

# Fisheries, Wildlife, and Conservation Biology (BS): Wildlife Science Concentration

Fisheries, Wildlife and Conservation Biology (FWCB) major prepares students to manage and conserve populations of fish and wildlife in their natural habitats. This STEM (Science, Technology, Engineering and Mathematics) major gives students the skills they need to observe, research, monitor and assess the impact of environmental change, human behavior and public policy on wild populations of animals. Using a combination of lab work, technology and field study, students develop conservation strategies that ensure the long-term health of fish and wildlife populations.

After sophomore year, students spend six weeks in summer field courses. During "summer camp" experience, students learn hands-on fish and wildlife management techniques in locations across the state. From plant and animal identification and bird mist netting to camera-trapping and radio telemetry, students gain experiences that prepare them for careers after graduation. FWCB students have the option to substitute the summer field course with approved internships or study abroad courses.

The wildlife concentration provides students with specific coursework necessary to apply for the Associate Wildlife Biologist (AWB) certification from the Wildlife Society upon graduation. The AWB coursework includes extra courses in plant biology, communication, and wildlife habitat management that are not required in the other FWCB concentrations.

## Contact

**Dr. Nicole Mihnovets**

anmihnov@ncsu.edu

FWCB Undergraduate Coordinator

### Department of Forestry and Environmental Resources

Box 8008

North Carolina State University

Raleigh, North Carolina 27695-8008

## Plan Requirements

First Year	Hours
ENV 100 Student Success in Environmental First Year	1
ENV 101 Exploring the Environment	2
MA 131 Calculus for Life and Management Sciences A	3
BIO 181 Introductory Biology: Ecology, Evolution, and Biodiversity	4
BIO 183 Introductory Biology: Cellular and Molecular Biology	4
CH 101 & CH 102 Chemistry - A Molecular Science and General Chemistry Laboratory	4
COM 110 or COM 112 Public Speaking or Interpersonal Communication	3

Acad Writing Research (p. 2) <sup>1</sup>	4
<b>Hours</b>	<b>25</b>
<b>Second Year</b>	
FOR 172 Forest System Mapping and Mensuration I	2
FW 221 Conservation of Natural Resources	3
PY 131 Conceptual Physics	4
PB 200 Plant Life	4
AEC 360 or PB 360 Ecology or Ecology	4
Communication Elective (p. 2)	3
Quantitative Elective (p. 2)	3
Economics Elective (p. 2)	3
<b>Hours</b>	<b>26</b>
<b>Summer</b>	
FW 311 Piedmont Wildlife Ecology and Management	3
FW 312 Fisheries Techniques and Management	1
FW 313 Mountain Wildlife Ecology and Management	1
FW 314 Coastal Ecology and Management	1
<b>Hours</b>	<b>6</b>
<b>Third Year</b>	
FW 353 Wildlife Management	3
FW 373 Vertebrate Natural History	3
FW 411 Human Dimensions of Wildlife and Fisheries	3
FOR 339	4
GN 301 or GN 311 Genetics in Human Affairs or Principles of Genetics	3
ST 311 Introduction to Statistics	3
ENG 333 Communication for Science and Research	3
Select one of the following:	4
CH 220 & CH 222 Introductory Organic Chemistry and Organic Chemistry I Lab	
CH 221 & CH 222 Organic Chemistry I and Organic Chemistry I Lab	
<b>Hours</b>	<b>26</b>
<b>Fourth Year</b>	
FW 404 Wildlife Habitat Management	3
FW 415 Professional Development in Fisheries, Wildlife, and Conservation Biology	1
FW 453 Principles of Wildlife Science	4
GIS 280 Introduction to GIS	3
AEC 420 Introduction to Fisheries Science	3
ENT 201 Insects and People	3
Policy Elective (p. 2)	3
Physical Science Elective (p. 2)	3
Wildlife Elective (p. 3)	3
<b>Hours</b>	<b>26</b>
<b>Total Hours</b>	<b>109</b>

<sup>1</sup> A grade of C- or better is required.

Code	Title	Hours	Counts towards
<b>GEP Courses</b>			
	GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )	6	
	GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )	2	
	GEP Elective ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/</a> )	3	
	GEP Global Knowledge ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/</a> ) (verify requirement)		
	World Language Proficiency ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/world-language-proficiency/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/world-language-proficiency/</a> ) (verify requirement)		
<b>Total Hours</b>		<b>11</b>	

## Acad Writing Research

Code	Title	Hours	Counts towards
<b>Acad Writing Research</b>			
ENG 101	Academic Writing and Research	4	
FLE 101	Academic Writing and Research	4	
<b>Transfer Sequence</b>			
ENG 202	Disciplinary Perspectives in Writing	3	
ENG 1GEP		3	

## Communication Electives

Code	Title	Hours	Counts towards
COM 201	Introduction to Persuasion Theory	3	
COM 211	Argumentation and Advocacy	3	
COM 226	Introduction to Public Relations	3	
COM 301	Presentational Speaking	3	
ENG 214	Introduction to Editing	3	
ENG 216	Technologies for Texts	3	

ENG 316	Introduction to News and Article Writing	3	
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## Quantitative Electives

Code	Title	Hours	Counts towards
CSC 200		3	
MA 231	Calculus for Life and Management Sciences B	3	
MA 241	Calculus II	4	
ST 312	Introduction to Statistics II	3	

## Economics Electives

Code	Title	Hours	Counts towards
ARE 201	Introduction to Agricultural & Resource Economics	3	
ARE 201A	Introduction to Agricultural & Resource Economics	3	
EC 201	Principles of Microeconomics	3	
EC 205	Fundamentals of Economics	3	

## Policy Electives

Code	Title	Hours	Counts towards
ARE 309	Environmental Law & Economic Policy	3	
FOR 472	Forest Soils	4	
NR 460	Renewable Natural Resource Management and Policy	3	
NR 560	Renewable Natural Resource Management and Policy	3	
PS 320	U.S. Environmental Law and Politics	3	
PS 336	Global Environmental Politics	3	

## Physical Science Electives

Code	Title	Hours	Counts towards
CH 201	Chemistry - A Quantitative Science	3	

CH 202	Quantitative Chemistry Laboratory	1
CH 223	Organic Chemistry II	3
MEA 100	Earth System Science: Exploring the Connections	4
MEA 130	Introduction to Weather and Climate	3
MEA 200	Introduction to Oceanography	3
MEA 210	Oceanography Lab	1
MEA 220	Marine Biology	3
MEA 250	Introduction to Coastal Environments	3
MEA 323	Geochemistry of Natural Waters	3
PY 212	College Physics II	4

**Wildlife Electives**

Code	Title	Hours	Counts towards
AEC 501	Avian Ecology	4	
ENT 201	Insects and People	3	
ENT 402	Forest Entomology	3	
ENT 425	General Entomology	3	
FOR 402	Forest Entomology	3	
FW 333	Conservation Biology in Practice	3	
FW 403	Urban Wildlife Management	3	
FW 405	Tropical Wildlife Ecology	3	
FW 444	Mammalogy	3	
FW 460	International Wildlife Management and Conservation	3	
FW 465	African Ecology and Conservation	4	
FW 544	Mammalogy	3	
FW 560	International Wildlife Management and Conservation	3	

FW 565	African Ecology and Conservation	4
SSC 200	Soil Science	3
ZO 250	Animal Anatomy and Physiology	4
ZO 410	Introduction to Animal Behavior	3
ZO 542		3

**Semester Sequence**

This is a sample.

**Critical Path Courses** – Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

**First Year**

Fall Semester	Hours
ENV 100 & ENV 101	Student Success in Environmental First Year and Exploring the Environment
ENG 101	Academic Writing and Research <sup>1</sup>
MA 131	Calculus for Life and Management Sciences A
BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity
GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )	

**Hours 15**

**Spring Semester**

CH 101	Chemistry - A Molecular Science
CH 102	General Chemistry Laboratory
BIO 183	Introductory Biology: Cellular and Molecular Biology
COM 110 or COM 112	Public Speaking or Interpersonal Communication
GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )	
GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )	

**Hours 15**

**Second Year**

**Fall Semester**

PB 200	Plant Life
FW 221	Conservation of Natural Resources
Communications Elective (p. 2)	
PY 131	Conceptual Physics
FOR 172	Forest System Mapping and Mensuration I

**Hours 16**

**Spring Semester**

Economics Elective (p. 2)	
PB 360	Ecology

GEP Elective ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/</a> )	3
Quantitative Elective (p. 2)	3
<b>Hours</b>	<b>13</b>

**Summer**

Summer Camp courses may be substituted by a combination of two approved FWCB internship<sup>2</sup> or FWCB study abroad experiences.

FW 311	Piedmont Wildlife Ecology and Management	3
FW 312	Fisheries Techniques and Management	1
FW 313	Mountain Wildlife Ecology and Management	1
FW 314	Coastal Ecology and Management	1
<b>Hours</b>		<b>6</b>

**Third Year****Fall Semester**

FOR 339		4
FW 353	Wildlife Management (CP)	3
GN 301 or GN 311	Genetics in Human Affairs or Principles of Genetics	3-4
ST 311	Introduction to Statistics	3
<b>Hours</b>		<b>13</b>

**Spring Semester**

GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )		3
Select one of the following:		4
CH 220 & CH 222	Introductory Organic Chemistry and Organic Chemistry I Lab	
CH 221 & CH 222	Organic Chemistry I and Organic Chemistry I Lab	
FW 373	Vertebrate Natural History (CP)	3
FW 411	Human Dimensions of Wildlife and Fisheries (CP)	3
ENG 333	Communication for Science and Research	3
<b>Hours</b>		<b>16</b>

**Fourth Year****Fall Semester**

ENT 201	Insects and People (GEP Interdisciplinary Perspectives ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/</a> ))	3
GIS 280	Introduction to GIS	3
Policy Elective (p. 2)		3
FW 404	Wildlife Habitat Management (CP)	3
FW 415	Professional Development in Fisheries, Wildlife, and Conservation Biology	1
<b>Hours</b>		<b>13</b>

**Spring Semester**

FW 453	Principles of Wildlife Science (CP)	4
Wildlife Elective (p. 3)		3
AEC 420	Introduction to Fisheries Science	3

Physical Science Elective (p. 2)	3
<b>Hours</b>	<b>13</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> A grade of C- or better is required.

<sup>2</sup> FW 492 External Learning Experience

## Career Opportunities

Graduates are prepared for graduate school and entry-level professional positions in state and federal government agencies, non-profit organizations and private industry. Upon graduation, students are qualified to seek certification from The Wildlife Society or the American Fisheries Society.

## Career Titles

### Learn More About Careers

NCcareers.org (<https://nccareers.org/>)

Explore North Carolina's central online resource for students, parents, educators, job seekers and career counselors looking for high quality job and career information.

Occupational Outlook Handbook (<https://www.bls.gov/ooh/>)

Browse the Occupational Outlook Handbook published by the Bureau of Labor Statistics to view state and area employment and wage statistics. You can also identify and compare similar occupations based on your interests.

Career One Stop Videos (<https://www.careeronestop.org/>)

View videos that provide career details and information on wages, employment trends, skills needed, and more for any occupation. Sponsored by the U.S. Department of Labor.

Focus 2 Career Assessment (<https://careers.dasa.ncsu.edu/explore-careers/career-assessments/>) (NC State student email address required)  
This career, major and education planning system is available to current NC State students to learn about how your values, interests, competencies, and personality fit into the NC State majors and your future career. An NC State email address is required to create an account. Make an appointment with your career counselor (<https://careers.dasa.ncsu.edu/about/hours-appointments/>) to discuss the results.

Focus 2 Apply Assessment (<https://www.focus2career.com/Portal/Register.cfm?SID=1929>) (Available to prospective students)

A career assessment tool designed to support prospective students in exploring and choosing the right major and career path based on your unique personality, interests, skills and values. Get started with Focus 2 Apply and see how it can guide your journey at NC State.

North Carolina Chapter of the Wildlife Society (<http://nctws.org/wordpress/>)

North Carolina Chapter of the American Fisheries Society (<https://nc.fisheries.org/>)