Academic Program Assessment Plan Geology MS

May 2017

Instruction in geology at the graduate MS level focuses on preparation of students to become practicing professional geologists in industry or to pursue, without deficiencies, doctorates at established programs. Students intending to enter the industrial workforce are encouraged to maintain a broad perspective with an emphasis in an area of geology that has a demonstrated record of past employment, such as petroleum geology or environmental geology. The greatest strength of the program in geology at the University of Arkansas is instruction in practical geologic interpretation, with emphasis on field relationships. This instructional strength includes all levels of teaching and supports an active research program that serves to strengthen the research and communication skills of the students through writing assignments, oral presentations, and participation in professional societies.

Program Goals

Students admitted to graduate study should have completed an undergraduate geology program similar to that required for the B.S. degree at the University of Arkansas. The program in Geology requires 30 graduate course credit hours, six of which will be derived from a thesis reporting the results of an original laboratory or field research problem. All course work, a thesis topic, and the final thesis must be approved by the student's thesis committee. This committee is selected by the student and the student's thesis director and will consist of a minimum of three members. At least two of the committee members will be chosen from geology faculty whose areas of expertise coincide with the research interests of the student.

Each student will complete a core curriculum consisting of a minimum of 12 hours selected from the following courses:

Geomorphology
Geophysics
Geochemistry
Sedimentary Petrology
Advanced Stratigraphy and Sedimentation

Student Learning Outcomes

Students earning the BS in Geology will:

- Have an appreciation for the environmental aspects of earth systems and potential impacts and hazards associated with human occupation.
- Be able to conceptualize the stratigraphic character of rocks in outcrop and from subsurface data, and sedimentological processes
- Recognize and understand the structural features of the earth in outcrop and in the subsurface and relate these to geophysical data representing the subsurface.

- Understand the geomorphic characteristics of the earth's surface and the mechanisms forming the earth's surface features.
- Understand the concepts of geologic time, the succession of life on earth through geologic time, and the tectonic forces acting on earth through geologic time.
- Have sufficient mathematical, chemistry and physics knowledge to be able to apply these fields to geologic settings and problems, as well as resource identification, development and management.
- Have the ability to communicate results of their efforts in written reports including the MS thesis, and orally to diverse audiences.

Assessment of Student Learning

Assessment Methods of Assessing Student Learning

Direct Methods

- Preparation and oral defense of a written thesis describing results of an original laboratory or field research problem

Indirect Methods

- Course grades – standard routine method used in each course in our program.
- Admission rates into PhD graduate programs and quality of the graduate program accepting our students.
- Placement rates of graduates into appropriate career positions and starting salaries.
- Student/alumni satisfaction with learning, collected through surveys, exit interviews, or focus groups – track our students to the extent possible. We also have an external advisory board that provides feedback annually on our curriculum and the quality of the students graduating from our program.
- Student participation rates in faculty research, publications and conference presentations.
- Honors, awards, and scholarships earned by students and alumni.

Timelines for Data Collection and Analysis

The MS program is designed to be completed in four academic semesters including completion and defense of the thesis. The culminating analysis of degree program success toward meeting the learning objectives includes completion of the core course sequence and 12 additional elective course hours with a minimum of 50% of these courses being graduate only courses. The final assessment occurs during the oral defense of the thesis before the thesis committee and the general public. As part of this defense the students are asked exit interview type questions such as what are your plans for future, and do you feel that your training here has prepared you to move onto the next level in academia or provide you sufficient background to be competitive for top-end employment in geology.

Our external advisory committee, which is composed of representatives from industry and local, state and federal government representatives, meets annually and provides feedback on our curriculum relative to their needs, as well as the quality of the students graduating from our program.

Use of Results

The adequacy of the core courses in the MS program in geology are reviewed annually by a faculty curriculum committee. Modifications of individual courses are the prevue of the faculty member teaching the courses in consultation with feedback from the geology faculty. Weaknesses in individual student answers to thesis defense questions are discussed with respect to the overall suit of courses the student took to complete the required 24 course credits of course instruction for the degree program. Deficiencies identified are relayed to faculty responsible for the individual courses so they can determine if a modification to the course content and/or delivery mechanisms are needed, or if the deficiency is more a result of student engagement in the course.

These examples indicate that ongoing assessment, analysis and review combined with implementation of course and program modifications are critical to maintaining a healthy viable program to meet our student learning goals/objectives and outcomes.

Department of Geosciences

Annual Academic Assessment Report

MS Geology

(May 2017)

Report annually to the Dean of the college/school the following:

- **Results of analysis of assessment of Student Learning Outcome**
  - 15 geology MS students defended their thesis during 2016-2017 academic year. Based on the quality of the student presentations and answers to questions posed it was agreed that the students were well prepared and had met the learning objectives and learning outcomes we expect. Exit interview questions posed to each student indicate that they are satisfied with the quality of the educational experience and feel that it has prepared them adequately for placement in PhD programs and/or employment in their chosen field.
- **Any changes to degree/certificate planned or made on the basis of the assessment and analysis**
  - None planned based on the 2016-2017 assessment period
- **Any changes to the assessment process made or planned.**
  - We plan to implement the following change for the 2017-8 assessment period
    - Exit survey for graduating seniors fashioned after Graduate SOCI exit survey