A. ACTIONS TAKEN TO IMPROVE STUDENT LEARNING
What actions did you take in 2012-2013, based on previous assessment findings, to improve student learning in your program? (Refer back to plans indicated in “Response to Assessment Findings” in 2011-2012 Assessment Report.)

No specific actions were taken this year based on previous assessment findings.

B. STUDENT LEARNING OUTCOMES ASSESSED AND EXAMINED
Which Program Level Student Learning Outcomes did you assess and examine during 2012-2013? List the Program Level Student Learning Outcomes using the format of “Graduates will be able to _______________________."

We assessed two learning outcomes in 2012-13: Graduates of our program will be able to communicate effectively (University Learning Outcome 1) and apply the methods of inquiry of the natural sciences (University Learning Outcome 4).

C. METHODS FOR COLLECTING DATA
Which students were included in the assessment? (For example, all seniors completing Course X in Spring 2013, all graduating seniors, etc.)

All students in the M.S. degree program are required to write a thesis documenting their research approach, results, and interpretations. They are also required present and defend their thesis in a public thesis defense. All students completing and defending their thesis during 2012/13 were included in this assessment. This group comprised 10 students.

D. ASSESSMENT MEASURES
- What key assessments/assignments/student work did you examine to directly assess the Program Level Student Learning Outcomes listed above?

  Two components were assessed. (1) The thesis document was reviewed by each student’s supervisory committee (usually three departmental faculty) and assessed as to whether or not it effectively communicated the approach, results, and interpretation of the research project. (2) The thesis defense was evaluated by each student’s supervisory committee (usually three departmental faculty) and assessed as to whether the student demonstrated an understanding of the methods of inquiry in natural sciences.

- What, if any, indirect assessments (e.g. exit survey, alumni survey, focus groups, etc.) did you use to indirectly assess the Program Level Student Learning Outcomes listed above?

  No indirect assessments were used.

E. SIGNIFICANT FINDINGS
What did you find from your assessments? What did your data reveal about how well students are achieving the Program Level Student Learning Outcomes that you listed above?

Assessment 1: For all 10 students, the initial draft of the thesis was found to need revision because some parts of it failed to communicate effectively. However, after revision, all 10 students produced a document that was acceptable to all committee members.
Assessment 2: All 10 students were evaluated to have demonstrated an understanding of the methods of inquiry in natural sciences during their thesis defenses. The evaluation was based on each student’s responses to questions from the supervisory committee. Some questions focused on specific details of the results but the most evaluative pressed the student to discuss an aspect of the results in a way not previously included in the thesis.

F. DISCUSSION OF RESULTS
How were results shared? With whom were they discussed?

Results were discussed at a faculty meeting of November 22, 2013. One portion of the discussion focused on the result that all student theses were initially judged to need revision. We considered requiring all students to complete the course, EES 6510 Effective Scientific Communication. This change is not immediately possible because the course is offered in alternate years and the single section offered could not accommodate the enrollment of all students in the M.S. degree program (approximately 20).

Most of the discussion focused on how to revise the assessment of the thesis document and the thesis defense. Faculty agreed to use a rubric based on those distributed by the American Association of Colleges and Universities (those titled “Critical Thinking” and “Inquiry and Analysis” are most relevant). The rubric will be used to assign numerical evaluation (from “Benchmark: 1” to “Capstone: 4” for each student and for each learning outcome. We intend to focus on the same two learning outcomes in subsequent years so that we can track changes to the yearly average assessment numbers.

G. ACTIONS PLANNED TO IMPROVE STUDENT LEARNING
Based on what you learned from your assessment of the Program Level Student Learning Outcomes, what actions do the faculty in your program plan to take to improve student learning in your program/area? Describe the steps faculty have taken/will take to use information from the assessments for improvement of student performance and the program. List additional faculty meetings or discussions and planned or actual changes to curriculum, teaching methods, approaches, or services that are in response to the assessment findings.

The only action planned is to develop a rubric to be used in evaluating the next cohort of students to complete their thesis documents and thesis defenses. It is hoped that the document will be utilized for those students completing degrees Spring Semester 2014 and Summer Semester 2014.

H. SUPPORTING DOCUMENTS (recommended)
Please attach minutes of program faculty meeting where discussion of results and action planning occurred and any other relevant documents.