

Minnesota State University Moorhead
2007-2008 Assessment Report Cover Sheet

(An electronic version of this form can be accessed at <http://www.mnstate.edu/assess>)

Note: All non-accredited programs are required to complete this form. Include Assessment Reporting Forms for each learning outcome assessed.

Academic Program: Geoscience

Department: Anthropology and Earth Science

College: Social and Natural Sciences

Date: Nov 2007

1. Name(s) of Department Assessment Coordinator and/or Assessment Committee Members

Russ Colson, Rinita Dalan, Karl Leonard, Paul Sando

2. List of All Student Learning Outcomes. (List all outcomes, placing an asterisk (*) by the outcomes you are assessing this year.)

- *1. Ability to apply concepts and principles of geosciences in understanding Earth processes or relationships of people to the Earth.
- * 2. Competency in laboratory and field skills and ability to conduct a scientific investigation.
- 3. Ability to use and respond to literature and research in geosciences, including: use of library and research data, ability to interpret results of an investigation in science or social science research, comprehension of key ideas and evidence, understanding of arguments, and ability to communicate arguments and ideas in written and oral forms.

3. Describe how your program has addressed the comments from the Student Learning Outcomes Assessment Committee during the past two academic years? (If you have made changes to your plan, file a revised Assessment Plan Cover Sheet and Assessment Planning Form(s).)

Level of performance expected has been more explicitly stated

The Outcomes have been simplified (revised assessment plan attached) and the measures for each outcome more explicitly identified with that outcome.

Evidence that previous changes have worked are addressed in the report.

4. If you have received an Instructional Improvement Grant in the past two years, identify the outcomes on which the grant was based and provide a summary here of the results from your grant.

NA

5. Signatures

Department Chair or Program Director

Dean or Director

Required Attachments:

1. Assessment Reporting Forms
2. Records of department meetings when Assessment Report was discussed and approved.

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Instructions: Include this form for each student learning outcome assessed during the previous year. Include Assessment Report Cover Sheet.

Academic Program: Geoscience

1. Learning outcome assessed (please include the number of the outcome to correspond with the list on the cover sheet).

1. Ability to apply concepts and principles of geosciences in understanding Earth processes or relationships of people to the Earth.

2. Describe assessment measure used for this learning outcome (attach instrument or rubric)

- 1) Students will be tested with standardized instruments in their senior year (in Senior Seminar)
- 2) Faculty will meet to discuss how well students are understanding key concepts and principles in upper level courses

Geology instrument: Geology GRE (formerly offered by GRE for graduate-school bound geology students, but discontinued)

Geographical Sciences instrument: combination of questions from Praxis II tests and other sources

3. Expected/satisfactory student results (from assessment plan)

Students will be compared with average graduate-school bound students (both according to standardized tests and according to faculty judgements) with the expectation that our average graduates, only some of whom will continue to graduate school, should rank in the top three quarters of graduate-school bound students.

4. Actual results from the past year (attach additional information, if necessary)

Raw Scores for Geographical Sciences majors (this is the first administration of this test and no base line is yet established) = 66.3% (high 70, low 63)

Raw Scores for Geology majors (GRE exam) = 39.3% (high 52%, low 20%)

Average score on Geology GRE for graduate school bound graduates nationwide = 39.6%.

Faculty discussion (Oct 26 and Nov 2, 2007): Faculty felt that students reaching their fourth year are much stronger now compared to two years ago prior to modification in our program. Students are showing strong maturation during their tenure in geoscience. Faculty report continuing challenges for students who take geosciences courses outside their major concentration (for example when Geographical science students take courses more commonly taken by Geology students or Geology students take courses more commonly taken by Geoarchaeology students). A concern was brought up that some students are referring to "geoscience light", perhaps reflecting a perception that the curriculum is not sufficiently rigorous.

5. Describe and explain available trend data for student performance on this outcome over the past several years. In other words, describe how the results of this measure have changed over the past several years.

Our last report, in 2005, resulted in substantial changes to the Geoscience program including addition of new courses, expansion of mineralogy and petrology from one to two courses, and expansion of upper level lab work. This was based on low scores for the GRE test and on student feedback, especially from the summer field course, and on faculty observation that students require persistent remedial work in upper division courses.

In comparison, faculty report a much decreased need for remedial work in upper level classes (with the exception of students taking courses outside their concentration as mentioned above). In the 2005 report, the average student taking the geology GRE test placed in the lower 10%. In comparison, the average student in this report placed at the 50th percentile.

6. Proposed action in response to results. (Please note if improvements can be made with existing department resources. If improvements cannot be made with existing department resources, consider applying for an Instructional Improvement Grant.)

Faculty will explore the perception of the "geoscience light" among students. Efforts will be increased to make sure that students have the proper prerequisites for the upper level courses that cross concentrations within the program.

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Academic Program: Geoscience

1. Learning outcome assessed (please include the number of the outcome to correspond with the list on the cover sheet).

2. Competency in laboratory and field skills and ability to conduct a scientific investigation.

2. Describe assessment measure used for this learning outcome (attach instrument or rubric)

Faculty will meet to evaluate what percentage of students are meeting the following thresholds of achievement:

- 1) Field and research in formal course setting (laboratory or field work)
- 2) Informal involvement with faculty professional activities or outside internships
- 3) Individual research reported at the Student Academic Conference
- 4) Individual research reported at a professional meeting

3. Expected/satisfactory student results (from assessment plan)

Satisfactory participation is 100% at level 1, 80% at level 2, 50% at level 3, and 10% at level 4. Geology students will perform satisfactorily in the required Field Camp.

4. Actual results from the past year (attach additional information, if necessary)

All Geology students participated at level 1.

Performance of Geology majors in Field Camp: average grade improved from 2.75 in 2005 to 3.1 in 2007. Average performance on stratigraphy exercises did not change, average grade on general mapping exercises increased from 72% to 78%.

80% of Geology and Geoarchaeology majors participated at level 3.

50% of Geology and Geoarchaeology majors participated at level 4.

In all, at least 12 students participated in the Student Academic conference in the past year, and at least 8 students were authors on technical reports or presentations at professional conferences.

Participation among Geographical Science majors is lower. Most have had at least some lab classes. Perhaps about half have participated in internships or other professional activities. About 14% participated at level 3. None participated at level 4.

5. Describe and explain available trend data for student performance on this outcome over the past several years. In other words, describe how the results of this measure have changed over the past several years.

Based on comments from students in the 2005 field course, and overall performances, the Geology concentration was modified to include a new course, Geos 370, structural geology and mapping. This course appears to have improved performance in the general field mapping projects (this course would not change the performance on stratigraphy exercises which show no improvement between 2005 and 2007)

No data are available for comparison of participation in field and research projects. However, our participation rate in the Student Academic Conference is high on a percentage of students basis in comparison with other departments on campus.

6. Proposed action in response to results. (Please note if improvements can be made with existing department resources. If improvements cannot be made with existing department resources, consider applying for an Instructional Improvement Grant.)

We will work to get Geographical Sciences students more involved in research, field, and other professional activities. This participation rate might also be improved if a new Geography position is made available in our department. Presently, there is only a single full time geographer with three geography courses offered by other faculty in the department.