciation of the natural world and a life-long passion for learning about it. These goals are accomplished through challenging courses that emphasize hands-on learning, field study, and the use of state-of-the-art instrumentation.

Department Learning Goals and Outcomes

In our introductory courses (e.g., Dinosaurs, Geocinema, Exploring the Solar System, Dynamic Earth and Global Change, History and Evolution of the Earth), which serve both non-majors and majors alike, our goals for student learning are: (1) to understand the fundamental materials and processes that characterize the origin and evolution of the Earth, (2) to develop basic skills in spatial, temporal, and systems thinking, and (3) to develop a higher-order reasoning skills (e.g., scientific method, analytical and critical thinking, quantitative reasoning) for investigating important questions about the Earth and environment.

Students who complete a Bachelor of Arts degree in geology will:

- understand fundamental geologic concepts, processes, and materials, and will be able apply this knowledge to address common questions in the Earth sciences
- approach the world like a geologist (e.g., skilled in managing ambiguity; able to think spatially and temporally; understanding of deep time; and able to understand complex interacting systems)
- be adept in using a wide range of methods and skills for investigating the Earth, including: the scientific method; critical thinking, quantitative, and analytical thinking; and basic research skills
- be able to effectively communicate scientific concepts, information, or implications in written, oral, and visual forms

Department Assessment Strategies

The Geology Department has been using several different instruments to assess the Geology Department Learning Outcomes (DLO's). These instruments are constantly being improved, and new instruments are being developed or adapted for our

assessment purposes. At this time, our efforts are focused on four different tools for assessing the DLO's: (1) knowledge surveys, (2) direct assessments, (3) science literacy concept inventory, and (4) the senior capstone. An outline of the meaningful, manageable, and sustainable assessment strategy is outlined in the table below.

Table of Department Learning Outcomes and Assessment Instruments

		Assessment Instruments Employed in Geology Department			
		Knowledge Surveys	Direct Assessment	Science Literacy Concept Inventory	Senior Capstone Project
Department Learning Outcomes	understand fundamental concepts, processes, and materials, and be able to apply this knowledge	indirect measure of breadth of knowledge and skills	direct measure of depth of skills & competencies	direct measure	direct measure
	approach the world like a geologist (e.g., managing ambiguity, spatial and temporal thinking)	indirect measure of breadth of knowledge and skills	direct measure of depth of skills & competencies	direct measure	direct measure
	adept in using a wide range of methods and skills for investigating the Earth	indirect measure of breadth of knowledge and skills	direct measure of depth of skills & competencies	direct measure	direct measure
	able to effectively communicate scientific concepts in written, oral, and visual forms				direct measure

Timeline for assessing DLO

Our department currently conducts all of the direct measures above. We plan to continue to assess all four of our outcomes every year using both direct and indirect measures. We will reevaluate and update our direct assessment tool (currently conducted in our Senior Seminar) in 2014.