

**ASSESSMENT PLAN
(2018-2019 Academic Year)**

Forestry
(Instructional Degree Program)

B.S.
(Degree Level)

Program Mission:

Forestry is the application of scientific principles to the management of forest resources, including non-wood products. The mission of the Forestry Program at NMHU is to provide students the skills needed to excel in a natural resources management field of study by:

- Providing a broad-based undergraduate education in the Liberal Arts and Sciences;
- Promoting study and quality research in forestry and natural resource management and conservation sciences;
- Providing an understanding of the ethical, professional, and sustainable management of land systems.
- Providing a superior learning experience for students through dedicated teaching, hands-on learning, research, and commitment to the individual student; and
- Providing a combination of state of the art computer and science facilities and close access to a diversity of ecosystems for student experiential learning.

The Forestry Program Outcomes Assessment must meet multiple objectives. It must meet the NMHU mission as embodied in the four NMHU traits listed below, the Forestry Program mission, and the accreditation requirements established by the Society of American Foresters. Finally, it must provide appropriate metrics for understanding program effectiveness and provide the necessary feedback for constant program improvement.

NMHU Traits:

1. Mastery of Content Knowledge and Skills
2. Critical and Reflective Thinking Skills
3. Effective Communication Skills
4. Effective Use of Technology

The SAF Accreditation handbook also identifies a number of specific knowledge areas and skills that forestry students must master in a successful program:

"The professional forestry courses must provide in-depth coverage of ecology and biology; measurement of forest resources; management of forest resources; and forest resource policy, economics, and administration."

-Society of American Foresters (SAF Accreditation Handbook 2016 Edition)

A. Ecology and Biology:

Competencies must be documented as an:	NMHU Trait	Course(s)	Assessment Measure (described below)
Understanding of taxonomy and an ability to identify tree species, their distribution, and associated vegetation and wildlife.	1, 2, 3	313, 492, 407	First and Fifth Means of Assessment for Outcome 4
Understanding of soil properties and processes, hydrology, water quality, and watershed functions.	1	231, 400, 416, 417, 433, 492	First Means of Assessment for Outcome 4
Understanding of ecological concepts and principles, including the structure and function of ecosystems, plant and animal communities, competition, diversity, population dynamics, succession, disturbance, and nutrient cycling.	1, 2, 3,	105, 231, 237, 416, 456, 492	First Means of Assessment for Outcome 4
Ability to make ecosystem, forest, and stand assessments	1, 2, 3	310, 410, 492	First Means of Assessment for Outcome 4
Understanding of tree physiology and the effects of climate, fire, pollutants, moisture, nutrients, genetics, insects and diseases on tree and forest health and productivity.	1	231, 410, 424, 307 Biol 303, 456	Second Means of Assessment for Outcome 4

B. Measurement of Forest Resources:

Competencies must be documented as an:	NMHU Trait	Course(s)	Assessment Measure (described below)
Ability to identify and measure land areas and conduct spatial analysis.	1, 4	310, 412, 492	Third Means of Assessment for Outcome 4
Ability to design and implement comprehensive inventories that meet specific objectives using appropriate sampling methods and units of measurement.	1, 2, 3, 4	310, 402, 410, 492	Third Means of Assessment for Outcome 4
Ability to analyze inventory data and project future forest, stand, and tree conditions.	1, 2, 4	310, 402, 410, 492	Second Means of Assessment for Outcome 4

C. Management of Forest Resources:

Competencies must be documented as an:	NMHU Trait	Course(s)	Assessment Measure (described below)
Ability to develop and apply silvicultural prescriptions appropriate to management objectives, including methods of establishing and influencing the composition, growth, and quality of forests, and understand the impacts of those prescriptions.	1, 2, 3	402, 492	Third Means of Assessment for Outcome 4
Ability to analyze the economic, environmental, and social consequences of forest resource management strategies and decisions.	1, 2, 3	305, 492	Second Means of Assessment for Outcome 2
Ability to develop management plans with specific multiple goals, objectives, and constraints.	1, 2, 3, 4	410, 492, 420	Third Means of Assessment for Outcome 4
Understanding of the valuation procedures, market forces, processing systems, transportation and harvesting activities that translate human demands for timber-based and other consumable forest products into the availability of those products.	1, 2	305, 402, 410, 492	Second Means of Assessment for Outcome 4
Understanding of the administration, ownership, and organization of forest management enterprises.	1, 2	410	Second Means of Assessment for Outcome 4

D. Forest Resource Policy, Economics and Administration

Competencies must be documented as an:	NMHU Trait	Course(s)	Assessment Measure (described below)
Understanding of forest policy and the processes by which it is developed.	1, 2, 3	330	Fourth means of assessment for Outcome 4
Understanding of how federal, state, and local laws and regulations govern the practice of forestry.	1, 2, 3, 4	330, GEOL 412	Fourth means of assessment for Outcome 4
Understanding of professional ethics, including the SAF Code, and recognition of the responsibility to adhere to ethical standards in forestry decision making on behalf of clients and the public.	1, 2, 3	426	Third Means of Assessment for Outcome 2
Ability to understand the integration of technical, financial, human resources, and legal aspects of public and private enterprises.	1, 2, 3	492	Third Means of Assessment for Outcome 4

Student Learning Outcome 1:

Effectively describe and implement the process of scientific inquiry.

NMHU Traits Specifically Linked to Student Learning Outcome 1:

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

First Means of Assessment for Outcome 1:

Design an experiment to examine an ecological question in FOR 231 (Terrestrial Ecology) and present this proposal to the class. Student must receive a grade of 70% or higher to be considered passing in this outcome.

Second Means of Assessment for Outcome 1:

Successfully design and describe the application of experimental design to a natural resource management problem. This design will be developed and presented in FOR 492 (Applied Forestry Research). Students must receive a grade of 70% or higher to be considered passing in this outcome.

Third Means of Assessment for Outcome 1:

Final grade of B or better in Forestry 310 (Biometrics and Mensuration).

Student Learning Outcome 2:

Effectively communicate scientific and resource management ideas, information, and results, as well as standards of professional ethics, both verbally and in writing, in a way that (1) demonstrates consistent logic; (2) is well organized; (3) states and defends a thesis; and (4) demonstrates competent use of language.

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:

Present the results of the capstone project to the FOR 492 Senior Research Project class. A passing grade for this measure is $\geq 70\%$.

Second Means of Assessment for Outcome 2:

Grade on final exam in Natural Resource Economics (For 305) which requires a comprehensive analysis and presentation of a complicated natural resource valuation and decision problem involving forestry resources. A passing grade for this measure is $\geq 70\%$.

Third Means of Assessment for Outcome 2:

Final grade of B or better in Professional Ethics (FOR 426).

Student Learning Outcome 3:

Effective use of technology by competently using appropriate tools from forestry and its various sub-disciplines.

NMHU Traits Specifically Linked to Student Learning Outcome 3:

- Critical and Reflective Thinking Skills
- Effective Use of Technology

First Means of Assessment for Outcome 3:

Demonstrated competence in using basic measuring instruments in an introductory field-based course (FOR 200, Field Practices). Final grade in course of C or better.

Second Means of Assessment for Outcome 3:

Demonstrated competence in using forest measuring instruments in an intermediate field-based course (FOR 310, Mensuration and Biometrics). Grade in a hands-on practicum exercise of B or better and a final grade in the course of C or better.

Student Learning Outcome 4:

Mastery of Forestry knowledge and skills.

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:

Take a final comprehensive Forestry Exit Exam that includes questions from the four SAF core competency areas. A passing grade will be 70%. This exam will not impact student graduation but will be used for assessment purposes and will provide students the opportunity to provide feedback on the Forestry Program to Faculty. This Exit Exam will be accompanied by a debriefing with graduating students.

Second Means of Assessment for Outcome 4:

Final grade of B or better in Forest Management (FOR 410).

Third Means of Assessment for Outcome 4:

Final grade of B or better in Senior Research Project (FOR 492).

Fourth Means of Assessment for Outcome 4:

Final grade of B or better in Natural Resource Law and Policy (FOR 330) or Geologic Resources, Law, and Environmental Policy (GEOL 412).

Fifth Means of Assessment for Outcome 4:

Final grade of B or better in Dendrology (FOR 313).