

School of Geology Outcomes Assessment Plan

The School of Geology has established an Assessment Committee of three faculty members. This committee will use the methods outlined in this document to assess the outcomes of the undergraduate and graduate programs in geology. Before submission to the OSU Office of University Assessment, the annual outcomes assessment report is drafted by the committee and distributed to the Geology faculty for written comment, discussion, and approval. As required by the Office of University Assessment, the names of faculty and students will be omitted.

The School of Geology has made a concerted effort to promote effective assessment strategies that will maintain a standard of excellence for our undergraduate and graduate programs. A variety of direct and indirect measures of student learning have been developed. Assessment focuses on evaluating student achievement and will not be used for reappointment, promotion, or tenure evaluations or annual appraisals of faculty or staff. The School of Geology recognizes that assessment is integral to ongoing self-evaluation, development, and improvement of the program. The School of Geology faculty will periodically review, and if necessary, revise this assessment plan.

Degree Programs

B.S. in Geology

M.S. in Geology

Mission and Teaching Objective of the School of Geology

The mission of the OSU School of Geology is to study the composition of the Earth, the internal and external forces that shape it, and the geologic resources and hazards that affect the quality of life for humans. The School of Geology achieves this mission by pursuing excellence in research, teaching, and service. The objectives of the teaching program are:

- 1) recruit and retain outstanding undergraduate and graduate students;
- 2) provide a quality educational experience for all students through effective classroom, lab, and field-based instruction; and
- 3) prepare students for careers in business, industry, and government and for advanced studies in geology.

Desired Outcomes for All Geology Undergraduate Students

By the time students graduate with a B.S. degree in Geology, they are expected to be able to:

- 1) demonstrate understanding of the basic concepts in eight subject areas: physical geology, historical geology, mineralogy, petrology, sedimentology/stratigraphy, geomorphology, paleontology, and structural geology;

- 2) demonstrate technical skills in the collection and analysis of geologic data, critical-thinking skills, plus written and verbal communication skills;
- 3) apply geologic knowledge and skills to a range of problems faced by business, industry, government;
- 4) interpret the geology of an area, which is unfamiliar to the student, by the detailed examination of outcrops and data derived from them;
- 5) demonstrate the mapping skills necessary to generate meaningful geologic maps;
- 6) integrate data from several geologic disciplines to interpret her/his map and maps produced by others;
- 7) gain employment in the geology profession or advance to graduate studies in geology or an allied field; and
- 8) express positive feedback on their experience as undergraduate majors in the School of Geology.

Methods that are Used to Evaluate Undergraduate Student Achievement

The following methods will be used to evaluate undergraduate student achievement:

- 1) All of our majors in Geology are required to enroll in Geol 3546, a five-week long Field Geology course. This course represents a capstone course in that students are expected to demonstrate the knowledge of basic concepts and techniques (field and computer) in geology and apply them to achieve the following objectives:
 - a. develop a good understanding of the geology in an area they have not worked before;
 - b. interpret sedimentary environments based on field observations;
 - c. solve stratigraphic and structural problems encountered in the field
 - d. produce a correct and meaningful geologic map;
 - e. interpret their own map and maps produced by others;
 - f. write meaningful reports either from their own individual work or from data gathered by a team; and
 - g. work in harmony with their peers.

Students from geology programs at other universities also enroll for our course. Therefore, the performance of OSU geology students can be compared to the performance of students from other universities as well as the usual assessment against performance standards established by the instructor.

- 2) Graduating seniors will be given a standardized achievement test in Geology that contains questions in each of the eight areas identified in desired outcome #1 above: physical geology, historical geology, mineralogy, petrology, sedimentology/stratigraphy, geomorphology, paleontology, and structural

geology. Results of this test can be compared to results of other participating universities.

- 4) The School of Geology conducts a Student Exit Survey (copy attached). The survey contains both standard questions with numerical answers that can be tabulated as well as open-ended questions that request constructive feedback.
- 5) The School of Geology conducts a Job Placement Survey of students who graduated with their B.S. degree. The number of students employed in various categories of employment is tabulated.
- 6) The School of Geology compiles data on the “time to graduation” and “retention rates” for our majors. Reasons for students leaving the program will be evaluated.
- 7) The OSU Office of University Assessment conducts a survey of alumni of undergraduate programs once every two years, alternating with surveys of alumni of the graduate programs.
- 8) The GPA of undergraduate majors in geology will be reported and compared to the GPA of the College of Arts and Sciences and university.
- 9) Faculty will be asked for their general impressions of undergraduate student learning, including strengths and weaknesses.

Desired Outcomes for All Geology Graduate Students

By the time students graduate with a M.S. degree in Geology, they are expected to be able to:

- 1) search the research literature and summarize findings that lead to the formulation of a research question in geology;
- 2) develop research objectives and select methods of data collection and analyses that will meet those objectives;
- 3) demonstrate advanced technical skills (field, lab, computer) and critical-thinking skills appropriate to geology;
- 4) develop sound research proposals that include 1-3 above;
- 5) engage in collaborative team-building to plan and conduct research;
- 6) interpret and draw conclusions from data analyses;
- 7) disseminate research findings to appropriate audiences (i.e., thesis presentation, presentation at professional meetings, manuscripts for submission to professional journals);
- 8) conduct geologic investigations with a high degree of professionalism, including ethics, integrity, and responsibility;
- 9) gain employment in the geology profession or advance to graduate studies in geology or an allied field; and

- 10) provide feedback on their experience as graduate students in the School of Geology and how the program can be improved.

Methods that are Used to Evaluate Graduate Student Achievement

The following methods will be used to evaluate graduate student achievement:

- 1) Each graduate student is required to present their thesis or creative component to their graduate committee and interested faculty and students. The thesis defense is considered the “capstone” experience for graduate students. The outcome of the thesis defense will be reported. Reasons for students not passing will be reported and discussed.
- 2) The School of Geology conducts a Student Exit Survey (copy attached). The survey contains both standard questions with numerical answers that can be tabulated as well as open-ended questions that request constructive feedback.
- 3) The School of Geology conducts a Job Placement Survey of students who graduated with their M.S. degree. The number of students employed in various categories of employment is tabulated.
- 4) The School of Geology compiles data on the “time to graduation” and “retention rates” for our graduate students. Reasons for students leaving the program will be evaluated.
- 5) The OSU Office of University Assessment conducts a survey of alumni of graduate programs once every two years, alternating with surveys of alumni of the undergraduate program.
- 6) Student evaluations of courses and instructors are conducted for every course in every semester. The numerical scores will be tabulated.
- 7) Faculty will be asked for their general impressions of graduate student learning, including strengths and weaknesses.

How Data will be Integrated into Curriculum Planning and Program Improvement

The School of Geology Assessment Committee will produce a draft report of the findings and provide this to the rest of the faculty. After a sufficient time to review the draft report, a faculty meeting will be scheduled at which time all results will be discussed in an open and respectful manner. A final report will be approved by the faculty and provided to the OSU Office of University Assessment consistent with deadlines. The final report will enumerate specific measures by which the School of Geology intends to respond to areas of excellence and areas of needed improvement identified in the report.

On an informal, but regular basis, faculty share with each other what they are learning about student outcomes. Sometimes this occurs in faculty meetings, sometimes in committee meetings, and sometimes in hallway conversations. It is difficult to document this method of improving student learning, but faculty will be asked to share these reflections in the annual report.