

## ASSESSMENT REPORT 2016-2017

### Natural Sciences: Environmental Science and Management (M.S.)

#### Program Mission:

The mission of the M.S. Natural Sciences-Environmental Science & Management Concentration is to provide students with pre-professional and post-graduate education in environmental science and management, including engagement in graduate-level coursework, practice in teaching undergraduate biology, forestry and geology laboratory sections, and participation in thesis research.

**Student Learning Outcome 1:** Competency in graduate level coursework.

#### NMHU Traits Specifically Linked to Student Learning Outcome 1

- Mastery of Content Knowledge and Skills

#### First Means of Assessment for Outcome 1:

Maintenance of a 3.0 GPA for graduate level coursework.

#### Summary of Data:

Number of Students Meeting Criterion:	14	Number of Students Not Meeting Criterion:	0
Total Number of Students Assessed:	14	Percent of Students Meeting Criterion:	100%

**Interpretation of Results for Outcome 1:** *Environmental Science & Management students consistently demonstrate the ability to succeed in graduate-level coursework. The Natural Resources Management – Forestry faculty selects only qualified applicants into the graduate program with an undergraduate academic record and/or applied experience that demonstrate potential to succeed in graduate level coursework. If student performance begins to slip, faculty intervene quickly to determine the problem and ensure corrective actions are being taken. Only students enrolled in courses are counted for this outcome.*

**Student Learning Outcome 2:** Competency in teaching assistantship.

#### NMHU Traits Specifically Linked to Student Learning Outcome 2

- Mastery of Content Knowledge and Skills
- Effective Communication Skills
- Critical and Reflective Thinking Skills

**First Means of Assessment for Outcome 2:**

Success in delivering lab introductions, grading and returning student materials, maintaining office hours, and making meaningful contributions to laboratory section, as reported by faculty instructors.

**Summary of Data**

Number of Students Meeting Criterion:	4	Number of Students Not Meeting Criterion:	0
Total Number of Students Assessed:	4	Percent of Students Meeting Criterion:	100%

**Interpretation of Results for Outcome 2:** *Environmental Science & Management graduate students consistently do well in their teaching assistantships. The Natural Resources Management – Forestry faculty meet regularly with and mentors graduate students in aspects of teaching (lecture preparation, material delivery, one-on-one student interaction, and grading) to help with teaching assistantship professional development. Students are selected for these positions based on performance.*

**Student Learning Outcome 3:** Progress and proficiency in thesis research, including the design, defense, and execution of a thesis project.

**NMHU Traits Specifically Linked to Student Learning Outcome 3**

- Mastery of Content Knowledge and Skills
- Effective Communication Skills
- Critical and Reflective Thinking Skills

**First Means of Assessment for Outcome 3:**

Writing of a thesis proposal, defense of the thesis proposal, and progress in the thesis research as reported by graduate thesis advisors.

**Summary of Data**

Number of Students Meeting Criterion:	13	Number of Students Not Meeting Criterion:	2
Total Number of Students Assessed:	15	Percent of Students Meeting Criterion:	87%

**Interpretation of Results for Outcome 3:** *The majority of Environmental Science & Management graduate students consistently do well, in collaboration with their graduate thesis advisors, in designing, defending, and initiating thesis research projects. Students are able to formulate a problem and collect data to analyze the problem. The challenge comes when students begin to write their thesis document. This barrier is*

*reflected in the relatively low numbers for Student Learning Outcome 4. One student not meeting the criteria this past year has left school due to health issues.*

**Student Learning Outcome 4:** Successful completion of a Master’s thesis within 3-year (6-semester) timeframe.

**NMHU Traits Specifically Linked to Student Learning Outcome 4**

- Mastery of Content Knowledge and Skills
- Effective Communication Skills
- Critical and Reflective Thinking Skills

**First Means of Assessment for Outcome 4:**

Completion of a M.S. thesis project and paper within 3-year (6-semester) timeframe.

**Summary of Data**

Number of Students Meeting Criterion	2	Number of Students Not Meeting Criterion:	6
Total Number of Students Assessed	8	Percent of Students Meeting Criterion:	25

**Interpretation of Results for Outcome 4:** *The ESM program currently has 14 graduate students who are still “active’ on the books. Only 8 of these students, however, were still taking courses and/or were actively working with faculty to complete their thesis or project in 16/17. Three of these students graduated this year. The remaining 5 are on schedule to complete their thesis documents by this fall or within the 6 semester time limit for SO 4. One student has withdrawn for health reason and is uncertain of his ability to return. The remaining 5 students have made no apparent progress in the past year to complete their degrees. This may be due to a number of factors including other obligations and the need to get a job and make a living. Challenges associated with completing a thesis can be partially addressed in the program. Improved early guidance on project selection and analysis might improve completion rates. Better advising to provide non-thesis graduation options should also be provided to these students. At some point in time, however, some of these students must be removed from the list of active students.*

*This past year, a moratorium was placed on accepting new graduate students due to the retirement of two faculty members and transfer of another to work in Administration. Supporting existing students was considered the highest priority. All new students will be expected to have a clearly defined project at the beginning of their program. Many of these will be connected to the broader research program being defined by the collaboration between the NM Forest and Watershed Restoration Institute and the John T. Harrington Forest Research Center. The greater level of faculty research integration and focus should help students focus their research and projects more effectively.*

### **Utilization of Results:**

This past year, a moratorium was placed on accepting new graduate students due to the retirement of two faculty members and transfer of another to work in Administration. Supporting existing students was considered the highest priority. We were unable to assign committee chairs to any new students which would certainly have delayed completion of degrees.

### **Changes to Program Based on Results:**

All new graduate students will be expected to have a project area at the beginning of their program and an assigned chair. Many of these projects will be connected to the broader research program being defined by the collaboration between the NM Forest and Watershed Restoration Institute and the John T. Harrington Forest Research Center. The greater level of faculty research integration and focus should help students focus their research and projects more effectively.

### **Retention Strategies:**

Graduate students in the ESM major typically complete coursework and stall in the thesis writing stage. The low percentage of students (24%) meeting Outcome 4 is clear evidence of this. Students who do not appear to be making adequate progress in thesis writing will be given an option to complete their degrees by meeting the requirements for the course/project option.