

**College of Natural Resources and Environment  
Department of Fish and Wildlife Conservation  
Bachelor of Science in Fish and Wildlife Conservation  
Major in Fish Conservation  
Freshwater Fisheries Conservation Option (FFC)  
For student date of entry under UG Catalog 2023-2024**

Minimum hours for degree is 120. A minimum cumulative GPA of 2.0 is required for all work applied to the major.

**Pathways Requirements (45 credits)**

**Concept 1f: Foundational Discourse (6 credits)**

- ENGL 1105 First-Year Writing (3)
- ENGL 1106 First-Year Writing (3)

**Concept 1a: Advanced/Applied Discourse (3) (choose one):**

- ALCE 3634 Communicating Ag and Life Sciences in Speaking (3)
- COMM 2004 Public Speaking (3)

**Concept 2: Critical Thinking in the Humanities (6 credits)**

- Concept 2 course: \_\_\_\_\_ (3)
- Concept 2 Ethics elective (3) (choose one):
  - FREC/LAR/NR 2554 Leadership for Global Sustainability (3)
  - PHIL 1304 Morality and Justice (3)
  - PHIL 2304 Global Ethics (3)

**Concept 3: Reasoning in the Social Sciences (6 credits)**

- Concept 3 course: \_\_\_\_\_ (3)
- Concept 3 Economics elective (3) (choose one):
  - AAEC 1005 or 1006 Economics of Food and Fiber Systems (3)
  - ECON 2005 or 2006 Principles of Economics (3)

**Concept 4: Reasoning in the Natural Sciences (6 credits)**

- BIOL 1105 Principles of Biology (3)
- BIOL 1106 Principles of Biology (3)

**Concept 5f: Foundational Quantitative and Computational Thinking (6 credits)**

- MATH 1025 Elementary Calculus or MATH 1225 Calculus of a Single Variable (3 or 4 credits)
- MATH 1026 Elementary Calculus (Pre: 1025) or MATH 1226 Calculus of a Single Variable (Pre:1225) (3 or 4 credits)

**Concept 5a: Advanced Quantitative and Computational Thinking (3 credits) (Choose one)**

- STAT 3615 Biological Statistics (Pre: MATH 1025 or MATH 1205 or MATH 1225 or MATH 1524 or ISC 1105) (3)

**Concept 6: Critique and Practice in Design and the Arts (6 credits)**

- Concept 6a course: \_\_\_\_\_ (3)
- Concept 6d course: \_\_\_\_\_ (3)

**Concept 7: Critical Analysis of Identity and Equity in the United States (3 credits)**

- Concept 7 course: \_\_\_\_\_ (3)

**Common Degree CORE Requirements (20-21 credits)**

- \_\_\_ BIOL 1115 Principles of Biology Laboratory (Pre: or Co: 1105) (1)
- \_\_\_ BIOL 1116 Principles of Biology Laboratory (Pre: or Co: 1106) (1)
- \_\_\_ BIOL 2704 Evolutionary Biology (Pre: (1005 or 1105 or 1205H or ISC 2105), (1006 or 1106 or 1206H)) (3)
- \_\_\_ FIW 2114 Principles of Fish and Wildlife Conservation (3)
- \_\_\_ FIW 4314 Conservation of Biological Diversity (Pre: 4414, 4434) (4) (Wildlife Majors) or FIW 4714 Fisheries Management (Pre: 3514) (4) (Fisheries Majors)
- \_\_\_ FIW 4414 Population Dynamics and Estimation (Pre: 2114) (3)
- \_\_\_ FIW 4464 Human Dimensions of Fisheries and Wildlife (Pre: 2114) (3)
- \_\_\_ NR 1234 FYE Natural Resources and Environment (3) -or- NR 2234 FSE for Transfer Students in CNRE (2)

**Additional Degree Requirements (15 credits)**

- \_\_\_ CHEM 1035 General Chemistry (Co: MATH 1025 or MATH 1225) (3)
- \_\_\_ CHEM 1036 General Chemistry (Pre: 1035 or 1055 or 1055H) (3)
- \_\_\_ CHEM 1045 General Chemistry Laboratory (Co: 1035) (1)
- \_\_\_ CHEM 1046 General Chemistry Laboratory (Pre: 1045 or 1065; Co: 1036) (1)
- \_\_\_ Experiential Learning Requirement (1) (choose one; requires department approval):
  - \_\_\_ FIW 2974 Independent Study (1-3)
  - \_\_\_ FIW 2994 Undergraduate Research (1-3)
  - \_\_\_ FIW 3964 Internship through Directed Field Study (1-3)
  - \_\_\_ FIW 4974 Independent Study (1-3)
  - \_\_\_ FIW 4994 Undergraduate Research (1-3)
  - \_\_\_ XXXX 3954 Study Abroad (1-3)
- \_\_\_ Legal Foundation Restricted Elective (3) (choose one):
  - \_\_\_ AAEC 3314 Environmental Law (3)
  - \_\_\_ FIW 2514 Fish and Wildlife Conservation Policy (3)
  - \_\_\_ FREC 4434 Natural Resource Policy (Pre: NR/FOR 4014 or FREC 4424 or ECON 4014) (3)
  - \_\_\_ UAP 3354 Introduction to Environmental Policy and Planning (3)
  - \_\_\_ UAP 4344 Law of Critical Environmental Areas (3)
- \_\_\_ Writing Restricted Elective (3) (choose one):
  - \_\_\_ ALCE 3624 Communicating Agriculture and Life Sciences in Writing (3)
  - \_\_\_ ENGL 3764 Technical Writing (Junior standing. Pre: 1106 or 1204H or COMM 1016) (3)
  - \_\_\_ ENGL 3774 Business Writing (Junior standing) (3)

**Major Requirements (19 credits)**

- \_\_\_ BIOL 2804 Ecology (Pre: BIOL 1005 or BIOL 1105 or BIOL 1205H or ISC 2105), (BIOL 1006 or BIOL 1106 or BIOL 1206H) (3)
- \_\_\_ FIW 3514 Fisheries Techniques (Pre: 2114) (3)
- \_\_\_ FIW 4424 Ichthyology (4)
- \_\_\_ FIW 4614 Fish Ecology (Pre: BIOL 1106) (3)
- \_\_\_ Geographic Information Systems Restricted Elective (3) (choose one):
  - \_\_\_ FREC 4114 Information Technology for Natural Resources Management (Pre: FREC/FOR

- 2214 or GEOG 2314) (3)
- FREC 4214 Forest Photogrammetry (Senior Standing) (3)
- GEOG 2084 Principles of Geographic Information Systems (3)
- GEOG 4354 (GEOS 4354) Introduction to Remote Sensing (3)
- \_\_ GEOS 3034 Oceanography (3)

**Freshwater Fisheries Conservation Option Requirements (17 credits)**

- \_\_ FIW/FREC 4324 Genetics of Natural and Managed Populations (Pre: BIOL 1105, 1106, (STAT 3005 or STAT 3615 or FOR/FREC 3214)) (3)
- \_\_ STAT 3616 Biological Statistics (Pre: 3615) (3)
- \_\_ Physical Science Restricted Elective (3) (choose one):
  - ENSC 3134 Soils in the Landscape (3)
  - GEOS 1004 Introduction to Earth Science (3)
  - GEOS 1024 Earth Resources, Society, & Environment (3)
  - PHYS 2205 General Physics (Pre: MATH 1016 or MATH 1016H or MATH 1025 or MATH 2015 or MATH 1026 or MATH 1205 or MATH 1205H or MATH 1525 or MATH 1225 or MATH 1535 or MATH 1225H) (3)
  - PHYS 2206 General Physics (Pre: 2205) (3)
- \_\_ Aquatic Ecology Restricted Elective (choose two):
  - BIOL 4004 Freshwater Ecology (Pre: 2804 or 2804H) (4)
  - BIOL 4454 Invertebrate Zoology (Pre: 2504) (4)
  - ENT 4354 Aquatic Entomology (Pre: (BIOL 1005, BIOL 1006), (BIOL 1015, BIOL 1016) or (BIOL 1105, BIOL 1106, BIOL 1115, BIOL 1116)) (4)

Free electives – 3-4 credits    **Degree total 120 Credits**

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**Foreign Language<sup>1</sup>**

- \_\_ 2 years of one language in high school – or – FL 1105 and 1106

**Notes:**

**1. University Requirements—Foreign Language Policy**

A sequence of two (2) foreign language courses is required for graduation unless two (2) high school units of the same foreign language or six (6) transfer credit hours of foreign language have been earned. These credits do not count toward graduation. See catalog section on “Graduation Requirements”.

**2. Major Requirements:**

To earn a B.S. degree in Fish Conservation, a student must pass the following courses, or their equivalents, with a **grade of C - or better**: BIOL 1105, BIOL 1106, BIOL 1115, BIOL 1116; CHEM 1035, CHEM 1036, CHEM 1045, CHEM 1046; MATH 1026 or MATH 1226; and FIW 2114.

There are no hidden prerequisites on this check sheet; however, course requirements may change over time, and students should always check for prerequisites for classes they select.

Students should consult [www.fishwild.vt.edu/experiential\\_learning.html](http://www.fishwild.vt.edu/experiential_learning.html) for more details on how to fulfill the experiential learning requirement. Note that you will not receive credit for your experiential learning until **ALL** the documents related to the experience are completed and submitted, in addition to being registered for the experience. Students enrolling in FIW 2974, 3964, or 4974 should use the P/F option; FIW 2994, 4994 and XXXX 3954 may be taken P/F or A/F.

FIW 2514 Fish and Wildlife Conservation Policy is one option for the Legal Foundation Restricted Elective, under Additional Major Requirements, and it can also serve as an option for 3 credit hours under Pathways Concept 3 requirements.

To remain in good standing, a student must achieve and maintain an overall and in-major cumulative GPA of at least 2.0. Courses used for the in-major GPA computation include all those designated as FIW, FREC, GEOG, NR, and SBIO. To graduate, a student must achieve an overall and in-major cumulative GPA of at least 2.0.

3. In accordance with university guidelines, courses satisfying degree core requirements may not be double counted to satisfy other areas of a degree (e.g., Pathways).
4. **Satisfactory Progress**  
By the end of the semester in which they have attempted 60 hours (including transfer, advanced placement, advanced standing, and credit by examination), students must pass the courses listed in item number 2 above (or their equivalents).