



# Fisheries and Wildlife Science

## About this Composite Major

The Fisheries and Wildlife Sciences degree (B.A. or B.S.) prepares students for careers in natural resource management with state and federal agencies, and conservation organizations. Graduates are qualified for federal positions with agencies such as the U.S. Fish and Wildlife Service, U.S. Forest Service, National Park Service, Environmental Protection Agency, U.S. Geological Survey and others. Common conservation organizations include Ducks Unlimited, Pheasants Forever, Delta Waterfowl, and The Nature Conservancy. The degree also prepares you for higher academic degrees. The curriculum allows you to meet the certification requirements of the American Fisheries Society and The Wildlife Society. You have the choice of majoring in the Fisheries Concentration, Wildlife Concentration, Conservation Law Enforcement Concentration, or a combination of these three concentrations.

## Meet a Student



“Valley City does a very good job in the fisheries and wildlife program making sure kids have the hands on experience they need. That prepared me for internships and future jobs.” - Amy (Doll) Gebhard; fisheries biologist with South Dakota Game, Fish and Parks

“The focus is on mentoring and preparing students not only to have the academic knowledge base to be a professional, but to outline the steps needed to end up where you want to end up. You could become a scientist, or be on the ground managing a landscape.” - Kyle McLean,

PhD, Research Ecologist with USGS Northern Prairie Wildlife Research Center

## Career and Summer Internship Opportunities



Multiple field trips involving hands-on experience are taken in all fisheries and wildlife classes. Faculty strongly encourage students to get summer work experience through fisheries and wildlife internships and actively help students obtain those summer positions. VCSU biology faculty have connections with many area agencies including:

- North Dakota Game and Fish Department
- U.S. Fish and Wildlife Services
- North Dakota Parks and Recreation
- U.S. Army Corps of Engineers
- USGS Northern Prairie Wildlife Research Center

Internships provide you with great practical experience and make our graduates more competitive in the job market. Guest lecturers from various agencies often visit classrooms to lecture on management issues or discuss employment opportunities.



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## Get Involved in your Major



Both the VCSU Student Chapter of the Wildlife Society and the American Fisheries Society Student Subunit are active organizations that schedule outings and field trips. Prairie Waters Education and Research Center is a short drive away from campus. VCSU, nestled in the middle of farm country, is located minutes from wetlands, rivers, and prairie, making for phenomenal hunting and fishing. The lakes of Minnesota are one hour away, and the breathtaking badlands of western North Dakota are four hours away. With these scenic options nearby, the classroom is often reached by foot.

## Practical Experience



VCSU is uniquely positioned for students in this major to thrive with the Sheyenne River only 75 yards from the science building for hands-on lab opportunities. The program has two pontoon boats and a 20-foot sampling boat for Fisheries and Limnology field trips at Lake Ashtabula Reservoir and other area lakes. The Rhoades Science Center houses state-of-the-art terrestrial and aquatic biology labs, along with fully equipped aquatic macroinvertebrate and necropsy labs.



## Contact Information

### Department Chair

Dr. Nicholas Galt, [nicholas.galt@vcsu.edu](mailto:nicholas.galt@vcsu.edu), (701) 845-7459

### Faculty Contacts

Dr. Bob Anderson, [bob.anderson@vcsu.edu](mailto:bob.anderson@vcsu.edu), (701) 845-7338

Dr. Casey Williams, [casey.williams@vcsu.edu](mailto:casey.williams@vcsu.edu), (701) 845-7457

### Campus Location

Rhoades Science Center 203

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**Learn more  
about  
studying  
Fisheries  
and Wildlife  
at Valley  
City State  
University**



## General Education Requirements

Code	Title	Credits
<b>English Composition</b>		
Select one of the following:		6
ENGL 110	College Composition I	
ENGL 120	College Composition II	
	or ENGL 12!Introduction to Professional Writing	
or		
ENGL 120	College Composition II	
	or ENGL 12!Introduction to Professional Writing	
ENGL 210	College Composition III: Persuasive Writing	
<b>Speech Communication</b>		
Select one of the following:		3
COMM 110	Fundamentals of Public Speaking	
COMM 212	Interpersonal Communication	
COMM 216	Intercultural Communication	
<b>Mathematics</b>		
Select one of the following:		3
MATH 103	College Algebra	
MATH 104	Finite Mathematics	
MATH 107	Precalculus	
MATH 110	Mathematics in Society	
MATH 165	Calculus I	
MATH 210	Elementary Statistics <sup>1</sup>	
<b>Lab Science</b>		
Select two of the following, one must come from the Natural and Physical Sciences category		8
Natural and Physical Sciences (ND:LABSC)		
BIOL 111	Concepts of Biology	
BIOL 150	General Biology I <sup>1</sup>	
BIOL 151	General Biology II	
BIOL 170	General Zoology	
CHEM 115	Introductory Chemistry	
CHEM 116	Introduction to Organic and Biochemistry <sup>2</sup>	
CHEM 121	General Chemistry I <sup>2</sup>	
CHEM 122	General Chemistry II	
GEOL 100	Introduction to Earth Science <sup>2</sup>	
GEOL 106	The Earth Through Time	
PHYS 100	Concepts of Physics	
PHYS 110	Introductory Astronomy	
PHYS 211	College Physics I <sup>2</sup>	
PHYS 212	College Physics II	
PHYS 251	University Physics I	
PHYS 252	University Physics II	
Additional Sciences (ND:SCI)		
PSYC 240	Cognition and Brain Science	
TECH 161	Technology, Engineering, and Design	
TECH 165	Technology Solutions for Society	
<b>Wellness</b>		
Select one of the following:		2
HPER 100	Concepts of Fitness and Wellness	
HPER 212	Introduction to Stress Management	
<b>Computer Science and Literacy</b>		
Select one of the following:		3
CIS 147	Principles of Information Security	
CIS 170	Introduction to Computer Information Systems <sup>3</sup>	
CSCI 120	Introduction to Programming	

CSCI 127	Introduction to Programming in Java	
CSCI 160	Introduction to Structured Programming I	
CSCI 289	Social Implications of Computer Technology <sup>3</sup>	
SE 110	Discovering Computing	
<b>Digital Literacy</b>		
Select one of the following:		
CIS 170	Introduction to Computer Information Systems <sup>3</sup>	
CSCI 289	Social Implications of Computer Technology <sup>3</sup>	
<b>Humanities</b>		
<b>Literacies</b>		
Select one of the following:		3
ASL 101	American Sign Language I	
ASL 102	American Sign Language II	
COMM 211	Oral Interpretation	
ENGL 220	Introduction to Literature	
ENGL 225	Introduction to Film	
ENGL 231	Bible as Literature	
ENGL 232	Mythology	
ENGL 236	Women and Literature	
ENGL 241	World Literature I	
ENGL 242	World Literature II	
ENGL 261	American Literature I	
ENGL 262	American Literature II	
HUM 201	Civilization, Thought, and Literary Heritage	
PSYC 200	Ethics and Philosophy of Science	
SPAN 101	1st Year Spanish I	
SPAN 102	1st Year Spanish II	
SPAN 201	2nd Year Spanish I	
SPAN 202	2nd Year Spanish II	
THEA 110	Introduction to Theatre Arts	
<b>Art and Music</b>		
Select one of the following:		3
ART 110	Introduction to the Visual Arts	
ART 115	Introduction to Digital Media	
ART 210	Art History I	
ART 211	Art History II	
ART 233	History of Craft	
HUM 202	Fine Arts and Aesthetics	
MUS 100	Music Appreciation	
MUS 101	Music Fundamentals	
MUS 201	World Music	
MUS 207	History of Popular/Rock Music	
<b>Social Science</b>		
Select 6 credits from the following:		6
ANTH 111	Introduction to Anthropology	
COMM 112	Understanding Media and Social Change	
COMM 114	Human Communication	
ECON 201	Principles of Microeconomics	
ECON 202	Principles of Macroeconomics	
GEOG 151	Human Geography	
HIST 103	United States to 1877	
HIST 104	United States to Present	
HIST 211	World Civilizations to 1500	
HIST 212	World Civilizations since 1500	
HIST 267	Environmental History	
HIST 270	Native American Studies	
POLS 115	American National Government	
POLS 116	State and Local Government	



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PSYC 111	Introduction to Psychology
SOC 110	Introduction to Sociology
SOC 111	Introduction to Anthropology

**Additional Humanities or Social Science**

Select one additional course from Humanities or Social Science <sup>2</sup> or select from the following:

ART 122	Two-Dimensional Design
ART 130	Drawing I
ART 150	Ceramics I
ART 180	Photography I
ART 182	Art With a Smartphone
GEOG 111	Survey of Geography
MUS 104	Group Piano for Non-Majors
MUS 105	Group Piano for Non-Majors
MUS 130	Valkyries
MUS 131	Concert Choir
MUS 140	Athletic Band
MUS 141	Concert Band
PHYS 275	Planetarium Science
THEA 201	Theatre Practicum

**Total Credits** **39**

- <sup>1</sup> Required
- <sup>2</sup> Choose one of four
- <sup>3</sup> CIS 170 and CSCI 289 may be used to satisfy both the Computer Science and Literacy and the Digital Literacy requirement for Gen Ed.

**Major Requirements**

Code	Title	Credits
<b>Required Courses</b>		
BIOL 121	Introduction to Fisheries and Wildlife Sciences	4
BIOL 122	Fisheries and Wildlife Techniques	4
BIOL 151	General Biology II	4
BIOL 170	General Zoology	4
BIOL 312	Plant Diversity	4
BIOL 315	Genetics	4
BIOL 360	Environmental Law and Regulations	3
BIOL 375	Conservation Biology	4
BIOL 410	Field Ecology	4
BIOL 430	Human Dimensions in Fisheries and Wildlife	3
BIOL 455	Introduction to GIS	4
BIOL 491	Integrated Science Capstone	2
<b>Total Credits</b>		<b>44</b>

Student must complete the **Required Courses** and select at least **one Concentration** from the following:

**Fisheries Concentration**

Code	Title	Credits
<b>Concentration A-Fisheries Focus</b>		
<b>Required Courses</b>		
BIOL 347	Aquatic Entomology	4
BIOL 367	Ichthyology	4
BIOL 412	Fisheries Management	4

BIOL 440	Biostatistics and Experimental Design	4
BIOL 470	Limnology	4
ENGL 410	Technical and Scientific Writing	3
	or COMM 200 Introduction to Media Writing	
	or COMM 314 Public Relations	
	or COMM 315 Digital Communication	

**Electives - Select two courses from the following: 8**

CHEM 116	Introduction to Organic and Biochemistry
CHEM 121	General Chemistry I
CHEM 122	General Chemistry II
GEOL 300	Environmental Earth Science
GEOL 315	Soil Science and Survey
GEOL 416	Hydrology
PHYS 211	College Physics I

**Total Credits 31**

**Wildlife Concentration**

Code	Title	Credits
<b>Concentration B-Wildlife Focus</b>		
<b>Required Courses</b>		
BIOL 311	General Botany	4
	or BIOL 413 Restoration and Plant Ecology	
BIOL 336	Range Management and Range Plants	4
BIOL 343	Ornithology	4
BIOL 355	Mammalogy	4
BIOL 411	Wildlife Management	4
BIOL 440	Biostatistics and Experimental Design	4
ENGL 410	Technical and Scientific Writing	3
	or COMM 200 Introduction to Media Writing	
	or COMM 314 Public Relations	
	or COMM 315 Digital Communication	
GEOL 315	Soil Science and Survey	4
Electives - select one course from the following:		3-5
	BIOL 350 Environmental Contaminants	
	CHEM 116 Introduction to Organic and Biochemistry	
	CHEM 122 General Chemistry II	
	GEOL 300 Environmental Earth Science	
	GEOL 416 Hydrology	
	PHYS 211 College Physics I	
<b>Total Credits</b>		<b>34-36</b>

**Conservation Law Enforcement Concentration**

Code	Title	Credits
<b>Concentration C-Conservation Law Enforcement</b>		
<b>Required Courses</b>		
BIOL 280	Park Management and Communications	4
BIOL 343	Ornithology	4
BIOL 355	Mammalogy	4
BIOL 367	Ichthyology	4
CJ 201	Introduction to Criminal Justice	3
CJ 390	Criminology and Delinquency	3
POLS 376	U.S. Constitution: Civil Liberties	3
<b>Electives - Select two courses from the following: 6</b>		
	COMM 200 Introduction to Media Writing	
	COMM 314 Public Relations	
	or COMM 315 Digital Communication	



ENGL 410 Technical and Scientific Writing

**Total Credits**

**31**

**Total General Education 39 Hrs**

**Total Major Requirement 44 Hrs**

**Total Concentration Requirement 31-36 Hrs**

**Total Credits Needed to Graduate 120 Hrs**

For degree and graduation requirements, visit degree requirements and graduation requirements (<http://catalog.vcsu.edu/undergraduate-catalog/academic-affairs/degree-requirements/>).

## Fisheries Concentration



The Fisheries and Wildlife Sciences degree (B.S.) with a Fisheries focus prepares students for careers as fisheries professionals with state and federal agencies, conservation organizations, environmental consulting, and graduate school.

Graduates are qualified for federal positions with agencies such as the U.S. Fish and Wildlife Service, U.S. Forest Service, Natural Resources Conservation Service, U.S. Geological Survey and others. The degree also prepares you for higher academic degrees, and about 15% of graduates go on to earn a Master's degree. Students majoring in the Fisheries Concentration meet the certification requirements of The American Fisheries Society as an Associate Fisheries Professional upon graduation.

Hands-on experience is a major component of all Fisheries courses at VCSU and is applied in both laboratory and field settings. In addition, students are encouraged to seek real-world experience through volunteering and summer employment opportunities with fisheries professionals. This real-world experience in professional settings increases VCSU graduates' marketability when entering the workforce.

VCSU faculty use established relationships with multiple state and Federal agencies to aid students in acquiring summer employment. In addition, faculty members often offer summer employment opportunities in aquatic research to current students.

### Contact Information

#### Faculty Contacts

Dr. Casey Williams, [casey.williams@vcsu.edu](mailto:casey.williams@vcsu.edu), (701) 845-7457

#### Campus Location

Rhoades Science Center 203, (701) 845-7452

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## Career Opportunities

- Fisheries Biologist
- Natural Resources Technician
- Environmental Scientist
- Public Outreach Biologist

## Plan of Study - Fisheries Concentration

### First Year

Fall	Credits	Spring	Credits
BIOL 121	4	BIOL 122	4
BIOL 150	4	BIOL 151	4
CIS 170 (Gen Ed)	3	COMM 110 (Gen Ed)	3
ENGL 110 (Gen Ed)	3	ENGL 125 (Gen Ed)	3
UNIV 150	1	HPER 100 (Gen Ed)	2
<b>15</b>		<b>16</b>	

### Second Year

Fall	Credits	Spring	Credits
BIOL 312	4	BIOL 170	4
BIOL 347	4	BIOL 412	4
BIOL 367	4	BIOL 455	4
Elective	4	MATH 210 (Gen Ed)	3
<b>16</b>		<b>15</b>	

### Third Year

Fall	Credits	Spring	Credits
BIOL 410	4	BIOL 315	4
BIOL 470	4	BIOL 430	3
Directed Elective	4	Directed Elective	5
Lab Science (Gen Ed)	4	Social Science (Gen Ed)	3
<b>16</b>		<b>15</b>	

### Fourth Year

Fall	Credits	Spring	Credits
Additional Humanities or Social Science (Gen Ed)	2	Art & Music (Gen Ed)	3
BIOL 375	4	BIOL 360	3
BIOL 491	2	BIOL 440	4
COMM Elective	3	Elective	3
Literacies (Gen Ed)	3		
<b>14</b>		<b>13</b>	

**Total Credits 120**

## Wildlife Concentration



The Fisheries and Wildlife Sciences degree (B.S.) with a Wildlife Concentration prepares students for careers in natural resources with state and federal agencies, conservation organizations, environmental consulting, and graduate school.

Graduates are qualified for federal positions with agencies such as the U.S. Fish and Wildlife Service, U.S. Forest Service, National Park Service, Natural Resources Conservation Service, U.S. Geological Survey and others. State agencies that graduates commonly work for include the North Dakota Game and Fish Department, North Dakota Parks and Recreation, and the North Dakota Forest Service. Non-profit conservation organizations include Ducks Unlimited, Pheasants Forever, Delta Waterfowl, and The Nature Conservancy.

The degree also prepares you for higher academic degrees. On average 15% of our graduates go on to earn a Master's degree. Students majoring in the Wildlife focus meet the certification requirements of The Wildlife Society as an Associate Wildlife Biologist upon graduation.

Multiple field trips involving hands-on experience are taken in all wildlife courses. Faculty strongly encourage students to obtain summer work experience through summer internships. Internships provide students with great practical experience and make VCSU graduates more competitive in the job market. Each summer around 50 students have an internship in some area of natural resources.

VCSU faculty have a close working relationship with multiple state and Federal agencies, which enables students to get hands-on experience through field trips while also networking with professionals.

## Contact Information

### Faculty Contacts

Dr. Bob Anderson, bob.anderson@vcsu.edu, (701) 845-7338

### Campus Location

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## Career Opportunities

- Wildlife biologist or Technician
- Refuge Manager
- Environmental Consultant
- Habitat Biologist
- Public Outreach Biologist
- Rangeland Manager or Land Manager

## Plan of Study - Wildlife Concentration

### First Year

Fall	Credits	Spring	Credits
BIOL 121	4	BIOL 122	4
BIOL 150	4	BIOL 151	4
CIS 170 (Gen Ed)	3	COMM 110 (Gen Ed)	3
ENGL 110 (Gen Ed)	3	ENGL 125 (Gen Ed)	3
UNIV 150	1	HPER 100 (Gen Ed)	2
<b>15</b>		<b>16</b>	

### Second Year

Fall	Credits	Spring	Credits
Art and Music (Gen Ed)	3	BIOL 170	4
BIOL 312	4	BIOL 343	4
BIOL 355	4	BIOL 455	4
Lab Science (Gen Ed)	4	MATH 210 (Gen Ed)	3
<b>15</b>		<b>15</b>	

### Third Year

Fall	Credits	Spring	Credits
BIOL 336	4	BIOL 413	4
BIOL 410	4	BIOL 430	3
GEOL 315	4	Directed Elective	5
Social Science (Gen Ed)	3	Social Science (Gen Ed)	3
<b>15</b>		<b>15</b>	

### Fourth Year

Fall	Credits	Spring	Credits
Additional Humanities or Social Science Elective (Gen Ed)	2	BIOL 315	4
BIOL 375	4	BIOL 360	3
BIOL 411	4	BIOL 440	4
BIOL 491	2	COMM Elective	3
Literacies (Gen Ed)	3		
<b>15</b>		<b>14</b>	

**Total Credits 120**

## Conservation Law Concentration



The Fisheries and Wildlife Sciences degree (B.S.) with a Conservation Law Enforcement Concentration prepares students for law enforcement careers related to natural resource protection with state and federal agencies.

The most commonly held position with this focus is that of a Game Warden or Conservation Officer.

Game Wardens are certified peace officers that dedicate their careers to enforcing laws related to natural resources. Game wardens may also be called conservation officers, game protectors, wildlife control agents, wildlife officers, and special agents.

The U.S. Fish and Wildlife Service has Federal Wardens that are called Special Agents or Wildlife Inspectors, and often Refuge Managers also carry out law enforcement duties. Wildlife inspectors are responsible for ensuring that all wildlife shipments coming in and out of the country comply with federal laws. Graduates are also qualified for positions as Park Rangers with agencies such as the North Dakota Parks and Recreation Department and the National Park Service. In addition, this focus should benefit you in any natural resource position where you have some enforcement duty as part of your job. Each agency has specific training requirements related to law enforcement. The Federal system will send employees through the Federal Law Enforcement Training Center. North Dakota Game and Fish Department will send newly hired Game Wardens through the ND Peace Officer Training Program.

Multiple field trips involving hands-on experience are taken in all wildlife and fisheries courses. Faculty strongly encourage students to obtain summer work experience through summer internships, and to do a ride-along with a ND Game Warden.

## Contact Information

### Faculty Contacts

Dr. Bob Anderson, bob.anderson@vcsu.edu, (701) 845-7338

Dr. Casey Williams, casey.williams@vcsu.edu, (701) 845-7457



## Career Opportunities

- Game Warden
- Conservation Officer
- Park Ranger
- Wildlife Inspector

## Plan of Study - Conservation Law Concentration

### First Year

Fall	Credits	Spring	Credits
BIOL 121	4	BIOL 122	4
BIOL 150	4	BIOL 151	4
CIS 170 (Gen Ed)	3	ENGL 125 (Gen Ed)	3
ENGL 110 (Gen Ed)	3	COMM 110 (Gen Ed)	3
UNIV 150	1	HPER 100 (Gen Ed)	2
<b>15</b>		<b>16</b>	

### Second Year

Fall	Credits	Spring	Credits
BIOL 280	4	BIOL 170	4
BIOL 312	4	BIOL 343	4
BIOL 355	4	BIOL 455	4
Lab Science (Gen Ed)	4	MATH 210 (Gen Ed)	3
<b>16</b>		<b>15</b>	

### Third Year

Fall	Credits	Spring	Credits
Additional Humanities or Social Science Elective (Gen Ed)	2	BIOL 315	4
BIOL 367	4	BIOL 360	3
CJ 201	3	CJ 390	3
SOC 110 (Gen Ed)	3	Art and Music (Gen Ed)	3
Literacies (Gen Ed)	3	Elective	3
<b>15</b>		<b>16</b>	

### Fourth Year

Fall	Credits	Spring	Credits
BIOL 375	4	BIOL 430	3
BIOL 410	4	BIOL 491	2
POLS 376	3	COMM Elective	3
COMM Elective	3	Social Science (Gen Ed)	3
		Elective	3
<b>14</b>		<b>14</b>	

**Total Credits 121**

Please note: This plan is intended for general information only. Students are strongly encouraged to meet with their academic advisor each semester before registration.



## Learning Outcomes

After a student completes the Fisheries and Wildlife Science Program, he or she should be able to:

1. Demonstrate a fundamental knowledge of the major concepts in Biology and Fisheries and Wildlife Science.
2. Exhibit critical thinking skills by applying the scientific method to solve problems.
3. Exhibit the ability to read and communicate in a scientific style.
4. Analyze the consequences of activities on themselves and his/her environment.
5. Be prepared for entry-level natural resource positions and/or graduate school.