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

To see more about what you will learn in this program, visit the Learning Outcomes website (https://apps.oirp.ncsu.edu/pgas/)!

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

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Box 8008
North Carolina State University,
Raleigh, North Carolina 27695-8008

Plan Requirements

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENV 100</td>
<td>Student Success in Environmental First Year</td>
</tr>
<tr>
<td>ENV 101</td>
<td>Exploring the Environment</td>
</tr>
<tr>
<td>MA 131</td>
<td>Calculus for Life and Management Sciences A</td>
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<td>BIO 181</td>
<td>Introductory Biology: Ecology, Evolution, and Biodiversity</td>
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<tr>
<td>BIO 183</td>
<td>Introductory Biology: Cellular and Molecular Biology</td>
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| 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) | | 4 |

<table>
<thead>
<tr>
<th>Hours</th>
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Second Year

| 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 |

<table>
<thead>
<tr>
<th>Hours</th>
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Summer

| 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 |

<table>
<thead>
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<th>Hours</th>
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Third Year

| FW 353 | Wildlife Management | 3 |
| FW 373 | Vertebrate Natural History | 3 |
| FW 411 | Human Dimensions of Wildlife and Fisheries | 3 |
| FOR 339 | Dendrology | 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 | |

<table>
<thead>
<tr>
<th>Hours</th>
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</table>

Fourth Year

| FW 404 | Wildlife Habitat Management | 3 |
| FW 415 | Professional Development in Fisheries, Wildlife, and Conservation Biology | |
| 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. 3) | | 3 |
Wildlife Elective (p. 3) 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
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<tr>
<td>GEP</td>
<td>Humanities [<a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a>]</td>
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<td>GEP</td>
<td>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>]</td>
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<td>GEP</td>
<td>Additional Breadth [<a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-additional-breadth/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-additional-breadth/</a>] (Humanities/Social Sciences/Visual and Performing Arts)</td>
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<td>GEP</td>
<td>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)</td>
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<td>Foreign Language Proficiency [<a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-foreign-language-proficiency/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-foreign-language-proficiency/</a>] (verify requirement)</td>
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<td><strong>Total Hours</strong></td>
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</table>

1 A grade of C- or better is required.

## GEP Courses

**Code** | **Title** | **Hours** | **Counts towards**
--- | --- | --- | ---
ENG  | Academic Writing and Research | 4 | |
FLE  | Academic Writing and Research | 4 | |
**Transfer Sequence**
ENG  | Disciplinary Perspectives in Writing | | |
ENG  | 100 Level English Composition | 3 | |

## Communication Electives

**Code** | **Title** | **Hours** | **Counts towards**
--- | --- | --- | ---
COM  | Introduction to Persuasion Theory | 3 | |

## Policy Electives

**Code** | **Title** | **Hours** | **Counts towards**
--- | --- | --- | ---
ARE  | Environmental Law & Economic Policy | 3 | |
FOR  | Forest Soils | 4 | |
NR  | Renewable Natural Resource Management and Policy | 3 | |
NR  | Renewable Natural Resource Management and Policy | 3 | |
PS  | U.S. Environmental Law and Politics | 3 | |

## Quantitative Electives

**Code** | **Title** | **Hours** | **Counts towards**
--- | --- | --- | ---
CSC  | Calculus for Life and Management Sciences B | 3 | |
MA  | Calculus II | 4 | |
ST  | Introduction to Statistics II | 3 | |

## Economics Electives

**Code** | **Title** | **Hours** | **Counts towards**
--- | --- | --- | ---
ARE | Introduction to Agricultural & Resource Economics | 3 | |
ARE | Introduction to Agricultural & Resource Economics | 3 | |
EC  | Principles of Microeconomics | 3 | |
EC  | Fundamentals of Economics | 3 | |
**Fisheries, Wildlife, and Conservation Biology (BS): Wildlife Science Concentration**

PS 336  
Global Environmental Politics  
3

### Physical Science Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
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<tbody>
<tr>
<td>CH 201</td>
<td>Chemistry - A Quantitative Science</td>
<td>3</td>
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<td>CH 202</td>
<td>Quantitative Chemistry Laboratory</td>
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<tr>
<td>CH 223</td>
<td>Organic Chemistry II</td>
<td>3</td>
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<td>MEA 100</td>
<td>Earth System Science: Exploring the Connections</td>
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<td>MEA 130</td>
<td>Introduction to Weather and Climate</td>
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<td>MEA 200</td>
<td>Introduction to Oceanography</td>
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<td>MEA 210</td>
<td>Oceanography Lab</td>
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<td>MEA 220</td>
<td>Marine Biology</td>
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<td>MEA 250</td>
<td>Introduction to Coastal Environments</td>
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<td>MEA 323</td>
<td>Geochemistry of Natural Waters</td>
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<td>PY 212</td>
<td>College Physics II</td>
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### Wildlife Electives

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<tbody>
<tr>
<td>AEC 501</td>
<td>Avian Ecology</td>
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<td>ENT 201</td>
<td>Insects and People</td>
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<td>ENT 402</td>
<td>Forest Entomology</td>
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<td>ENT 425</td>
<td>General Entomology</td>
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<td>FOR 402</td>
<td>Forest Entomology</td>
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<td>FW 333</td>
<td>Conservation Biology in Practice</td>
<td>3</td>
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<td>FW 403</td>
<td>Urban Wildlife Management</td>
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<td>FW 405</td>
<td>Tropical Wildlife Ecology</td>
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<td>FW 444</td>
<td>Mammalogy</td>
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<td>FW 460</td>
<td>International Wildlife Management and Conservation</td>
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<td>FW 465</td>
<td>African Ecology and Conservation</td>
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<td>FW 544</td>
<td>Mammalogy</td>
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<td>FW 560</td>
<td>International Wildlife Management and Conservation</td>
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<td>FW 565</td>
<td>African Ecology and Conservation</td>
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<td>SSC 200</td>
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<td>ZO 250</td>
<td>Animal Anatomy and Physiology</td>
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<td>ZO 410</td>
<td>Introduction to Animal Behavior</td>
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<tr>
<td>ZO 542</td>
<td>Herpetology</td>
<td>3</td>
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</table>

### 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**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tr>
<td>ENV 100 &amp; ENV 101</td>
<td>Student Success in Environmental First Year and Exploring the Environment</td>
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<tr>
<td>ENG 101</td>
<td>Academic Writing and Research ¹</td>
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<tr>
<td>MA 131</td>
<td>Calculus for Life and Management Sciences A</td>
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<td>BIO 181</td>
<td>Introductory Biology: Ecology, Evolution, and Biodiversity</td>
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**Spring Semester**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 101</td>
<td>Chemistry - A Molecular Science</td>
<td>3</td>
</tr>
<tr>
<td>CH 102</td>
<td>General Chemistry Laboratory</td>
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<tr>
<td>BIO 183</td>
<td>Introductory Biology: Cellular and Molecular Biology</td>
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<td>COM 110 or COM 112</td>
<td>Public Speaking or Interpersonal Communication</td>
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<td>GEP Humanities</td>
<td><a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a></td>
<td>3</td>
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</table>

**Hours**  
15
## Second Year
### Fall Semester
- **PB 200**  Plant Life  4
- **FW 221**  Conservation of Natural Resources  3
- **Communications Elective (p. 2)**  3
- **PY 131**  Conceptual Physics  4
- **FOR 172**  Forest System Mapping and Mensuration I  2

**Hours**  16

### Spring Semester
- **Economics Elective (p. 2)**  3
- **PB 360**  Ecology  4
- **GEP Additional Breadth**  (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/) (Humanities/Social Sciences/Visual and Performing Arts)  3
- **Quantitative Elective (p. 2)**  3

**Hours**  13

### Summer
Summer Camp courses may be substituted by a combination of two approved FWCB internship\(^1\) 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

**Hours**  6

## Third Year
### Fall Semester
- **FOR 339**  Dendrology  4
- **FW 353**  Wildlife Management (CP)  3
- **GN 301**  Genetics in Human Affairs  3-4
  or **GN 311**  Principles of Genetics
- **ST 311**  Introduction to Statistics  3

**Hours**  13

### Spring Semester
- **GEP Humanities**  (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/)  3
- Select one of the following:  4
  - **CH 220**  Introductory Organic Chemistry and Organic Chemistry I Lab
  - **CH 221**  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

**Hours**  16

## Fourth Year
### Fall Semester
- **ENT 201**  Insects and People (GEP Interdisciplinary Perspectives)  3

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<th>Course</th>
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<tr>
<td>GIS 280</td>
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<td>FW 404</td>
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<td>FW 415</td>
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</tbody>
</table>

**Hours**  13

**Total Hours**  120

1 A grade of C- or better is required.

2 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.