

ASSESSMENT REPORT 2017-2018

Natural Sciences
(Instructional Degree Program)

M.S.
(Degree Level)

Environmental Science and Management
(Concentration)

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
- Critical and Reflective Thinking Skills
- Effective Communication Skills
- Effective Use of Technology

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:	15	Number of Students Not Meeting Criterion:	0
Total Number of Students Assessed:	15	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.*

Student Learning Outcome 2: Competency in teaching assistantship.

NMHU Traits Specifically Linked to Student Learning Outcome 2

- Mastery of Content Knowledge and Skills
- Critical and Reflective Thinking Skills
- Effective Communication 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 mentor 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, execution, and defense of a thesis project.

NMHU Traits Specifically Linked to Student Learning Outcome 3

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

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:	15	Number of Students Not Meeting Criterion:	0
Total Number of Students Assessed:	15	Percent of Students Meeting Criterion:	100%

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.*

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
- Critical and Reflective Thinking Skills
- Effective Communication 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	0	Number of Students Not Meeting Criterion:	0
Total Number of Students Assessed	2	Percent of Students Meeting Criterion:	0%

Interpretation of Results for Outcome 4: *Only students who graduated during this academic year were counted for this Student Learning Outcome. Completion of an M.S. degree within three years seems to be challenging for most M.S. Natural Sciences - Environmental Science and Management students. This may be due to a number of factors including other obligations and the need to get a job and make a living. Additionally, the lack of summer assistantships in most cases acts as a barrier that prevents students from making progress on their research and thesis work during the summers (which ideally should serve as a research field season for these students)*

because of their need to find other paying work to support themselves. 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, and such a removal protocol has not yet been standardized within the program.

A recent moratorium on the acceptance of new graduate students due to the retirement of two faculty members and transfer of another to work in Administration continues to exert residual effects on the Environmental Science and Management graduate program, although the program has resumed admitting new students as of this year. All new students are 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:

Students in the M.S. Natural Sciences - Environmental Science and Management program consistently perform well academically, as teaching assistants, and in terms of making progress (albeit sometimes gradual) on their research and thesis work. The greatest need for improvement lies in identifying and addressing the challenges which prevent the majority of our students from completing their M.S. degrees within six semesters of beginning their programs. This is currently being attempted through a more rigorous selection process combined with closer collaboration between students and advisors.

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 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.