

Wildlife and Fisheries Resources, B.S.

Degree Offered

- Bachelor of Science

Nature of the Program

The wildlife and fisheries resources curriculum prepares students for professional positions as wildlife and fish biologists, natural resources conservation officers, wildlife and fisheries managers and planners, wildlife or fisheries communication specialists, wildlife and fisheries toxicologists, and environmental consultants. The program is unique in the region as our graduates are fully trained in both the wildlife and fisheries fields. The curriculum provides a solid basic background in biology, ecology, and natural resource management. Students fulfilling this program will select a concentration in wildlife or fisheries (or both) to meet the requirements for professional certification as either a wildlife biologist (certified through The Wildlife Society) or fisheries biologist (certified through The American Fisheries Society). A careful selection of restricted electives enables students to specialize in related natural resource areas and to have the opportunity for widening employment in other environmental fields. Other options can be tailored to your objectives. Students will be able to consult with their advisor in the selection of courses from a group of restricted electives to develop their area of emphasis.

Our major has two summer requirements:

1. Summer Camp (3 credits)
2. Summer Internship (3 credits taken the following fall semester)

Students are expected to take Summer Camp after their first year in the program. Summer Camp lasts for one week and occurs right after the spring semester ends. Students also have the option to do an Education Abroad experience focused on international conservation over spring break for their summer camp requirement. Students can do their internship for credit during any summer.

Special Opportunities

Students will have special opportunities to enhance their education in the WVU Wildlife and Fisheries Resources Program. The Program has student chapters of The American Fisheries Society and The Wildlife Society. Student participation in these organizations leads to opportunities for further field experience with state and federal agency biologists, graduate students, and faculty. A USGS Fish and Wildlife Cooperative Research Unit is also housed within our program. This unit provides three additional faculty members conducting extensive research programs all around the country. In addition, the WVDNR provides a liaison biologist to the Unit that is a direct link from students to the state's natural resources agency. Undergraduates benefit from the personnel at the Unit in several ways: the Unit and liaison provide federal and state contacts for employment opportunities; the Unit research programs may provide summer employment on fish and wildlife projects; and faculty in the Unit also teach in our program.

All of our faculty are involved with graduate training. This active research program provides invaluable classroom experiences as faculty remain up-to-date with all the latest studies and methods in the field. Students also benefit through volunteer experiences and summer employment opportunities for students working on research projects.

In the Wildlife and Fisheries Resources Program, you will be mentored by caring faculty members who understand what it will take to be successful in this field. All students are required to take a Professional Experience course (internship) as part of the curriculum, but we encourage students to get as much additional experience working with professionals throughout their time in the program. The curriculum also includes a capstone class that allows students to showcase their learning through management plans and research projects.

Career opportunities in wildlife and fisheries are expanding. Even so, we encourage our students to consider going for advanced degrees when they finish here. Such qualified seniors find that assistantships are readily available due to the solid course background, training, and experience they received while here at WVU.

Admissions for 2025-2026

- First-Time Freshman are admitted directly into wildlife and fisheries resources major.
- Students transferring from another major within WVU are directly admitted to the wildlife and fisheries resources major if they are in good academic standing (2.00 overall GPA).
- Students transferring from another institution are directly admitted to the wildlife and fisheries resources major if they are in good academic standing (2.00 overall GPA).

Major Code: 1708

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 or ENGL 103	Introduction to Composition and Rhetoric and Composition, Rhetoric, and Research 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

Code	Title	Hours
	University Requirements	10
	Wildlife and Fisheries Resources Program Requirements	44
	Wildlife and Fisheries Resources Major Requirements	67
Total Hours		121

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 and 6	9
ANRD 191	First-Year Seminar	1
Total Hours		10

Wildlife and Fisheries Resources Program Requirements

Code	Title	Hours
A minimum of C- in 100- and 200-level courses must be obtained in all Wildlife and Fisheries Resources Program Requirements.		
Select one of the following sets:		8
BIOL 101 & 101L	General Biology 1 and General Biology 1 Laboratory	
BIOL 102 & 102L	General Biology 2 and General Biology 2 Laboratory	
OR		
BIOL 115 & 115L	Principles of Biology and Principles of Biology Laboratory	
BIOL 117 & 117L	Introductory Physiology and Introductory Physiology Laboratory	
Physical Science Requirement		12
Select 12 credits from the following:		
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	

ESWS 202 & 202L	Principles of Soil Science and Principles of Soil Science Laboratory	
GEOL 101 & 101L	Planet Earth and Planet Earth Laboratory	
GEOL 203	Physical Oceanography	
GEOL 321	Geomorphology	
PHYS 101 & 101L	Introductory Physics 1 and Introductory Physics 1 Laboratory	
MATH 124	Algebra with Applications (GEF 3)	3
STAT 211	Elementary Statistical Inference (GEF 8)	3
MDS 270	Effective Public Speaking (GEF 4)	3
FNRS 205 & 205L	Dendrology and Dendrology Laboratory	3
FNRS 421	Renewable Resources Policy and Governance	3
Quantitative Requirement		3
Select one of the following:		
MATH 150	Applied Calculus	
STAT 312	Intermediate Statistical Methods	
WMAN 411	Introduction to Quantitative Ecology	
RESM 440 & 440L	Foundations of Applied Geographic Information Systems and Foundations of Applied Geographic Information Systems Laboratory	3
Policy & Administration Requirement		3
Select one of the following:		
ARE 382	Agricultural and Natural Resources Law	
ESWS 460	Environmental Impact Assessment	
FNRS 438	Human Dimensions Natural Resource Management	
RESM 450	Land Use Planning Law	
RESM 480	Environmental Regulation	
Total Hours		44

Wildlife and Fisheries Resources Major Requirements

Code	Title	Hours
A minimum of C- must be obtained in all 100- and 200 level courses fulfilling Wildlife and Fisheries Resources Major Requirements.		
WMAN 100	The Tradition of Hunting	3
WMAN 150	Principles of Conservation Ecology	3
WMAN 175 & 175L	Introduction to Wildlife and Fisheries and Introduction to Wildlife and Fisheries Laboratory (GEF 8)	3
WMAN 205 or WMAN 206 or WMAN 207	Wildlife Summer Field Camp Fisheries Summer Field Camp International Conservation	3
WMAN 224 & 224L	Vertebrate Natural History and Vertebrate Natural History Laboratory	3
WMAN 300 & 300L	Wildlife and Fisheries Techniques and Wildlife and Fisheries Techniques Laboratory	4
WMAN 313 & 313L	Wildlife Ecosystem Ecology and Wildlife Ecosystem Ecology Laboratory	4
WMAN 330	Conservation Genetics	3
Select one of the following:		3
WMAN 425	Mammalogy	
WMAN 426 & 426L	Ornithology and Ornithology Laboratory	
WMAN 427	Herpetology	
WMAN 445 & 445L	Introduction to Fisheries Management and Introduction to Fisheries Management Laboratory	3

WMAN 450 & 450L	Advanced Wildlife and Fisheries Management and Advanced Wildlife and Fisheries Management Laboratory (Capstone)	4
WMAN 491	Professional Field Experience	3
Area of Emphasis		16-18
Fisheries Sciences (16-18 Total Hours)		
Wildlife Sciences (16-17 Total Hours)		
Restricted Electives or a 2nd AOE *		12
Any 100-400 level course in Biology (BIOL), Forestry (FNRS), Geology (GEOL), Resource Management (RESM), Recreation Parks & Tourism (RPTR), or Wildlife and Fisheries (WMAN) agreed upon between the student and the advisor.		
Total Hours		67

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A minimum of three credits must be at the upper-division (300- or 400-level).

SUGGESTED PLAN OF STUDY**First Year**

Fall	Hours	Spring	Hours	Summer	Hours	
ANRD 191		1 WMAN 150 (GEF 7)		3 WMAN 205 or 206		3
ENGL 101 (GEF 1)		3 Select one of the following (GEF 8):		4		
WMAN 100 (GEF 5)		3 BIOL 102 & 102L				
WMAN 175 & 175L (GEF 8)		3 BIOL 117 & 117L				
Select one of the following (GEF 2):		4 MATH 124 (GEF 3)		3		
BIOL 101 & 101L		GEF 6		3		
BIOL 115 & 115L						
		14		13		3

Second Year

Fall	Hours	Spring	Hours		
Physical Science		4 ENGL 102 (GEF 1)		3	
FNRS 205 & 205L		3 RESM 440 & 440L		3	
STAT 211 (GEF 8)		3 WMAN 313 & 313L		4	
WMAN 224 & 224L		3 Physical Science		4	
MDS 270 (GEF 4)		3			
		16		14	

Third Year

Fall	Hours	Spring	Hours	
WMAN 300 & 300L		4 Select one of the following:		3
WMAN 330		3 WMAN 425		
Quantitative Course		3 WMAN 426 & 426L		
Policy Course		3 WMAN 427		
Area of Emphasis or Restricted Elective		3 Physical Science		4
		Area of Emphasis		4

		Area of Emphasis or Restricted Elective	3
	16		14
Fourth Year			
Fall	Hours	Spring	Hours
WMAN 445 & 445L		3 WMAN 450 & 450L	4
FNRS 421		3 Area of Emphasis or Restricted Elective	3
WMAN 491		3 Area of Emphasis or Restricted Elective	3
Area of Emphasis or Restricted Elective		3 Area of Emphasis or Restricted Elective	3
Area of Emphasis or Restricted Elective		3 Area of Emphasis or Restricted Elective	3
	15		16

Total credit hours: 121

Areas of Emphasis

- Fisheries Sciences
- Wildlife Sciences

FISHERIES SCIENCES AREA OF EMPHASIS REQUIREMENTS

Code	Title	Hours
A grade of C- or better must be obtained in all 100- and 200-level courses for the area of emphasis.		
WMAN 446 & 446L	Freshwater Ecology and Freshwater Ecology Laboratory	4
Physical Science Requirement		3-4
Select one of the following:		
CHEM 111 & 111L or CHEM 115 & 115L	Survey of General, Organic, and Biological Chemistry 1 and Survey of Chemistry 1 Laboratory Fundamentals of Chemistry 1 and Fundamentals of Chemistry 1 Laboratory	
CHEM 112 & 112L or CHEM 116 & 116L	Survey of General Organic Biological Chemistry 2 and Survey of Chemistry 2 Laboratory Fundamentals of Chemistry 2 and Fundamentals of Chemistry 2 Laboratory	
CHEM 231 & 231L	Organic Chemistry: Brief Course and Organic Chemistry: Brief Course Laboratory	
CHEM 233 & 233L	Organic Chemistry 1 and Organic Chemistry 1 Laboratory	
GEOL 101 & 101L	Planet Earth and Planet Earth Laboratory	
GEOL 203	Physical Oceanography	
GEOL 321	Geomorphology	
PHYS 101 & 101L	Introductory Physics 1 and Introductory Physics 1 Laboratory	
ESWS 202 & 202L	Principles of Soil Science and Principles of Soil Science Laboratory	
ESWS 410	Soil Fertility	
ESWS 415 & 415L	Soil Survey and Land Use and Soil Survey and Land Use Laboratory	
ESWS 417 & 417L	Soil Genesis and Classification and Soil Genesis and Classification Laboratory	
ESWS 425	Environmental Soil Management	

ESWS 455	Reclamation of Disturbed Soils	
Fisheries Requirement		3-4
Select one of the following:		
BIOL 341 & 341L	Ichthyology and Ichthyology Laboratory	
WMAN 314	Marine Ecology	
Restricted Electives		6
Any 300- or 400-level courses in Biology (BIOL), Forestry (FNRS), Geology (GEOL), Resource Management (RESM), Recreation Parks & Tourism (RPTR) or Wildlife & Fisheries (WMAN)		
Total Hours		16-18

WILDLIFE SCIENCES AREA OF EMPHASIS REQUIREMENTS

Code	Title	Hours
A grade of C- or better must be obtained in all 100- and 200-level courses for the area of emphasis.		
WMAN 311	Silvicultural Applications for Wildlife	4
Botany Requirement		3-4
Select one of the following:		
BIOL 350 & 350L	Plant Physiology and Plant Physiology Laboratory	
BIOL 353L	Flora of West Virginia Laboratory	
BIOL 361 & 361L	Plant Ecology and Plant Ecology Laboratory	
BIOL 363	Plant Geography	
BIOL 450 & 450L	Plant Systematics and Plant Systematics Laboratory	
FNRS 150	Edible and Medicinal Plants of Appalachian Folk Medicine	
FNRS 424 & 424L	Vegetation of West Virginia and Vegetation of West Virginia Laboratory	
PLSC 206 & 206L	Principles of Plant Science and Principles of Plant Science Laboratory	
Wildlife Biology Requirement		3
Select one of the following:		
WMAN 425	Mammalogy	
WMAN 426 & 426L	Ornithology and Ornithology Laboratory	
WMAN 427	Herpetology	
Humanities Requirement:		6
Select six credits of ECON, ENGL, HIST, PSYC, or SOCA *		
Total Hours		16-17

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Three credits must be at the 300- or 400-level. Excludes ENGL 101 and ENGL 102.

Major Learning Outcomes

WILDLIFE AND FISHERIES RESOURCES

Upon the successful completion of a Wildlife and Fisheries Resources degree, students will be able to:

- Explain the historical importance of wildlife and fisheries policy and management.
- Describe the taxonomy and natural history of regional flora and fauna.
- Apply effective management principles, methods, and techniques.
- Demonstrate proficiency in scientific methodology, including the application of appropriate laboratory, computer, and quantitative skills.
- Communicate effectively with peer scientists and professionals in both written and oral forms.
- Synthesize knowledge and skills from across the curriculum in evaluating the efficacy in approaches to solve research and management questions.