Twin Cities Campus

Fisheries, Wildlife, and Conservation Biology B.S.

Fisheries, Wildlife, and Conservation Biology

College of Food, Agricultural and Natural Resource Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2023
- Required credits to graduate with this degree: 120
- Required credits within the major: 72 to 81
- This program requires summer terms.
- Degree: Bachelor of Science

The fisheries, wildlife, and conservation biology curriculum gives students a broad science background emphasizing biological and environmental sciences and other coursework needed for careers in fisheries, wildlife, conservation biology, and other natural resource and environmental fields. Graduates are prepared to research, plan, and implement the management, protection, and enhancement of fisheries and aquatic resources, wildlife resources, and biological diversity. Graduates find employment as fisheries and wildlife scientists and managers, naturalists, zoo biologists, environmental biologists, environmental educators, and other natural resource professionals. The program also provides students with the fundamental science background needed to enter a wide variety of graduate programs in biological and natural resource sciences, as well as professional programs in veterinary medicine, environmental law, and environmental education.

Students select an area of specialization, usually by the end of the sophomore year. Areas of specialization include conservation biology, fisheries and aquatic sciences, and wildlife.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements.Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

At least 20 upper-division credits in the major must be taken at the University of Minnesota Twin Cities campus.

Students may fulfill the minimum requirements for admission to the University's College of Veterinary Medicine and other colleges of veterinary medicine by completing a bachelor's degree in fisheries and wildlife within any of the three areas of specialization.

Mathematical Thinking (8 credits)

MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
FW 4001 - Biometry (4.0 cr)
or ESPM 3012 - Statistical Methods for Environmental Scientists and Managers [MATH] (4.0 cr)

Chemistry (4 credits)

CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)

Biological Sciences (17 credits)

BIOL 1009 - General Biology [BIOL] (4.0 cr)
BIOL 3012 - Animal Diversity and Evolution (4.0 cr)
PMB 2022 - General Botany (3.0 cr)
FW 4301 - Conservation Genetics (3.0 cr)
or GCD 3022 - Genetics (3.0 cr)
EEB 3407 - Ecology (3.0 cr)

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or EEB 3408W - Ecology [WI] (4.0 cr)

Fisheries, Wildlife, and Conservation Biology Courses (13 credits)

The Interdisciplinary Learning requirement is met with FW 2001W.
FW 1001 - Orientation in Fisheries, Wildlife, and Conservation Biology (1.0 cr)
FW 2001W - Introduction to Fisheries, Wildlife, and Conservation Biology [ENV, WI] (3.0 cr)
FW 3106 - Vegetation Sampling for Habitat Assessments (1.0 cr)
FW 3108 - Field Methods in Research and Conservation of Vertebrate Populations (3.0 cr)
FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)

Experiential Learning - Professional Experience

All students must take either CFAN 3096 or CFAN 4096. Students have three options for fulfilling the professional experience required in these courses: an official internship, a supervised research experience of at least 100 hours (e.g. UROP), or a major capstone research project in a study abroad program. Study abroad option must be discussed and approved by the FWCB major coordinator. Research option must be discussed and approved by a FWCB faculty supervisor.
CFAN 3096 - Making the Most of your Professional Experience (1.0 cr)
or CFAN 4096 - Reflecting on Your Professional Experience (1.0 cr)

Restricted Electives

Communications (3-4 credits)

Take exactly 1 course(s) from the following:
•AECM 2421W - Professional and Oral Communication for Agriculture, Food & the Environment [WI] (3.0 cr)
•COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
•WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Human Dimensions (6-7 credits)

Take exactly 2 course(s) from the following:
•FW 3925 - Human Dimensions of Fisheries and Wildlife Management (3.0 cr)
•ESPM 3011W - Ethics in Natural Resources [CIV, WI] (3.0 cr)
•ESPM 3014 - Tribal and Indigenous Natural Resource Management (3.0 cr)
•ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
•ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
•ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
•ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
•ESPM 3271 - Environmental Policy, Law, and Human Behavior [CIV, SOCS] (3.0 cr)
•ESPM 3921 - Science and Critical Thinking for Understanding Our World [CIV] (3.0 cr)

Animals and Plants (9-12 credits)

Take exactly 3 course(s) from the following:
•FW 2003 - Introduction to Marine Biology (3.0 cr)
•FW 4101 - Herpetology (4.0 cr)
•FNRM 1101 - Dendrology: Identifying Forest Trees and Shrubs (3.0 cr)
•FW 4136 - Ichthyology (4.0 cr)
•ENT 3021 - Insect Biodiversity and Evolution (4.0 cr)
•PMB 4321 - Minnesota Flora (3.0 cr)
•PMB 4511 - Flowering Plant Diversity (3.0 cr)
•EEB 4129 - Mammalogy (4.0 cr)
or EEB 4839 - Field Studies in Mammalogy (4.0 cr)
•EEB 4134 - Introduction to Ornithology (4.0 cr)
or EEB 4844 - Field Ornithology (3.0 cr)

Community and Ecosystem Ecology (3-4 credits)

Take exactly 1 course(s) totaling 3 - 4 credit(s) from the following:
•EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
•ESPM 3575 - Wetlands (3.0 cr)
•FNRM 3104 - Forest Ecology (4.0 cr)
•FNRM 3203 - Forest Fire and Disturbance Ecology (3.0 cr)
•FNRM 3204 - Landscape Ecology and Management (3.0 cr)
•ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
•ESPM 5071 - Ecological Restoration (4.0 cr)
•EEB 3603 - Science, Protection, and Management of Aquatic Environments (3.0 cr)
or EEB 5601 - Limnology (3.0 cr)

Advanced Courses in FWCB (9-11 credits)

Select three classes in total, including at least one of the first 3 choices.
Take exactly 3 course(s) from the following:
•FW 4102 - Principles of Conservation Biology [ENV] (3.0 cr)
•FW 4103 - Principles of Wildlife Management (3.0 cr)
•FW 4107 - Principles of Fisheries Science and Management (3.0 cr)
•FW 4401 - Fish Physiology and Behavior (3.0 cr)
•FW 5051 - Analysis of Populations (4.0 cr)

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- FW 5603W - Habitats and Regulation of Wildlife [WI] (3.0 cr)
- FW 5459 - Stream and River Ecology (3.0 cr)
- ESPM 3015 - Invasive Plants and Animals: Ecology and Management (3.0 cr)
- ESPM 3251 - Natural Resources in Sustainable International Development [GP] (3.0 cr)
- ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
- FNRM 3411 - Managing Forest Ecosystems: Silviculture (3.0 cr)
- FNRM 4232W - Managing Recreational Lands [WI] (4.0 cr)

Upper Division Writing Intensive within the Major

Students are required to take one upper division writing intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:

- EEB 3408W - Ecology [WI] (4.0 cr)
- EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
- ESPM 3011W - Ethics in Natural Resources [CIV, WI] (3.0 cr)
- ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
- ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
- ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
- FW 5603W - Habitats and Regulation of Wildlife [WI] (3.0 cr)
- WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

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Information current as of March 28, 2024