Forest Resources and Conservation, B.S.F.

Degree Offered

• Bachelor of Science in Forestry

Nature of the Program

The goal of sustainable forestry is to balance the demand for forest products with the protection of other forest-derived benefits (ecosystem services) like water provisioning and quality, carbon sequestration, soil stability, wildlife habitat, and recreation. The forest resources and conservation curriculum provides scientific background and technical skills needed by professionals who conserve and sustainably manage forests or create innovative wood-based products.

As the third most forested state in the U.S., West Virginia's forests are your outdoor classroom. Ample field experience is provided through outdoor laboratories, a summer field practice, or internships.

In addition to the core curriculum, students are required to select one Area of Emphasis (AoE) to develop competence in a specialized area:

- Environmental Conservation
- Forest Management
- Sustainable Biomaterials

With 5–6 free elective courses as part of the curriculum and, if desired, by adding a minor in Arboriculture, Conservation Ecology, and Sustainable Timber Construction, or a certificate in River Conservation and Management, students can tailor their experience to stand out in the job market.

The Forest Management AoE is accredited by the Society of American Foresters and the Sustainable Biomaterials AoE is accredited by the Society of Wood Science & Technology. This means that there is a nationwide recognition of the quality of the curriculum.

Special Opportunities

Outside the classroom, students can strengthen their expertise and expand their network through participating in student organizations like the Society of American Foresters, Forestry Club, Ecology Club, Forest Products Society, Tree Climbing Club, and Women in Natural Resources.

Students can also build connections through the Forestry and Natural Resources Alumni Association and tap into its exclusive scholarships totaling \$46,000 annually. For students interested in urban tree care, an additional \$8,000 in arboriculture scholarships are awarded each year.

Career Opportunities

Graduates go on to build successful careers across a diverse range of sectors, including private companies, consulting firms, state and federal agencies, and nonprofit organizations. The knowledge and skills students gain in our program are highly sought after, opening doors to a variety of career paths, from forest management and conservation to the forest and wood industries, as well as tree care and utility management.

Students who specialize in Forest Management might manage forest resources for sustainable use, conduct ecological assessments, plan timber harvests, monitor wildlife habitats, and implement fire prevention strategies on public or private land.

In an urban setting, foresters increase urban canopy coverage, promote urban ecosystem services, maintain healthy trees, or minimize the impacts of development. Graduates employed by tree care companies climb and prune trees, plant trees, and care for urban tree health by diagnosing and treating pests and disease.

Students who specialize in Environmental Conservation often work on protecting and restoring forest ecosystems, rivers and watersheds, promoting biodiversity, and addressing issues such as deforestation, climate change, and invasive species. Typical activities include conducting field research, developing conservation plans, managing protected areas, engaging in public education, and supporting sustainable land-use practices to maintain healthy and resilient forests.

For students who specialize in Sustainable Biomaterials, jobs span the spectrum from standing timber through manufacture of products to their marketing, distribution, and end use. Graduates may work in sawmills as production managers or as timber procurement foresters, buying timber and planning harvesting operations in accordance with sound forest management and environmental practices. They may also gain employment as quality assurance managers, production supervisors, and process engineers for companies that manufacture furniture, cabinets, state-of-the-art engineered wood products, renewable construction and bioproducts.

Additionally, many graduates choose to further their education by pursuing a master's degree in forestry, expanding their opportunities for leadership roles in the field or for working at research institutions.

Admissions for 2025-2026

- First-time freshmen are admitted directly into the forest resources and conservation major.
- Students transferring from another major within WVU are directly admitted to the forest resources and conservation major if they are in good academic standing (2.00 overall GPA).
- Students transferring from another institution are directly admitted to the forest resources and conservation major if they are in good academic standing (2.00 overall GPA).

Major Code: 1709

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 com	pletion 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.

Degree Requirements

Code	Title	Hours
University Requirements		39
Davis College Requirements		38
Major Requirements		43
Total Hours		120

University Requirements

Code	Title	Hours
Outstanding GEF Requi	irements (1, 4, 5, 6, and 7)	18
ANRD 191	First-Year Seminar	1
General Electives		20
Total Hours		39

Davis College Requirements

Code	Title	Hours
BIOL 101	General Biology 1	4
& 101L	and General Biology 1 Laboratory (GEF 2)	
or BIOL 115	Principles of Biology	
& 115L	and Principles of Biology Laboratory	

CHEM 111 & 111L	Survey of General, Organic, and Biological Chemistry 1 and Survey of Chemistry 1 Laboratory (GEF 8)	4
or CHEM 115 & 115L	Fundamentals of Chemistry 1 and Fundamentals of Chemistry 1 Laboratory	
MATH 124	Algebra with Applications (GEF 3)	3
STAT 211	Elementary Statistical Inference (GEF 8)	3
FNRS 140	West Virginia's Natural Resources (GEF 8; Minimum grade of C-)	3
FNRS 210	Sustainable Utilization of Biomaterials (Minimum grade of C-)	3
FNRS 205	Dendrology	3
& 205L	and Dendrology Laboratory (Minimum grade of C-)	
FNRS 206L	Winter Dendrology Laboratory (Minimum grade of C-)	1
FNRS 212	Forest Ecology	4
& 212L	and Forest Ecology Laboratory (Minimum grade of C-)	
FNRS 222	Forest Mensuration	4
& 222L	and Forest Mensuration Laboratory (Minimum grade of C-)	
FNRS 223	Anatomy of Renewable Biomaterials	3
& 223L	and Wood Anatomy and Structure Laboratory (Minimum grade of C-)	
FNRS 240	Introduction to Computing in Natural Resources	3
& 240L	and Introduction to Computing in Natural Resources Laboratory (Minimum grade of C-)	
or PHYS 105	Conceptual Physics	
& 105L	and Conceptual Physics Laboratory	
Total Hours		38

Forest Resources and Conservation Major Requirements

Code	Title	Hours
FNRS 301L	Forest Resources & Conservation Summer Practicum (Minimum grade of C-)	3
or FNRS 491	Professional Field Experience	
FNRS 311 & 311L	Silvicultural Systems and Silvicultural Systems Laboratory (Minimum grade of C-)	4
FNRS 326	Remote Sensing of Environment (Minimum grade of C-)	3
FNRS 330	Principles of Forestry Economics	4
& 330L	and Principles of Forestry Economics Laboratory (Minimum grade of C-)	
FNRS 344	River Conservation & Management (Minimum grade of C-)	3
FNRS 421	Renewable Resources Policy and Governance (Minimum grade of C-)	3
FNRS 438	Human Dimensions Natural Resource Management (Minimum grade of C-)	3
FNRS 488	Forest Strategic Planning (Minimum grade of C-)	3
Required Area of Emphasis		17-21
Environmental Conservation (17	7 Hours)	
Forest Management (17 Hours)		
Sustainable Biomaterials (21 Ho	ours)	

Total Hours

Areas of Emphasis

- Environmental Conservation (p. 3)
- Forest Management (p. 5)
- Sustainable Biomaterials (p. 6)

Environmental Conservation Area of Emphasis

Code	Title	Hours
A minimum grade of C- is required in	AOE coursework.	
ESWS 202	Principles of Soil Science	4
& 202L	and Principles of Soil Science Laboratory	
ENTO 470	Forest Pest Management	4

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Total Hours		17
FNRS 560	Tree Ecophysiology	
FNRS 491	Professional Field Experience	
FNRS 424	Vegetation of West Virginia	
FNRS 335	Fire Ecology	
ESWS 325	Principles of Water Resources	
ESWS 455	Reclamation of Disturbed Soils	
Environmental Conserva	ation Electives	6
FNRS 430	Forest Environmental Conservation	3
or PPTH 470 & 470L	Forest Pest Management and Forest Pest Management Laboratory	

Suggested Plan of Study

First Year						
Fall	Hours	Spring	Hours			
FNRS 140 (GEF 8)		3 FNRS 210		3		
ANRD 191		1 FNRS 212 & 212L		4		
Select one of the following (GEF 2):		4 ARE 150 or ECON 201 (Suggested GEF 4)		3		
BIOL 101 & 101L		GEF 6		3		
BIOL 115 & 115L		General Elective		3		
ENGL 101 (GEF 1)		3				
MATH 124 (GEF 3)		3				
		14		16		
Second Year						
Fall	Hours	Spring	Hours	Summer	Hours	
FNRS 205		3 FNRS 222		4 FNRS 301L		3
& 205L		& 222L				
Select one of the		4 ESWS 202		4		
following (GEF 8):		& 202L				
CHEM 111		FNRS 240		3		
& 111L		& 240L				
CHEM 115 & 115L		General Elective		3		
STAT 211 (GEF 8)		3				
ENGL 102 (GEF 1)		3				
		13		14		3
Third Year						
Fall	Hours	Spring	Hours			
FNRS 311		4 FNRS 330		4		
& 311L		& 330L				
FNRS 344		3 FNRS 326		3		
FNRS 223 & 223L		3 WMAN 150 (Suggested GEF 7)		3		
COMM 104 (Suggested General Elective)		3 GEF 5		3		
AOE Elective		3 General Electives		3		
		16		16		
Fourth Year						
Fall	Hours	Spring	Hours			
FNRS 421		3 FNRS 488		3		

	15	13	
General Elective	3		
AOE Elective	3 General Electives	5	
	and PPTH 470L		
FNRS 430	3 ENTO 470 or PPTH 470	4	
FNRS 438	3 FNRS 206L	1	

Total credit hours: 120

Forest Management Area of Emphasis

Code	Title	Hours
A minimum grade of C- is required in	AOE coursework.	
ESWS 202 & 202L	Principles of Soil Science and Principles of Soil Science Laboratory	4
ENTO 470	Forest Pest Management	4
or PPTH 470 & 470L	Forest Pest Management and Forest Pest Management Laboratory	
FNRS 422 & 422L	Forest Operations and Harvesting Forest Products Laboratory	3
FNRS 433	Forest Management	3
Forest Management Electives		3
FNRS 232 & 232L	Wood Grading and Procurement and Wood Grading and Procurement Laboratory	
FNRS 251	Forest Fire Protection	
FNRS 335	Fire Ecology	
FNRS 342	Natural Resource Entrepreneurship	
FNRS 355	Arboriculture-Urban Tree Care	
FNRS 411 & 411L	Sugarbush Management and Maple Syrup Production and Sugarbush Management and Maple Syrup Production Laboratory	
FNRS 423	Sustainable Urban Forests	
FNRS 425	Global Forest Resources	
FNRS 491	Professional Field Experience	
FNRS 560	Tree Ecophysiology	
Total Hours		17

Suggested Plan of Study

First Year						
Fall	Hours	Spring	Hours			
FNRS 140 (GEF 8)		3 FNRS 210		3		
FNRS 191		1 FNRS 212 & 212L		4		
Select one of the following (GEF 2):		4 ARE 150 or ECON 201 (Suggested GEF 4)		3		
BIOL 101 & 101L		GEF 6		3		
BIOL 115 & 115L		General Elective		3		
ENGL 101 (GEF 1)		3				
MATH 124 (GEF 3)		3				
		14		16		
Second Year						
Fall FNRS 205 & 205L	Hours	Spring 3 FNRS 222 & 222L	Hours	Summer 4 FNRS 301L	Hours	3

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		15		13	
422L		3			
ENIDS 400		3 ENTO 470		4	
interial Elective 3 General Electives		C A			
Conoral Elective		3 General Electives		5	
ENIRS 428		3 ENDS 206		1	
ENRS 421		3 ENRS 488		3	
Fourth Year	Hours	Spring	Hours		
Fourth Yoor		16		16	
AOE Elective		3 General Elective		3	
General Elective)					
COMM 104 (Suggetsed		3 GEF 5		3	
FNRS 223 & 223L		3 WMAN 150 (Sugg GEF 7)	gested	3	
FNRS 344		3 FNRS 326		3	
& 311L		& 330L			
FNRS 311		4 FNRS 330		4	
Fall	Hours	Spring	Hours		
Third Year					
		13		14	3
ENGL 102 (GEF 1)		3			
STAT 211 (GEF 8)		3			
CHEM 115 & 115L		General Elective		3	
& 111L		ENRS 240 & 240L		3	
following (GEF 8):		& 202L		2	
Select one of the		4 ESWS 202		4	

Total credit hours: 120

Sustainable Biomaterials Area of Emphasis

Code	Title	Hours
A minimum grade of C- is requ	uired in AOE coursework.	
FNRS 333	Wood Machining	3
FNRS 340	Physical Properties of Wood	3
FNRS 341	Wood Mechanics	3
FNRS 465	Wood-Based Composite Materials	3
FNRS 362 & 362L	Decision Making and Quality Management and Forest Product Decision-Making Laboratory	3
Sustainable Biomaterials El	ectives	6
FNRS 232 & 232L	Wood Grading and Procurement and Wood Grading and Procurement Laboratory	
FNRS 245	Residential Building Materials	
FNRS 320	Sustainable Construction	
FNRS 337 & 337L	Wood Adhesion and Finishing and Wood Adhesion and Finishing Laboratory	
FNRS 351 & 351L	Forest Products Protection and Forest Products Protection Laboratory	
FNRS 413 & 413L	Wood Chemistry and Wood Chemistry Laboratory	

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FNRS 445

Bio-based Energy Systems

Total Hours

Suggested Plan of Study

First Year						
Fall	Hours	Spring	Hours			
FNRS 140		3 FNRS 210		3		
ANRD 191		1 FNRS 212		4		
		& 212L				
Select one of the following:		4 ARE 150 or ECON 2	01	3		
BIOL 101 & 101L		GEF 6		3		
BIOL 115 & 115L		General Elective		3		
ENGL 101		3				
MATH 124		3				
		14		16		<u> </u>
Second Year						
Fall	Hours	Spring	Hours	Summer	Hours	
FNRS 205 & 205L		3 FNRS 222 & 222L		4 FNRS 491		3
Select one of the following:		4 PHYS 105 & 105L		4		
CHEM 111 & 111L		FNRS 100		3		
CHEM 115 & 115L		General Elective		3		
STAT 211		3				
ENGL 102		3				
		13		14		3
Third Year						
Fall	Hours	Spring	Hours			
FNRS 311		4 FNRS 330		4		
& 311L		& 330L				
FNRS 344		3 FNRS 326		3		
FNRS 223		3 Select one of the following:		3		
Select one of the following:		3 FNRS 340				
FNRS 362 & 362L		FNRS 465				
AOE Elective		AOE Elective		3		
Select one of the following:		3 GEF 7		3		
FNRS 333						
FNRS 341						
		16		16		
Fourth Year						
Fall	Hours	Spring	Hours			
FNRS 421		3 FNRS 488		3		
FNRS 438		3 FNRS 206L		1		
General Elective		3 General Electives		6		

Select one of the following:	3 Select one of the following:	3	
FNRS 362 & 362L	FNRS 340		
AOE Elective	FNRS 465		
Select one of the following:	3		
FNRS 333			
FNRS 341			
	15	13	

Total credit hours: 120

Major Learning Outcomes FOREST RESOURCES AND CONSERVATION

Upon completion of the program, students will be able to:

- 1. Quantify forest resources and ecosystem services.
- 2. Grow and restore Appalachian hardwood forest to supply quality wood while protecting ecosystem integrity.
- 3. Create strategic forest or wood utilization plans that are based on environmental, economic, and social sustainability.
- 4. Critically reflect on knowledge and skills from across the curriculum and effectively communicate it to the public and stakeholders in forestry.