



University of Dayton Geology Department Assessment Plan

Departmental Mission

The Department of Geology seeks to equip the citizen-scientists of tomorrow with the skills needed to understand and meet the evolving challenges of a complex planet. We seek to enhance understanding of planet Earth, its history and its processes and to support the human capacity to live sustainably on Earth through research and educational programs at the undergraduate and graduate level. The Geology Department offers undergraduate majors leading to the B.S. degree in Geology and Environmental Geology and a Graduate Certificate Program in Geographic Information Systems.

Learning Outcomes and Measures

The Geology Department has selected a set of assessment outcomes that map to the University-wide Learning Outcomes from *Habits of Inquiry and Reflection* as indicated below. These learning outcomes will be assessed through a three-year cycle, with two *HIR* outcome areas assessed each year.

Year 1: Scholarship and Practical Wisdom

Scholarship: All undergraduates will develop and demonstrate advanced habits of academic inquiry and creativity through the production of a body of artistic, scholarly or community-based work intended for public presentation and defense.

Pertinent Geology Department Student Learning Outcomes:

- Graduates will complete and publically present a capstone project that demonstrates research skills relevant to their careers.
- Graduates will be adequately prepared for graduate school.

Measures to be utilized:

- In conjunction with the second year review, all students will demonstrate basic proficiency in scientific literature research and synthesis. In their first two years, each student will satisfactorily complete at least one detailed synthesis on a scholarly topic in Geology or Environmental Geology.
- All graduating students will satisfactorily complete at least 3.0 credit hours of GEO498: Research and Thesis, GEO 477/478: Honors Thesis, GEO404: Problems in

- Geology or other capstone project with the approval of the Department with a substantive written report and oral presentation of results to campus and/or scientific communities.
- At least 75% of students seeking admission to graduate programs upon completion of their undergraduate degree in Geology or Environmental Geology at the University of Dayton will be successful.
 - At least 75% of graduating students will present research results or classroom projects at a professional conference, or through another professional outlet or venue such as a peer-reviewed publication, or at the annual Stander Symposium.
 - On the Annual Survey of Exiting Students, at least 75% of graduates will “agree” or “strongly agree” with the statement, “As an undergraduate in the Geology Department of the University of Dayton I believe I am adequately prepared for graduate school.”
 - On a survey of alumni to be administered three years after graduation, all students who indicated continued education as a first post-graduation career choice will have completed or be currently enrolled in graduate or advanced professional degree programs. In addition, at least 75% of alumni who have continued to post-graduate study will AGREE or STRONGLY AGREE with the statement, “I believe that my undergraduate experience at the University of Dayton adequately prepared me to succeed in my post-graduate studies.”

Practical wisdom: All undergraduates will develop and demonstrate practical wisdom in addressing real human problems and deep human needs, drawing upon advanced knowledge, values, and skills in their chosen profession or major course of study. Starting with a conception of human flourishing, students will be able to define and diagnose symptoms, relationships, and problems clearly and intelligently, construct and evaluate possible solutions, thoughtfully select and implement solutions, and critically reflect on the process in light of actual consequences.

Pertinent Geology Department Outcomes:

- Students will demonstrate a firm grasp of the basic principles of Geology as developed in the introductory sequence of Physical Geology, Historical Geology, and Mineralogy.
- All graduates will demonstrate a familiarity with the fundamentals of geological field investigation.
- Graduates will be adequately prepared for employment in the geologic and/or environmental arenas.
- Graduates will demonstrate an understanding of the relationship between science, culture, and society.
- Environmental Geology majors will display interdisciplinary knowledge that is significant for success in their field

Measures to be utilized:

- All students will pass a “Second Year Review” of basic knowledge in Geology. The average score on the first time taking the exam will exceed 80%.
- All physically able graduates will complete at least 15 days of intensive training in the fundamentals of field investigation, through course work in Field Geology and/or Environmental Instrumentation Laboratory, independent study and/or thesis work, and class field trips. In conjunction with this work they will demonstrate skills such as detailed note-taking and interpretation of observed field relationships, mapping of rock types or landforms at a variety of scales, detailed observation and description of earth materials (including measurement and descriptions of stratigraphic sections), and field-based sampling procedures and subsequent processing and analysis of samples in the laboratory.
- At least 75% of graduating students will complete an internship, summer research experience, summer job, student teaching (for dual degree students), or volunteer experience in an earth science-related field.
- On the Annual Survey of Exiting Students, over 75% of graduates will “AGREE” or “STRONGLY AGREE” with the statement, “As an undergraduate in the Geology Department of the University of Dayton I believe I am adequately prepared for a career in geology and/or environmental geology.”
- On a Post-graduate Survey of alumni to be administered three years after graduation, at least 75% of alumni will AGREE or STRONGLY AGREE with the statement, “I believe that my undergraduate experience at the University of Dayton adequately prepared me to pursue a career in earth and environmental sciences or related fields.”

Year 2: Vocation and Critical Evaluation of Our Times

Vocation: Using appropriate scholarly and communal resources, all undergraduates will develop and demonstrate ability to articulate reflectively the purposes of their life and proposed work through the language of vocation. In collaboration with the university community, students’ developing vocational plans will exhibit appreciation of the fullness of human life, including its intellectual, ethical, spiritual, aesthetic, social, emotional, and bodily dimensions, and will examine both the interdependence of self and community and the responsibility to live in service of others.

Pertinent Geology Department Student Learning Outcomes:

- Graduates in Geology and Environmental Geology will be able to describe and discuss how the vocation of Geology can be applied to address human needs and problems, and to improve human quality of life.
- Graduates in Geology and Environmental Geology will demonstrate basic professional practices such as resume-building, interviewing, networking, and discovery and exploration of post-graduate opportunities, whether in the work force or in post-graduate education.
- Graduates in Geology and Environmental Geology will proceed from the University of Dayton to satisfying post-graduate careers in a diversity of earth science, environmental, or other allied fields.

Measures to be utilized:

- All graduates in Geology and Environmental Geology will satisfactorily complete a professional practices seminar that includes constructing a resume, practice in interviewing, practice in finding employment opportunities and exploring graduate programs, and opportunities to network with alumni in Geology and Environmental Geology.
- At least 75% of graduates will either find employment in a geoscience-related field or will be accepted into a graduate program in their area of interest within 6 months of graduation.
- On the Annual Survey of Exiting Students, at least 75% of graduates will be able to cite at least one service, service-learning, or educational activity organized through the Geology Department that brought them into contact with members of a diverse or under-privileged community.
- On the Annual Survey of Exiting Students, over 75% of graduates will “agree” or “strongly agree” with the statement, “As an undergraduate in the Geology Department of the University of Dayton I enhanced my understanding of how factors such as race, class, cultural identity, religion or other manifestations of difference frame attitudes and vulnerabilities related to the many resources and hazards of planet Earth.”
- In exit interviews at least 75% of graduates will be able to articulately discuss how their experiences in the Geology Department deepened their awareness of the diverse ways that factors such as race, class, cultural identity, religion or other manifestations of difference frame attitudes and vulnerabilities related to the many resources and hazards of planet Earth.”

Critical Evaluation of Our Times Through multidisciplinary study, all undergraduates will develop and demonstrate habits of inquiry and reflection, informed by familiarity with Catholic Social Teaching, that equip them to evaluate critically and imaginatively the ethical, historical, social, political, technological, economic, and ecological challenges of their times in light of the past.

Pertinent Geology Department Student Learning Outcomes:

- Graduates in Geology and Environmental Geology will develop the capacity to critically analyze the great environmental challenges of our time.
- Graduates in Geology and Environmental Geology will understand and be able to articulate the role of science, and especially earth science, in the public sphere.
- Graduates in Geology and Environmental Geology will be able to articulately reflect on the ethical context of attitudes, belief systems, and decision-making related to the Earth system.

Measures to be utilized:

- On the Annual Survey of Exiting Students, over 75% of graduates will “agree” or “strongly agree” with the statement, “My education in Geology or Environmental Geology equipped me to analyze, understand and respond to contemporary issues in the relationship between Earth and human society.” In addition, they will be able to identify several such issues and the classes where they learned about them.

- In exit interviews, graduating students will be able to discuss how their education in Geology or Environmental Geology expanded their awareness and understanding of contemporary issues in Earth and society.
- All graduating students will be exposed to contemporary environmental issues through one or more of the following courses: GEO208: Environmental Geology, GEO295: Critical Issues in Earth and Society (beginning Spring 2012), SEE 301: Global Environmental Change and the Earth System, GEO303: Field Geology, or GEO308: Problems and Decisions in Environmental Geology.

Year 3: Community and Diversity.

Community: All undergraduates will develop and demonstrate understanding of and practice in the values and skills necessary for learning, living, and working in communities of support and challenge. These values and skills include accepting difference, resolving conflicts peacefully, and promoting reconciliation; they encompass productive, discerning, creative, and respectful collaboration with persons from diverse backgrounds and perspectives for the common purpose of learning, service, and leadership that aim at just social transformation. Students will demonstrate these values and skills on campus and in the Dayton region as part of their preparation for global citizenship.

Diversity: All undergraduates will develop and demonstrate intellectually informed, appreciative, and critical understanding of the cultures, histories, times, and places of multiple others, as marked by class, race, gender, ethnicity, religion, nationality, sexual orientation, and other manifestations of difference. Students' understanding will reflect scholarly inquiry, experiential immersion, and disciplined reflection.

Pertinent Geology Department Student Learning Outcomes:

- All students in the Department of Geology will feel welcomed and engaged in all departmental activities without regard to the diversity of their backgrounds or personal identities.
- All students in the Department of Geology will participate in Geology Field Camp where they will work and live together in a community that shares the common goals of learning and helping one another succeed in a non-traditional setting.
- Graduates in Geology and Environmental Geology will demonstrate an ability to work sensitively and constructively with others from diverse backgrounds and identities.
- Graduates in Geology and Environmental Geology will develop an appreciative and critical understanding of how factors such as race, class, cultural identity, religion or other manifestations of difference frame attitudes towards the Earth and its many resources and hazards. They will also develop a critical understanding of the vulnerability of diverse populations to hazards, exploitation or health risks resulting from natural resource extraction and production.

Measures to be utilized:

- On the Annual Survey of Exiting Students, all graduates will “agree” or “strongly agree” with the statement, “As an undergraduate in the Geology Department of the University of Dayton I felt welcomed and encouraged to participate in any and all departmental activities.”
- On the Annual Survey of Exiting Students, at least 75% of graduates will be able to cite at least one departmental activity that they regularly participated in.”
- On the Annual Survey of Exiting Students at least 75% of graduates will be able to cite at least one service, service-learning, or educational activity organized through the Geology Department that brought them into contact with members of a diverse or underprivileged community.
- On the Annual Survey of Exiting Students, at least 75% of graduates will “agree” or “strongly agree” with the statement, “As an undergraduate in the Geology Department of the University of Dayton I enhanced my understanding of how societal, cultural, religious or other factors frame attitudes and create vulnerabilities related to the many resources and hazards of planet Earth.”
- In exit interviews at least 75% of graduates will be able to articulate an appreciative understanding of how their experiences in the Geology Department deepened their awareness of the diverse ways that societal, cultural, religious or other factors frame attitudes and create vulnerabilities related to the many resources and hazards of planet Earth.
- Over a three year period, the percentage of graduating students in Geology who are female or who originate from historically disadvantaged minority communities will be approximately proportionate to the representation of such students in the University of Dayton student population.

Not Assessed by Geology Department:

Faith traditions: All undergraduates will develop and demonstrate ability to engage in intellectually informed, appreciative, and critical inquiry regarding major faith traditions. Students will be familiar with the basic theological understandings and central texts that shape Catholic beliefs and teachings, practices, and spiritualities. Students’ abilities should be developed sufficiently to allow them to examine deeply their own faith commitments and also to participate intelligently and respectfully in dialogue with other traditions.

Geology Department Student Learning Outcomes:

- No specific Geology Department educational outcomes map directly to the area of Faith Formation.

Measures to be utilized:

- This outcome will not be directly measured and assessed by the Geology Department. It is expected that Geology and Environmental Geology Majors at the University of Dayton will achieve this outcome through educational and co-curricular activities outside the Geology Department, including the Crossing Boundaries Diverse Faith Traditions requirement

Assessment Responsibilities

With the assistance of the Department Administrative Assistant, the Geology Department Assessment Committee will develop an annual assessment report based on multiple measures, which may include:

- 1) Compilation of presentations, publications, and senior theses authored or co-authored by current undergraduate students or recently graduated students based on work conducted at the University of Dayton.
- 2) Student performance on the annual second-year review.
- 3) Exit interviews and/or a questionnaire administered to graduating students by the chair of the Department Assessment Committee.
- 4) Compilation of results of a follow-up questionnaire to be sent to alumni three years after the date of their graduation.

The chair of the Geology Department Assessment Committee will present the full assessment report to the faculty for review and discussion at the first faculty meeting of the Fall semester each academic year. Faculty will also re-evaluate the assessment process at this time. After it is accepted and acted upon by the Department, the chair of the Geology Department will transmit a summary of Actions taken as a Result of Assessment to the Dean.

Assessment Schedule

The six chosen student learning outcomes will be assessed on a three-year cycle as outlined below:

- 2010-2011: Practical Wisdom and Scholarship
- 2011-2012: Departmental Community and Diversity
- 2012-2013: Vocation and Critical Evaluation of the Times

Data pertinent to student learning outcome assessment will be collected, tabulated and analyzed by the chair of the Geology Department Assessment Committee each year in consultation with and under the direction of the Geology Department Chair.

1. End of Each Academic Semester:

Department Assessment Committee conducts exit interviews and/or collects questionnaires from all graduating students.

2. April of each academic year:

The Assessment committee mails out a post-graduate survey to alumni three years after the date of their graduation, and collects, tabulates and evaluates their responses.

The Assessment committee compiles and tabulates presentations, publications, and senior theses authored or co-authored by current or recently graduated students based on work conducted while at the University of Dayton.

3. By the due date specified by the Dean each year:

The chair of the Department Assessment Committee completes a draft assessment report along with an executive summary for the University Assessment Committee and transmits to the Dean.

4. First faculty meeting, Fall Semester:

The chair of the Department Assessment Committee presents the annual assessment report to the faculty for discussion. The assessment process itself will also be discussed and re-evaluated at this time, and an assessment focus will be chosen for the year ahead.

5. The Assessment Committee will prepare a summary of the results of the assessment discussion and a report on Actions Taken as a Result of Assessment to be delivered to the Dean after being reviewed and approved by the Geology Department Chair.



Actions Taken as a Result of Assessment

Department / Program / Unit / Activity: Geology Department
 Date submitted:

1. Outcomes/objectives/goals reviewed:
2. Changes made since the last time this goal was reviewed: (If this was the first time this goal was reviewed skip to question 4.)
3. What prompted those changes? (previous assessment results, discussions with colleagues, etc) Were the changes effective?

4. After reviewing the assessment results the department/program/unit has decided to:

- Stay the course and continue to monitor; we're satisfied that this goal is being met
- Monitor the results and investigate causes; we may need to make changes in the future; we don't have enough information to make an informed decision yet
- Make changes (list below)
- Other:

Comments:

5. Changes to goal itself –

After working with this particular goal the department/program/unit has decided to:

- Keep the wording of this goal as is and keep the same measures
- Keep the wording of this goal but use different measures next time (list below)
- Keep these same measures but change the wording of the goal (list below)
- Change the wording of the goal *and* change the measures used (list below)
- Drop this goal entirely (list reason below)

Comments: