

Forestry

The Forest Management undergraduate major will focus on producing field- and technology-competent foresters equipped with the knowledge and skills to sustainably manage forests for multiple objectives and outcomes. This program is designed as a companion degree, requiring transfer from or completion of a Forestry Tech A.A.S. prior to enrollment. The educational program in forestry leading to the baccalaureate degree in Forest Management is a candidate for accreditation by the Society of American Foresters (SAF), under the forestry standard.

Courses to complete baccalaureate degree in forestry for companion “2+2” transfer program with MNC Itasca and Vermillion Society of American Foresters (SAF) accredited Forestry Tech AAS programs.

Programs

- Forest Management, B.S. *major*

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A total of 120 semester credits are needed for the **Forest Management B.S.** degree and include the following:

- 40 upper division credits (level 3000/4000)
- Required major core credits
- Completion of Core Curriculum credits (Minnesota Transfer Curriculum [MnTC] Goal Areas 1-10) - required for all baccalaureate degrees
- Completion of BSU Focus and Nisodotaading Course Requirements

Dual Degrees

Students wishing to complete two degrees concurrently, (example: Bachelor of Science and Bachelor of Arts) must complete a minimum of an additional 30 credits above the required 120 credits.

Multiple Credentials

Any additional major, minor or certificate in a degree must have at least 6 credits of course work not used to meet the requirements of another major, minor or certificate in the degree.

Required Credits: 54

Required GPA: 2.25

I REQUIRED FORESTRY CORE

Complete the following courses:

- BIOL 2339 Ethics of Fish and Wildlife Management (3 credits)
- BIOL 4623 Forest Ecology (4 credits)

- or* BIOL 3720 Plant Form and Function (4 credits)
- ECON 3040 Environmental Economics (3 credits)
- or* ECON 3500 Forestry and Natural Resource Economics (3 credits)
- ENVR 3700 Natural Resource Management (3 credits)
- FORT 3150 Forest Issues and Policy (3 credits)
- FORT 3210 Regional and International Silviculture (3 credits)
- or* FORT 4220 Adaptive Silviculture (3 credits)
- FORT 3220 Felling and Harvesting Systems (1 credit)
- FORT 3240 Applied Forest Management on the Chippewa National Forest (1 credit)
- FORT 3310 Tribal and Community Forestry (3 credits)
- FORT 3510 Forest Biometry (4 credits)
- FORT 4110 Forest Mensuration (3 credits)
- FORT 4130 Dendroecology (3 credits)
- FORT 4140 Forest Health (4 credits)
- FORT 4230 Integrated Forest Management (3 credits)
- GEOG 3232 Intermediate Geographic Information Systems (3 credits)
- GEOG 4130 Biogeography (3 credits)
- or* GEOG 4140 Landscape Ecology (3 credits)
- GEOG 4285 Drone Applications (3 credits)
- GEOL 3120 Soils (4 credits)
- or* BIOL 3120 Soils (4 credits)

Forestry Courses

FORT 3150 Forest Issues and Policy (3 credits)

This course will review the socio-cultural movements and events as well as major pieces of legislation that have helped shape the profession of forestry over the past 150 years. Contemporary treatment of issues such as below cost timber sales, managing for endangered species, climate change, and professional certifications will inform some of the conversations on current forest policy. Prerequisite(s): None.

FORT 3210 Regional and International Silviculture (3 credits)

This course will examine the varied silvicultural approaches and practices across different regions in the US. Differences in species, growing conditions, and market forces will inform the discussions. Additionally, we will review a range of international forestry issues taking place in southeast Asia, equatorial Africa, and the rainforests of South America. Prerequisite(s): None. [Core Curriculum Goal Area 8]

FORT 3220 Felling and Harvesting Systems (1 credit)

This course will provide students with hands-on training in timber felling using chainsaws and wedges. An industry recognized chainsaw certification will be awarded to students who successfully demonstrate the necessary skills. Students will also participate in different stages of active timber sales, learning how projects are laid out, bid upon, and harvested. Course is repeatable for a maximum of 2 credits. Prerequisite(s): None. [BSU Focus: Performance and Participation]

FORT 3240 Applied Forest Management on the Chippewa National Forest (1 credit)

This course will allow students to be actively engaged in on-going forest management projects on the Chippewa National Forest. The range of projects could include implementing silvicultural prescriptions, boundary marking, wildlife habitat improvement, invasive species control, fire management, etc. The goal is to engage students in multiple real-world forest management opportunities. Course is repeatable for a maximum of two credits. Prerequisite(s): None.

FORT 3310 Tribal and Community Forestry (3 credits)

With over 40% of Minnesota's forested landscape being privately owned, tribal, community, and individual forest management plays an important role in conserving forested ecosystems, supporting local livelihoods, and maintaining cultural values. This course is designed to develop and refine your understanding of tribal and non-government natural resource management practices. Prerequisite(s): None. [Core Curriculum Goal Area 7B]

FORT 3510 Forest Biometry (4 credits)

Forest Biometry will examine the forest measurement and sampling methods as well as the sampling designs and statistical approaches commonly implemented in forest management. Measurement and sampling methods topics will focus on the techniques used in determining the volume and quality of logs, trees, and stands of trees. Sampling designs and statistical approaches topics will focus on methods of collecting and analyzing forest data for resources management, including specialty forest products, fuels management, and conservation of rare populations. Prerequisite(s) Forestry Technician A.A.S. or consent of instructor. [Core Curriculum Goal Area(s) 3 (LC)]

FORT 4110 Forest Mensuration (3 credits)

This course builds on descriptive statistics introduced in Forest Biometry to explore claims made through inferential statistical tests, specifically understanding the scope and limits of statistical evidence. We will explore and evaluate different models used in forest management: growth and yield projections, log rules for standing timber, stocking charts, and emerging technologies relying on satellite imagery. Prerequisite(s): None.

FORT 4120 Forest Hydrology (3 credits)

Forest hydrology will focus on the movement and storage of water within forested ecosystems. Topics covered include major components of the hydrological processes occurring in forests, including canopy interception, throughfall, stemflow, infiltration, soil moisture, and its effects on nutrient availability and erosion. Forests and forest management practices have profound effects on local hydrology, so emphasis will be placed on managed forest systems and silvicultural practices to address water flow dynamics. Prerequisite(s): None.

FORT 4130 Dendroecology (3 credits)

This course introduces students to dendrochronology; the science of dating and interpreting annual growth rings in trees with a focus on dendro-ecology. Students will explore how tree rings reveal forest dynamics, disturbance history, and management implications. Through lectures, labs, and hands-on fieldwork at Hobson Memorial Forest, students will learn how to collect and analyze tree-ring data to answer ecological and applied forest management questions. Prerequisite(s): None.

FORT 4140 Forest Health (4 credits)

This course will introduce students to the concepts of forest health and illustrate how forested ecosystems are influenced by the interaction of diseases, insects, and fire, as well as other biotic and abiotic disturbance agents. Emphasis will center on forests of the Great Lakes region. Students will learn the biology and ecology of common forest insects and diseases while also evaluating management strategies to prevent and mitigate their adverse effects. Prerequisite(s): None.

FORT 4220 Adaptive Silviculture (3 credits)

This course will explore applications of adaptive silviculture, a forest management approach that applies an understanding of the structure, function, and dynamics of natural forest ecosystems to achieve integrated environmental, economic, and social outcomes. Prerequisite: FORT 3210 or consent of instructor.

FORT 4230 Integrated Forest Management (3 credits)

This course will focus on negotiating the competing priorities often encountered when managing forests for multiple objectives. Case studies will be examined to provide examples of strategic planning, coordination frameworks, and the analytical concepts, techniques, and skills used in conflict resolution. Students will engage in group discussions to practice communication skills in advocating for various forest management practices from different points of view representing different stakeholder interests. The production of a Forest Management Plan is the primary piece of student work in this course. Prerequisite(s): None.

All-University Courses

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY
 1920, 2920, 3920, 4920 DIRECTED GROUP STUDY
 1930, 2930, 3930, 4930 EXPERIMENTAL COURSE
 1940, 2940, 3940, 4940 IN-SERVICE COURSE
 1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR
 1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION
 1970, 2970, 3970, 4970 INTERNSHIP
 1980, 2980, 3980, 4980 RESEARCH
 1990, 2990, 3990, 4990 THESIS