Forest Resources Management, B.S.F.

Degree Offered

- Bachelor of Science in Forestry

Nature of the Program

In sustainable forestry, we balance the growing demand for forest products with the value of wildlands and public spaces for recreation, wildlife habitat, watershed protection, aesthetics, and the protection of the environment. A dedicated, dynamic and diverse faculty in the Forestry program offers a curriculum that provides scientific, technical, and managerial knowledge needed by professionals managing our sustainable forest resources. As the third most forested state in the U.S., West Virginia's forests are our outdoor classroom.

Visit the Forest Resources Management (https://forestry.wvu.edu/undergraduate/majors/forest-resources-management/) major page for more information or contact the program coordinator Dr. Steve Chhin at forestry@mail.wvu.edu (Gregory.Dahle@mail.wvu.edu). If you are in the area, visit our Forest Resources Management office 337 Percival Hall, 1145 Evansdale Drive, West Virginia University, Morgantown, WV 26506-6125.

CURRICULUM STRUCTURE

The curriculum is accredited by the Society of American Foresters (SAF) which means that there is a nationwide recognition of the quality of courses offered in this degree. The degree encompasses 120 credit hours of coursework. Required courses in biological, physical, and social sciences, English language, and mathematics form the foundation for core courses in the science and practice of managing and conserving forests and associated natural resources. Ample field experience is provided in a five-week summer field practice and in the laboratories in many of the forestry courses.

In addition to the core forestry curriculum, students select one Area of Emphasis to develop competence in specialized areas:

- Forest Management
- Forest Ecosystem Science & Sustainability
- Arboriculture & Urban Forestry

Students can also pursue minors in Recreation, Conservation Ecology, Wood Science or one of the many other minors available at WVU.

Extracurricular opportunities comprise joining one of our clubs: Arboriculture, Society of American Foresters, Timbersports team, or Women in Natural Resources.

CAREER OPPORTUNITIES

A Bachelor of Science in Forestry is the path to a variety of careers. Many graduates become professional forest resource managers with government agencies, such as the USDA Forest Service and state forestry services. Graduates who work for these agencies carry out conservation practices on public lands like state parks, national forests, and range lands. Others help private woodlands owners reach their timber, wildlife, water, and recreation objectives.

WVU Forestry graduates are also employed by the forest industry producing lumber, paper, or engineered wood products. Other graduates find careers in utility forestry or become natural resources managers for oil and gas companies in the Appalachian region, and some move on to graduate degrees.

As a forester, you can expect to spend time in the field estimating the volume and value of timberland areas, planning and supervising timber harvesting operations, protecting forest from fire, insects, and disease, and managing forests for health and resilience. Managerial work includes; developing plans for providing carbon credits to landowners, developing sustainable forest management plans, and managing forests for multiple uses including recreation, timber, watershed, wildlife, and environmental protection.

Urban foresters work for city governments, private companies, or nonprofit organizations to increase urban canopy coverage, promote urban ecosystem services, maintain healthy trees, or minimize the impacts of development. Our graduates are also employed by national or local tree care company. They climb and pruning trees, planting trees, and care for urban tree health by diagnosing and treating pest & disease.

Admissions for 2025-2026

- First-Time Freshmen are admitted directly into the major.
- Students transferring from another major at WVU are directly admitted to the Forest Resource Management major if they are in good academic standing (2.00 overall GPA).
- Students transferring from another institution are admitted to the Forest Resource Management major if they are in good academic standing (2.00 overall GPA).

Major Code: 0725

General Education Foundations

Please use this link to view a list of courses that meet each GEF requirement. **(**http://registrar.wvu.edu/gef/**)**

NOTE: Some major requirements will fulfill specific GEF requirements. Please see the curriculum requirements listed below for details on which GEFs you will need to select.

Code	Title	Hours
General Education Foundations		
F1 - Composition & Rhetoric		3-6
ENGL 101 & ENGL 102	Introduction to Composition and Rhetoric and Composition, Rhetoric, and Research	
or ENGL 103	Accelerated Academic Writing	
F2A/F2B - Science & Technology		4-6
F3 - Math & Quantitative Reasoning		3-4
F4 - Society & Connections		3
F5 - Human Inquiry & the Past		3
F6 - The Arts & Creativity		3
F7 - Global Studies & Diversity		3
F8 - Focus (may be satisfied by completion of a minor, double major, or dual degree)		9
Total Hours		31-37

Please note that not all of the GEF courses are offered at all campuses. Students should consult with their advisor or academic department regarding the GEF course offerings available at their campus.

CURRICULUM REQUIREMENTS

The Writing and Communications Skills requirement in the FRM curriculum is fulfilled through the different major courses that FRM students are required to take, as well as in FRM elective courses. Most of these FNRS courses (e.g., FNRS 212, FNRS 222, FNRS 311/311L, FNRS 330, FMAN 433, FMAN 434) have significant writing components where students are required to prepare full technical reports like laboratory reports, management plan write-ups, and other writing assignments. Most of these writing requirements provide a feedback mechanism to students' writing (e.g., reports are corrected then given back to students for revisions). In addition to addressing the writing skills of students, some of these courses also require students to deliver oral presentations, particularly in the capstone course (FNRS 434).

Code	Title	Hours
University Requirements		17
Forest Resources Management Program Requirements		55
Forest Resources Management Major Requirements		48
Total Hours		120

University Requirements

Code	Title	Hours
General Education Foundations (GEF) 1, 2, 3, 4, 5, 6, 7, and 8 (31-37 Credits)		
Outstanding GEF Requirements 1, 6, and 7		12
ANRD 191	First-Year Seminar	1
General Electives		4
Total Hours		17

Forest Resource Management Program Requirements

Code	Title	Hours
All required FNRS courses must be completed with a minimum grade of C- or better.		
Math and Science Coursework		
Select one of the following:		4
BIOL 101 & 101L	General Biology 1 and General Biology 1 Laboratory	
BIOL 115 & 115L	Principles of Biology and Principles of Biology Laboratory	

Select one of the following:		4
CHEM 111 & 111L	Survey of General, Organic, and Biological Chemistry 1 and Survey of Chemistry 1 Laboratory	
CHEM 115 & 115L	Fundamentals of Chemistry 1 and Fundamentals of Chemistry 1 Laboratory	
MATH 124	Algebra with Applications (or MATH 150 based on placement**)	3
Additional Math or Science Course		3
BIOL 102 & 102L	General Biology 2 and General Biology 2 Laboratory	
BIOL 105 & 105L	Environmental Biology and Environmental Biology Laboratory	
CHEM 112 & 112L	Survey of General Organic Biological Chemistry 2 and Survey of Chemistry 2 Laboratory	
GEOG 107 & 107L	Global Climate System and Global Climate System Laboratory	
GEOG 150 & 150L	Digital Earth and Digital Earth Laboratory	
GEOL 101 & 101L	Planet Earth and Planet Earth Laboratory	
MATH 128	Plane Trigonometry	
MATH 150	Applied Calculus	
Non-Math and Science Program Requirements		
ESWS 202 & 202L	Principles of Soil Science and Principles of Soil Science Laboratory	4
COMM 104	Fundamentals of Public Communication	3
ECON 201	Principles of Microeconomics	3
or ARE 150	Introductory Agricultural and Agribusiness Economics	
FNRS 212 & 212L	Forest Ecology and Forest Ecology Laboratory	4
FNRS 222 & 222L	Forest Mensuration and Forest Mensuration Laboratory	4
FNRS 140	West Virginia's Natural Resources	3
FNRS 205 & 205L	Dendrology and Dendrology Laboratory	3
FNRS 206L	Winter Dendrology Laboratory	1
FNRS 223 & 223L	Wood Anatomy and Structure and Wood Anatomy and Structure Laboratory	3
FNRS 240 & 240L	Introduction to Computing in Natural Resources and Introduction to Computing in Natural Resources Laboratory	3
PLSC 206 & 206L	Principles of Plant Science and Principles of Plant Science Laboratory	4
STAT 211	Elementary Statistical Inference	3
WMAN 150	Principles of Conservation Ecology	3
or WMAN 200	Restoration Ecology	
Total Hours		55

Forest Resources Management Major Requirements

Code	Title	Hours
A minimum GPA of 2.0 is required for all Forest Resources Management major courses.		
All required FNRS courses and all courses completing the required AOE must be completed with a minimum grade of C- or better.		
Choose from one of the following:		4
ENTO 470	Forest Pest Management	
PPTH 470 & 470L	Forest Pest Management and Forest Pest Management Laboratory	

FNRS 444	Watershed Management	3
FNRS 311 & 311L	Silvicultural Systems and Silvicultural Systems Laboratory	4
FNRS 330	Principles of Forestry Economics	4
FNRS 400	Forest Resources Management Field Practice	6
FNRS 433	Forest Management	3
FNRS 434 & 434S	Forest Resources Management Planning and Forest Resources Management Planning Studio	3
FNRS 326	Remote Sensing of Environment	3
FNRS 421	Renewable Resources Policy and Governance	3
FNRS 438	Human Dimensions Natural Resource Management	3
Required Area of Emphasis		12
Arboriculture & Urban Forestry		
Forest Ecosystem Science and Sustainability		
Forest Management		
Total Hours		48

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ENGL 101 and 102 will fulfill 6 credits of GEF 1 requirement. Choosing ENGL 103 will also fulfill 3 credits of GEF 1 requirement. If ENGL 103 is chosen, the student must also choose another 3 credits of ENGL writing course to fulfill the 6 credits ENGL requirements for the FRM curriculum.

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Students who place directly into MATH 150 should take that course in place of the MATH 124 requirement.

SUGGESTED PLAN OF STUDY

First Year

Fall	Hours	Spring	Hours
FNRS 140	3	FNRS 240 & 240L	3
Choose one of the following (GEF 2):	4	PLSC 206 & 206L (GEF 8)	4
BIOL 101 & 101L		Choose one of the following (GEF 8):	4
BIOL 115 & 115L		CHEM 111 & 111L	
ENGL 101 (GEF 1)	3	CHEM 115 & 115L	
MATH 124 (GEF 3)	3	Additional Science Course	3
ANRD 191	1		
	14		14

Second Year

Fall	Hours	Spring	Hours	Summer	Hours
FNRS 205 & 205L	3	FNRS 212 & 212L	4	FNRS 400	6
ESWS 202 & 202L	4	FNRS 222 & 222L	4		
STAT 211 (GEF 8)	3	WMAN 150 or 200	3		
ENGL 102 (GEF 1)	3	ECON 201 (GEF 4)	3		
COMM 104 (GEF 5)	3	GEF 6	3		
	16		17		6

Third Year

Fall	Hours	Spring	Hours
FNRS 311 & 311L	4	FNRS 330	4

FNRS 438	3	FNRS 326	3
FNRS 223 & 223L	3	Area of Emphasis Course	3
GEF 7	3	General Elective	3
	13		13

Fourth Year

Fall	Hours	Spring	Hours
FNRS 433	3	ENTO 470 or PPTH 470 ***and*** PPTH 470L	4
FNRS 421	3	FNRS 206L	1
Area of Emphasis Course	3	FNRS 434 & 434S	3
Area of Emphasis Course	3	FNRS 444	3
General Elective	1	Area of Emphasis Course	3
	13		14

Total credit hours: 120

Areas of Emphasis

- Arboriculture & Urban Forestry
- Forest Ecosystem Science and Sustainability
- Forest Management

ARBORICULTURE & URBAN FORESTRY AREA OF EMPHASIS

Code	Title	Hours
All courses that count toward this area of emphasis must be completed with a minimum grade of C-.		
Minimum GPA of 2.0 as required by the Forest Resource Management major.		
Required Courses		
FNRS 355	Arboriculture-Urban Tree Care	3
FNRS 423	Urban Forest Management	3
Restricted Electives		**6**
AGRN 315	Turfgrass Management	
ESWS 410	Soil Fertility	
ARE 204	Agribusiness Management	
BIOL 350 & 350L	Plant Physiology and Plant Physiology Laboratory	
BIOL 361 & 361L	Plant Ecology and Plant Ecology Laboratory	
FNRS 251	Forest Fire Protection	
FNRS 315	Survey of Arboriculture	
FNRS 491	Professional Field Experience	
FNRS 496	Senior Thesis	
GEOG 205	Climate and Sustainability	
Total Hours		12

FOREST ECOSYSTEM SCIENCE AND SUSTAINABILITY AREA OF EMPHASIS

Code	Title	Hours
All courses that count toward this area of emphasis must be completed with a minimum grade of C-.		
Minimum GPA of 2.0 as required by the Forest Resource Management major.		
GEOG 415	Global Environmental Change	3
Restricted Electives		9

BIOL 361 & 361L	Plant Ecology and Plant Ecology Laboratory
BIOL 448	Plant-Microbial Interactions
BIOL 462	Ecosystem Models
BIOL 463	Global Ecology
ENVP 401 & 401L	Environmental Microbiology and Environmental Microbiology Laboratory
FNRS 491	Professional Field Experience
FNRS 496	Senior Thesis
GEOG 205	Climate and Sustainability
GEOG 457	Open-Source Spatial Analytics
GEOL 486	Environmental Isotopes
RESM 545	Spatial Hydrology and Watershed Analysis
WMAN 446 & 446L	Freshwater Ecology and Freshwater Ecology Laboratory
Total Hours	12

FOREST MANAGEMENT AREA OF EMPHASIS

Code	Title	Hours
All courses that count toward this area of emphasis must be completed with a minimum grade of C-.		
Minimum GPA of 2.0 as required by the Forest Resource Management major.		
FNRS 232 & 232L	Wood Grading and Procurement and Wood Grading and Procurement Laboratory	3
FNRS 422 & 422L	Harvesting Forest Products and Harvesting Forest Products Laboratory	3
Restricted Electives		6
FNRS 251	Forest Fire Protection	
FNRS 315	Survey of Arboriculture	
FNRS 355	Arboriculture-Urban Tree Care	
FNRS 322	Advanced Forest Measurements	
FNRS 415	Regional Silviculture	
FNRS 423	Urban Forest Management	
FNRS 491	Professional Field Experience	
FNRS 496	Senior Thesis	
FNRS 411 & 411L	Sugarbush Management and Maple Syrup Production and Sugarbush Management and Maple Syrup Production Laboratory	
FNRS 424	Vegetation of West Virginia	
FNRS 425	Global Forest Resources	
Total Hours		12

Major Learning Outcomes

FOREST RESOURCES MANAGEMENT

Students graduating from the Forest Resources Management major should be able to:

- Describe, identify and quantify forest ecosystem resources across different parts of the central Appalachian region and different biomes.
- Describe the assemblages of flora and fauna across the landscape and identify patterns and potential impacts of management and restoration activities as they related to freshwater ecosystem services (water quality, quantity, habitat), soils, and ecological principles.
- Explain ecological processes, including the effects of human impacts, as they pertain to the sustainable forest management.
- Develop and evaluate forest management alternatives based on knowledge from forest mensuration, silviculture, forest ecology, forest economics, forest hydrology and soils, and forest policy.
- Quantify forest recourses and predict future growth using growth and yield models.
- Develop a forest management plan for forest landowners and present forest management plan recommendations through technical writing and oral presentation.