

Department of Wildlife, Fisheries and Aquaculture

Major Advisors: Andy Kouba, Department Head; Leslie Burger, Undergraduate Coordinator

Office: A205 Thompson Hall; 259 Thompson Hall

Sustainable management of wildlife and fisheries resources by private and public sectors requires knowledgeable and technically competent people. The Department of Wildlife, Fisheries and Aquaculture offers a major in Wildlife, Fisheries and Aquaculture (WFA) designed to provide students with a foundational curriculum grounded on biology, ecology, habitat and population management, social sciences, mathematics, and other contemporary educational needs for natural resources professionals. Six concentrations are available to students: wildlife, fisheries and aquaculture science; conservation law enforcement; wildlife veterinary medicine; conservation biology; wildlife agriculture conservation; and human-wildlife interactions. The curriculum will prepare students for employment in natural resource professions within private, federal, or state wildlife, fisheries, or aquaculture sectors. Additionally, the curriculum ensures students are academically prepared for post-graduate studies. Students are also strongly encouraged to garner professional experience in conversation-related disciplines to enhance employability & professional development.

Students seeking to apply to veterinary school should choose the wildlife veterinary medicine concentration curriculum. The wildlife veterinary medicine concentration allows students to fulfill the academic requirements for entrance into veterinary school while completing a baccalaureate program in wildlife-related science.

A student may use their curriculum coursework to fulfill the coursework requirements necessary to become a Certified Associate Wildlife Biologists by The Wildlife Society and/or an Associate Fisheries Scientist by the American Fisheries Society.

The Wildlife, Fisheries and Aquaculture Major is designed for completion within four years, but some students may not complete the program in that time because of course scheduling or other constraints. Transfer students are encouraged to contact the College of Forest Resources Student Support Services after completing their freshman year to get assistance in course planning that will enable graduation from MSU in four years. Transfer students should be aware that coursework taken elsewhere may not necessarily be accepted toward a degree in Wildlife, Fisheries and Aquaculture. Only coursework determined by the Registrars' Office and the Wildlife, Fisheries and Aquaculture Department to be equivalent to required coursework will be accepted. Additionally, no coursework will be considered for acceptance unless a grade of C or better has been earned. Correspondence courses will not be accepted. Transfer students with a grade point average less than or equal to 2.0 may not be admitted automatically into the WFA major. In addition to University and College requirements, students must attain a minimum grade of C in WFA Major Core courses. Students interested in pursuing the Veterinary Medicine program must meet all admission requirements by the College of Veterinary Medicine.

Conservation Law Enforcement Concentration (CLE)

Advisor: Dr. Kevin M. Hunt

Room 1203 Sustainable Bioproducts Lab (Building 1)

This concentration is designed for undergraduate students who wish to seek employment immediately following receipt of a B.S. degree and wish to obtain positions related to natural resource law enforcement (e.g., conservation officers, park rangers) or wildlife managers (not biologists). Students seeking careers in conservation law enforcement should be aware that application and acceptance into enforcement training programs will still be necessary upon completion of a B.S. degree. Students may, upon graduation within this concentration, continue on to graduate school in the human dimensions, law enforcement, or wildlife arenas.

Wildlife, Fisheries and Aquaculture Science Concentration (WLFS)

Advisor: Dr. Leslie Burger

Room 259 Thompson Hall

This concentration is designed for undergraduate students who wish to pursue one or more advanced degrees (M.S., Ph.D.), as it prepares students for graduate school. Employment following this B.S. program is possible, but competition for jobs may be keen. This concentration is intended for serious, academically strong students who can maintain an A-B grade record (GPA 3.0), which is the minimum required for admittance into most graduate schools.

Wildlife Veterinary Medicine Concentration (WLVM)

Advisor: Dr. Peter Allen

Room 261 Thompson Hall

This academically rigorous curriculum provides students with solid training in wildlife and fisheries science that allows them to meet veterinary school entry requirements as well as prepares them for employment or graduate school. Acceptance to veterinary medicine schools is a highly competitive process and successful completion of the WLVM curriculum with an A-B academic record will be necessary to improve the likelihood of acceptance to a veterinary medicine school.

Wildlife Agriculture Conservation Concentration (WLAC)

Advisors: Dr. Mark McConnell

Room 251 Thompson Hall

This curriculum provides the educational background for students pursuing careers as wildlife biologists or conservationists in agricultural areas, which require a strong background in both wildlife biology and agricultural science. Successful graduates of this program will meet minimum educational requirements for NRCS conservationist positions. Students completing this concentration may seek employment immediately following graduation. Students will be equally prepared to pursue one or more graduate degrees (M.S., Ph.D.) in wildlife biology and related natural resource fields.

Human-Wildlife Interactions Concentration (HWI)

Advisor: Dr. Ray Iglay
Room 271 Thompson Hall

This curriculum provides the educational background for those students wishing to pursue a career as a wildlife biologist with a strong background in addressing human-wildlife interactions, including conflict resolution. Students completing this concentration may seek employment immediately following graduation; however, competition for positions may be intense. Students will be equally prepared to pursue one or more graduate degrees (M.S., Ph.D.).

Conservation Biology Concentration (CONB)

Advisor: Dr. Kristine O. Evans
Room 265 Thompson Hall

This curriculum provides undergraduate students with a comprehensive background necessary for regional, national, and international careers in conservation biology. Students will be equipped with skill sets to address population ecology, imperiled and at-risk species, global threats to biodiversity, in situ and ex situ conservation, conservation genetics, conservation planning, and sociocultural elements of conservation. This concentration is intended for serious, academically strong students, who can maintain an A-B grade record (GPA 3.0), which is the minimum required for admittance into graduate schools. Students will be equally prepared for entry-level employment.

General Education Requirements

English Composition

| | | |
|------------|--------------------------------|---|
| EN 1103 | English Composition I | 3 |
| or EN 1104 | Expanded English Composition I | |
| EN 1113 | English Composition II | 3 |
| or EN 1173 | Accelerated Composition II | |

Mathematics and Statistics

| | | |
|--------------------|--|---|
| see concentrations | | 6 |
|--------------------|--|---|

Natural Science

| | | |
|----------|------------|---|
| BIO 1134 | Biology I | 4 |
| BIO 1144 | Biology II | 4 |

Humanities

| | | |
|--|---|-----|
| PHI 1123 | Introduction to Ethics (required for CLE) | 3 |
| Any Gen Ed course; 1 for CLE, 2 for all other concentrations | | 3-6 |

Fine Arts

| | | |
|------------------------------|--|---|
| Any General Education course | | 3 |
|------------------------------|--|---|

Social/Behavioral Sciences

| | | |
|---|--|---|
| PSY 1013 | General Psychology (required for CLE) | 3 |
| SO 1003 | Introduction to Sociology (required for CLE) | 3 |
| WFA Social/Behavioral Sciences (all concentrations except CLE) ¹ | | 3 |
| Any Gen Ed course (all concentrations except CLE) | | 3 |

Major Core ²

| | | |
|--------------------------------|--|---|
| WFA 1102 | Wildlife and Fisheries Profession | 2 |
| WFA 3133 | Applied Ecology | 3 |
| WFA 4153 | Principles of Wildlife Conservation and Management | 3 |
| WFA 4223 | Wildlife Plant Identification | 3 |
| WFA 4243 | Wildlife Techniques | 3 |
| WFA 4353 | Fish and Wildlife Policy and Law Enforcement | 3 |
| WFA 4473 | Wildlife and Fisheries Practices | 3 |
| Plant Elective ¹ | | 3 |
| Aquatics Elective ¹ | | 3 |

| | | |
|--|---|-----------|
| WFA 4173 | Fish Physiology (required for WLVM concentration) | |
| Natural Resources Policy Elective ¹ | | 3 |
| Oral Communication Requirement | | |
| Choose One: | | |
| CO 1003 | Fundamentals of Public Speaking | 3 |
| or CO 1013 | Introduction to Communication | |
| or AELC 3333 | Professional Presentations in Agriculture and Life Sciences | |
| Writing Requirement ¹ | | 3 |
| Total | | 35 |

- ¹ All electives chosen from a list approved by the Department of Wildlife, Fisheries and Aquaculture.
- ² Note: Pre-requisites and co-requisites are strictly enforced in the College of Forest Resources. It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.

Choose one of the following concentrations:

The Concentrations: The academic concentrations within the Wildlife, Fisheries, and Aquaculture Major are offered to enable students to develop an academic background that is suited to their professional career goals. Each concentration has been developed to supplement the core curriculum which provides the basis for the wildlife and fisheries science major, regardless of the area of expertise desired by the student.

Conservation Law Enforcement Concentration (CLE)

Advisor: Dr. Kevin M. Hunt, 1203 Sustainable Bioproducts Bldg. 1
 Courses² to be taken in addition to those of the core curriculum include:

| | | |
|---|---|------------|
| CH 1043 | Survey of Chemistry I ³ | 3 |
| or CH 1213 | Chemistry I | |
| CH 1053 | Survey of Chemistry II | 3 |
| or CH 1223 | Chemistry II | |
| CRM 1003 | Crime and Justice in America | 3 |
| MA 1313 | College Algebra ³ | 3 |
| or MA 1613 | Calculus for Business and Life Sciences I | |
| ST 2113 | Introduction to Statistics ³ | 3 |
| or ST 3123 | Introduction to Statistical Inference | |
| PHI 1123 | Introduction to Ethics ³ | 3 |
| PSY 1013 | General Psychology ³ | 3 |
| SO 1003 | Introduction to Sociology ³ | 3 |
| SO 3313 | Deviant Behavior | 3 |
| or CRM 3313 | Deviant Behavior. | |
| Computer Applications Elective ¹ | | 3 |
| CLE Elective ¹ | | 18 |
| Natural Resources Mgt Elective ¹ | | 17 |
| Zoology requirement | | 4 |
| BIO 3524 | Biology of Vertebrates | |
| Total Hours | | 124 |

- ¹ All electives are chosen from a list approved by the Department of Wildlife, Fisheries and Aquaculture.
- ² It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.
- ³ Course meets MSU General Education requirements

Wildlife, Fisheries and Aquaculture Science Concentration (WLFS)

Advisor: Dr. Leslie Burger, 259 Thompson Hall
 Courses² to be taken in addition to those of the core curriculum include:

| | | |
|------------|------------------------------------|---|
| BIO 3103 | Genetics I | 3 |
| CH 1043 | Survey of Chemistry I ³ | 3 |
| or CH 1213 | Chemistry I | |

| | | |
|--|--|------------|
| CH 1053 | Survey of Chemistry II | 3 |
| or CH 1223 | Chemistry II | |
| MA 1613 | Calculus for Business and Life Sciences I ³ | 3 |
| or MA 1713 | Calculus I | |
| PSS 3301 | Soils Laboratory | 1 |
| PSS 3303 | Soils | 3 |
| ST 2113 | Introduction to Statistics ³ | 3 |
| or ST 3123 | Introduction to Statistical Inference | |
| WFA 4123 | Wildlife & Fisheries Biometrics | 3 |
| WFLS Professional Electives ¹ | | 21 |
| Wildlife Biology Electives ¹ | | 6 |
| Life Science elective ¹ | | 4 |
| Computer Application Elective ¹ | | 3 |
| Zoology elective | | 3 |
| Free elective | | 1 |
| Total Hours | | 124 |

¹ All electives are chosen from a list approved by the Department of Wildlife, Fisheries and Aquaculture.

² It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.

³ Course meets MSU General Education requirements

Wildlife Veterinary Medicine Concentration (WLVM)

Advisor: Dr. Peter Allen, 261 Thompson Hall

Courses² to be taken in addition to those of the core curriculum include:

| | | |
|--|--|------------|
| BCH 4013 | Principles of Biochemistry | 3 |
| BIO 3103 | Genetics I | 3 |
| BIO 3304 | General Microbiology | 4 |
| CH 1213 | Chemistry I ³ | 3 |
| CH 1211 | Investigations in Chemistry I | 1 |
| CH 1223 | Chemistry II | 3 |
| CH 1221 | Investigations in Chemistry II | 1 |
| CH 4513 | Organic Chemistry I | 3 |
| CH 4511 | Organic Chemistry Laboratory I | 1 |
| CH 4523 | Organic Chemistry II | 3 |
| CH 4521 | Organic Chemistry Laboratory II | 1 |
| MA 1613 | Calculus for Business and Life Sciences I ³ | 3 |
| or MA 1713 | Calculus I | |
| ST 2113 | Introduction to Statistics ³ | 3 |
| or ST 3123 | Introduction to Statistical Inference | |
| PH 1113 | General Physics I | 3 |
| PH 1123 | General Physics II | 3 |
| Aquatics Requirement | | 3 |
| WFA 4173 | Fish Physiology | |
| Zoology requirement | | 3 |
| BIO 2103 | Cell Biology | |
| WFA 4123 | Wildlife & Fisheries Biometrics ⁴ | 3 |
| Free elective | | 1 |
| Wildlife Biology Elective ¹ | | 6 |
| WLVM Professional Electives ¹ | | 9 |
| Wildlife / Veterinary Internship | | |
| Total Hours | | 124 |

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- ² It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.
- ³ Course meets MSU General Education requirements
- ⁴ Fulfills computer application requirement

Wildlife Agriculture Conservation Concentration (WLAC)

Advisors: Dr. Mark McConnell, 251 Thompson Hall

Courses² to be taken in addition to those of the core curriculum include:

| | | |
|--|--|------------|
| BIO 3103 | Genetics I | 3 |
| CH 1043 or CH 1213 | Survey of Chemistry I ³ Chemistry I | 3 |
| CH 1053 or CH 1223 | Survey of Chemistry II Chemistry II | 3 |
| MA 1613 or MA 1713 | Calculus for Business and Life Sciences I ³ Calculus I | 3 |
| ST 2113 or MA 3123 | Introduction to Statistics ³ Introduction to Statistical Inference | 3 |
| PSS 3301 | Soils Laboratory | 1 |
| PSS 3303 | Soils | 3 |
| WFA 4123 | Wildlife & Fisheries Biometrics ⁴ | 3 |
| WFA 4373 | Principles and Practice of Conservation in Agriculture Landscapes | 3 |
| GIS Elective ¹ | | 3 |
| Crop Science elective ¹ | | 6 |
| Animal Science elective ¹ | | 3 |
| Zoology elective | | 3 |
| Free elective | | 1 |
| Wildlife Biology Elective ¹ | | 6 |
| WLAC Professional Electives ¹ | | 9 |
| Life Science elective ¹ | | 4 |
| Total Hours | | 124 |

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- ² It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.
- ³ Course meets MSU General Education requirements
- ⁴ Fulfills computer application requirement

Human-Wildlife Interactions Concentration (HWI)

Advisor: Dr. Raymond Iglay, 271 Thompson Hall

Courses² to be taken in addition to those of the core curriculum include:

| | | |
|-----------------------|--|---|
| CH 1043 or CH 1213 | Survey of Chemistry I ³ Chemistry I | 3 |
| CH 1053 or CH 1223 | Survey of Chemistry II Chemistry II | 3 |
| MA 1613 or MA 1713 | Calculus for Business and Life Sciences I ³ Calculus I | 3 |
| ST 2113 or ST 3123 | Introduction to Statistics ³ Introduction to Statistical Inference | 3 |
| PSS 3301 | Soils Laboratory | 1 |
| PSS 3303 | Soils | 3 |
| WFA 4123 | Wildlife & Fisheries Biometrics | 3 |
| WFA 4273 | Ecology and Management of Human-Wildlife Conflicts | 3 |

| | | |
|--|---|------------|
| WFA 4283 | Human-Wildlife Conflict Techniques | 3 |
| WFA 4513 | Current Topics in Human-Wildlife Interactions | 3 |
| Zoology elective ¹ | | 3 |
| HWI Professional Electives ¹ | | 12 |
| Life Science Electives ¹ | | 7 |
| Wildlife Biology Electives ¹ | | 6 |
| Computer Application Elective ¹ | | 3 |
| Free elective | | 1 |
| Total Hours | | 124 |

¹ All electives are chosen from a list approved by the Department of Wildlife and Fisheries

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³ Course meets MSU General Education requirements

Conservation Biology Concentration (CONB)

Advisor: Dr. Kristine O. Evans, 265 Thompson Hall

Courses² to be taken in addition to those of the core curriculum include:

| | | |
|--|--|------------|
| BIO 3103 | Genetics I | 3 |
| BIO 4113 | Evolution | 3 |
| CH 1211 | Investigations in Chemistry I | 1 |
| CH 1213 | Chemistry I ³ | 3 |
| CH 1221 | Investigations in Chemistry II | 1 |
| CH 1223 | Chemistry II | 3 |
| CH 2503 | Elementary Organic Chemistry | 3 |
| MA 1613 | Calculus for Business and Life Sciences I ³ | 3 |
| ST 2113 | Introduction to Statistics ³ | 3 |
| or ST 3123 | Introduction to Statistical Inference | |
| WFA 4123 | Wildlife & Fisheries Biometrics | 3 |
| WFA 4253 | Application of Spatial Technologies to Wildlife and Fisheries Management | 3 |
| WFA 4623 | Conservation Biology | 3 |
| WFA 4633 | Problem Solving in Conservation Biology | 3 |
| WFA 4881 | Current Topics in Conservation Biology | 1 |
| Computer Application Elective ¹ | | 3 |
| Organismal elective ¹ | | 6 |
| CONB Professional Electives ¹ | | 15 |
| Total Hours | | 124 |

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³ Course meets MSU General Education requirements