

# Department of Wildlife, Fisheries and Aquaculture

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**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. 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 obtain positions related to natural resource law enforcement (e.g., conservation officers, park rangers) or wildlife managers. 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 a career as a biologist or advanced degrees (M.S., Ph.D.). Employment following this B.S. program is possible, although competition for entry-level jobs can be keen. Diverse options for professional electives enable students in this curriculum to select courses of interest to career goals in wildlife, fisheries, or aquaculture.

## 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 be successful in challenging coursework. 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
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### 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
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### 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) <sup>1</sup>		3
Any Gen Ed course (all concentrations except CLE)		3

### Major Core <sup>2</sup>

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 <sup>1</sup>		3
Aquatics Elective <sup>1</sup>		3
WFA 4173	Fish Physiology (required for WLVM concentration)	

Natural Resources Policy Elective <sup>1</sup>		3
<b>Oral Communication Requirement</b>		
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	
<b>Writing Requirement <sup>1</sup></b>		<b>3</b>
<b>Total</b>		<b>35</b>

<sup>1</sup> All electives chosen from a list approved by the Department of Wildlife, Fisheries and Aquaculture.  
<sup>2</sup> 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  
 Courses<sup>2</sup> to be taken in addition to those of the core curriculum include:

CH 1043	Survey of Chemistry I <sup>3</sup>	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 <sup>3</sup>	3
or MA 1613	Calculus for Business and Life Sciences I	
ST 2113	Introduction to Statistics <sup>3</sup>	3
or ST 3123	Introduction to Statistical Inference	
PHI 1123	Introduction to Ethics <sup>3</sup>	3
PSY 1013	General Psychology <sup>3</sup>	3
SO 1003	Introduction to Sociology <sup>3</sup>	3
SO 3313	Deviant Behavior	3
or CRM 3313	Deviant Behavior.	
Computer Applications Elective <sup>1</sup>		3
CLE Elective <sup>1</sup>		18
Natural Resources Mgt Elective <sup>1</sup>		17
Zoology requirement		4
BIO 3524	Biology of Vertebrates	
<b>Total Hours</b>		<b>124</b>

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

**Wildlife, Fisheries and Aquaculture Science Concentration (WLFS)**

Advisor: Dr. Leslie Burger, 259 Thompson Hall  
 Courses<sup>2</sup> to be taken in addition to those of the core curriculum include:

BIO 3103	Genetics I	3
CH 1043	Survey of Chemistry I <sup>3</sup>	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 <sup>3</sup>	3
or MA 1713	Calculus I	
PSS 3301	Soils Laboratory	1
PSS 3303	Soils	3
ST 2113	Introduction to Statistics <sup>3</sup>	3
or ST 3123	Introduction to Statistical Inference	
WFA 4123	Wildlife & Fisheries Biometrics	3
WFLS Professional Electives <sup>1</sup>		21
Wildlife Biology Electives <sup>1</sup>		6
Life Science elective <sup>1</sup>		4
Computer Application Elective <sup>1</sup>		3
Zoology elective		3
Free elective		1
<b>Total Hours</b>		<b>124</b>

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

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

<sup>3</sup> Course meets MSU General Education requirements

## Wildlife Veterinary Medicine Concentration (WLVM)

Advisor: Dr. Peter Allen, 261 Thompson Hall

Courses<sup>2</sup> 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 <sup>3</sup>	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 <sup>3</sup>	3
or MA 1713	Calculus I	
ST 2113	Introduction to Statistics <sup>3</sup>	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 <sup>4</sup>	3
Free elective		1
Wildlife Biology Elective <sup>1</sup>		6
WLVM Professional Electives <sup>1</sup>		9
Wildlife / Veterinary Internship		
<b>Total Hours</b>		<b>124</b>

- <sup>1</sup> All electives are chosen from a list approved by the Department of Wildlife, Fisheries and Aquaculture.  
<sup>2</sup> It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.  
<sup>3</sup> Course meets MSU General Education requirements  
<sup>4</sup> Fulfills computer application requirement

## Wildlife Agriculture Conservation Concentration (WLAC)

Advisors: Dr. Mark McConnell, 251 Thompson Hall

Courses<sup>2</sup> to be taken in addition to those of the core curriculum include:

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

- <sup>1</sup> All electives are chosen from a list approved by the Department of Wildlife, Fisheries and Aquaculture.  
<sup>2</sup> It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.  
<sup>3</sup> Course meets MSU General Education requirements  
<sup>4</sup> Fulfills computer application requirement

## Human-Wildlife Interactions Concentration (HWI)

Advisor: Dr. Raymond Iglay, 271 Thompson Hall

Courses<sup>2</sup> to be taken in addition to those of the core curriculum include:

CH 1043	Survey of Chemistry I <sup>3</sup>	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 <sup>3</sup>	3
or MA 1713	Calculus I	
ST 2113	Introduction to Statistics <sup>3</sup>	3
or ST 3123	Introduction to Statistical Inference	
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 <sup>1</sup>		3
HWI Professional Electives <sup>1</sup>		12
Life Science Electives <sup>1</sup>		7
Wildlife Biology Electives <sup>1</sup>		6
Computer Application Elective <sup>1</sup>		3
Free elective		1
<b>Total Hours</b>		<b>124</b>

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

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

<sup>3</sup> Course meets MSU General Education requirements

## Conservation Biology Concentration (CONB)

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

Courses<sup>2</sup> 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 <sup>3</sup>	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 <sup>3</sup>	3
ST 2113	Introduction to Statistics <sup>3</sup>	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 <sup>1</sup>		3
Organismal elective <sup>1</sup>		6
CONB Professional Electives <sup>1</sup>		15
<b>Total Hours</b>		<b>124</b>

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

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

<sup>3</sup> Course meets MSU General Education requirements