

**Warner College of Natural Resources**  
**Department of Fish, Wildlife, and Conservation Biology**  
**Major in Fish, Wildlife, and Conservation Biology**  
**WILDLIFE BIOLOGY CONCENTRATION**

A minimum grade of C (2.0) is required for all biological, mathematical/statistical, physical science, fish, wildlife, conservation biology, and natural resource courses used to meet graduation requirements for the Fish, Wildlife and Conservation Biology Major. The minimum applies to courses taken as substitutions for meeting these requirements. Additionally, CSU requires completion of a minimum of 120 credits with 42 upper division (300-level or higher) credits and successful completion of all major requirements outlined below.

Course	Title (prerequisites)	Credits	AUCC	✓
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**Freshman (suggested course progressions, however some courses may be more appropriate for later years) watch prerequisites!**

***The following courses are REQUIRED (NO Electives)***

CO	150 <sup>P</sup>	College Composition (CO 130)	3	1A	
FW	104	Wildlife Ecology and Conservation	3	3A	
FW	179	New-to-the-Major Seminar	1		
AUCC		Arts and Humanities <sup>2</sup>	3	3B	

***Select ONE SET of the following biology tracks***

BZ	110	Principles of Animal Biology	3	3A	
BZ	111 <sup>P</sup>	Animal Biology Laboratory (BZ 110 or concurrent registration)	1	3A	
BZ	120	Principles of Plant Biology	4	3A	

**OR**

LIFE	102	Attributes of Living Systems <sup>1</sup>	4	3A	
LIFE	103 <sup>P</sup>	Biology of Organisms- Animals and Plants <sup>1</sup>	4		

***Select ONE SET of the following General Chemistry and Physics tracks***

CHEM	107 <sup>P</sup>	Fundamentals of Chemistry (MATH 117 or place into MATH 118 or higher)	4	3A	
CHEM	108 <sup>P</sup>	Fundamentals of Chemistry Laboratory (CHEM 107 or concurrent registration)	1	3A	
PH	121 <sup>P</sup>	General Physics 1 (MATH 125 or concurrent registration)	5	3A	
PH	122 <sup>P</sup>	General Physics 2 (PH 121)	5	3A	

**OR**

CHEM	111 <sup>P</sup>	General Chemistry 1 (MATH118 or place into MATH124 or higher; CHEM105 or appropriate score in chem prep pre-assessment module)	4	3A	
CHEM	112 <sup>P</sup>	General Chemistry Laboratory 1 (CHEM 111 or concurrent registration)	1	3A	
CHEM	113 <sup>P</sup>	General Chemistry 2 (CHEM 107 or CHEM 111; MATH 124 or higher, or concurrent registration in MATH 124 or higher)	3		
CHEM	114 <sup>P</sup>	General Chemistry Laboratory 2 (CHEM 112; CHEM 113 or concurrent registration)	1		
PH	110	Descriptive Physics	3	3A	
PH	111 <sup>P</sup>	Descriptive Physics Laboratory (PH 110 or concurrent registration)	1	3A	

**TOTAL**

**30-32**

**Sophomore (suggested course progressions, however some courses may be taken in later years - watch prereqs!)**

***The following courses are REQUIRED (NO Electives)***

BZ	223 <sup>P</sup>	Plant Identification (BZ 120 or LIFE 103)	3		
CHEM	245 <sup>P</sup>	Fundamentals of Organic Chemistry (CHEM 107 or CHEM 113)	4		
CHEM	246 <sup>P</sup>	Fundamentals of Organic Chemistry Laboratory (CHEM 108 or CHEM 112 or CHEM 114; CHEM 245 or concurrent registration)	1		
FW	260 <sup>P</sup>	Principles of Wildlife Management (MATH 124, BZ 110 or LIFE 103)	3		
SPCM	200	Public Speaking (Or HONR 499 for Honors Program students)	3		
LIFE	320 <sup>P</sup>	Ecology (one course in biology, MATH 141 or MATH 155 or MATH 160)	3		
AUCC		Arts and Humanities <sup>2</sup>	3	3B	
AUCC		Social and Behavioral Sciences <sup>5</sup>	3	3C	

<b>Select ONE of the following Calculus courses</b>					
MATH	155 <sup>P</sup>	Calculus for Biological Scientists I (MATH 124, MATH 125)	4	1B	
<b>OR</b>					
MATH	160 <sup>P</sup>	Calculus for Physical Scientists I (MATH 124 & MATH 126 w/ a B or better)	4	1B	
<b>Select ONE of the following Statistics courses</b>					
STAT	301 <sup>P</sup>	Introduction to Statistical Methods (MATH 117 or higher)	3		
<b>OR</b>					
STAT	307 <sup>P</sup>	Introduction to Biostatistics (MATH 117 or higher)	3		
<b>TOTAL</b>			30		

<b>Summer (suggested course progression - it may be taken your Junior year summer - watch prereqs!)</b>					
NR	220 <sup>P</sup>	Natural Resources Ecology and Measurements (LIFE 103 or BZ 110 & BZ 111 or BZ 120; MATH 118)	5		
<b>TOTAL</b>			5		

<b>Junior (suggested course progressions, however some courses may be taken in later years - watch prereqs!)</b>					
<b>The following courses are REQUIRED (NO Electives)</b>					
FW	370 <sup>P</sup>	Design of Fish and Wildlife Projects (FW 260 or FW 360; LAND/LIFE 220 or LIFE 320; NR 220; MATH 155 or 160; STAT 301 or 307)	3	4A, 4B	
AUCC		Historical Perspectives <sup>7</sup>	3	3D	
AUCC		Global and Cultural Awareness <sup>8</sup>	3	3E	
<b>Select ONE of the following Invertebrate courses or course pair for 4 credits (Inverts)</b>					
BSPM	302	Applied and General Entomology	2		
<b>AND</b>					
BSPM	303A	Entomology Lab - General (BSPM 302 or concurrent registration)	2		
<b>OR</b>					
BSPM	445 <sup>P</sup>	Aquatic Insects (BZ 111 or LIFE 103)	4		
<b>OR</b>					
BZ	212 <sup>P</sup>	Animal Biology - Invertebrates (BZ 110 and 111 or LIFE 103)	4		
<b>Select ONE of the following Vertebrates courses not selected elsewhere (Vertebrates I)</b>					
BZ	330 <sup>P</sup>	Mammalogy (BZ 110 and 111 or LIFE 103)	3		
<b>OR</b>					
BZ	335 <sup>P</sup>	Ornithology (BZ 110 and 111 or LIFE 103)	3		
<b>Select ONE of the following Vertebrates courses or PAIR not taken elsewhere (Vertebrates II)</b>					
BZ	214 <sup>P</sup>	Animal Biology - Vertebrates (BZ 110 and 111 or LIFE 103)	4		
BZ	329 <sup>P</sup>	Herpetology (BZ 110 and 111 or LIFE 103)	3		
BZ	330 <sup>P</sup>	Mammalogy (BZ 110 and 111 or LIFE 103)	3		
BZ	335 <sup>P</sup>	Ornithology (BZ 110 and 111 or LIFE 103)	3		
FW	300 <sup>P</sup>	Biology and Diversity of Fishes (BZ 110 and 111 or LIFE 103)	2		
<b>AND</b>					
FW	301 <sup>P</sup>	Ichthyology Laboratory (FW 300 or concurrent registration)	1		
<b>Select ONE of the following Genetics/Evolution courses</b>					
BZ	220 <sup>P</sup>	Introduction to Evolution (BZ 110 & 111 or BZ 120 or LIFE 103)	3		
BZ	346 <sup>P</sup>	Population and Evolutionary Genetics <sup>4</sup> (BZ 220; MATH 155; STAT 301 or STAT 307)	3		
BZ	350 <sup>P</sup>	Molecular and General Genetics (BZ 110 or BZ 120 or LIFE 102; STAT 201 or concurrent registration or STAT 301 or concurrent registration or STAT 307/ERHS 307 or concurrent registration)	4		
SOCR	330 <sup>P</sup>	Principles of Genetics (BZ 110 or BZ 120 or LIFE 102)	3		

<b>Select ONE of the following Advanced Writing courses</b>					
CO	300 <sup>P</sup>	Writing Arguments (CO 150 or HONR 193)	3	2	
CO	301 A-D <sup>P</sup>	Writing in the Disciplines (CO 150 or HONR 193)	3	2	
JTC	300 <sup>P</sup>	Professional and Technical Communication (CO 150 or HONR 193)	3	2	
<b>Select ONE of the following Geospatial courses (GIS)</b>					
NR	319 <sup>P</sup>	Geospatial Applications in Natural Resources (Jr. Standing)	4		
<b>OR</b>					
NR	322	Introduction to Geographic Information Systems	4		
<b>TOTAL</b>			29-30		

**Senior (depending upon prereqs, some of these courses may be taken in earlier semesters)**  
**The following courses are REQUIRED (NO Electives)**

FW	471 <sup>P</sup>	Wildlife Data Collection and Analysis (FW 370; NR 220)	4	4C	
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**Select one of the following Biology OR Botany courses not taken elsewhere**

<b>Biology Options</b>					
ANEQ	320 <sup>P</sup>	Principles of Animal Nutrition <sup>4</sup> (ANEQ 230 or 305 or BMS 300 or BMS 360; 3 credits of 100-level Chem)	4		
BZ	220 <sup>P</sup>	Introduction to Evolution (BZ 110 & 111 or BZ 120 or LIFE 103)	3		
BZ	300 <sup>P</sup>	Animal Behavior (BZ 110; BZ 111 or LIFE 103)	3		
BZ	310 <sup>P</sup>	Cell Biology (BZ 110 or BZ 120 or LIFE 103; CHEM 245 or CHEM 341 w/ C or better)	4		
BZ	346 <sup>P</sup>	Population and Evolutionary Genetics <sup>4</sup> (BZ 220; MATH 155; STAT 301 or STAT 307)	3		
BZ	401 <sup>P</sup>	Comparative Animal Physiology (BZ 214)	3		
BZ	415 <sup>P</sup>	Marine Biology <sup>4</sup> (LIFE 320)	4		
BZ	471 <sup>P</sup>	Stream Biology and Ecology (LIFE 320 or LAND/LIFE 220)	3		
BZ	474 <sup>P</sup>	Limnology (LIFE 320 or LAND/LIFE 220)	3		
FW	400 <sup>P</sup>	Conservation of Fish in Aquatic Systems (FW 300; LIFE 320)	3		
FW	430 <sup>P</sup>	Waterfowl Ecology and Management (FW 370)	3		
FW/BZ	568	Sustaining River Ecosystems in a Changing World (instructor approval required)	3		
MIP	300 <sup>P</sup>	General Microbiology (BZ110 or 120 or LIFE102; CHEM245; CHEM341 or CHEM345 or concurrent)	3		
MIP	315	Pathology of Human and Animal Disease (LIFE102 or BZ110)	3		
NR	367 <sup>P</sup>	Concepts in Vertebrate Nutrition (CHEM 245)	3		
NR	370 <sup>P</sup>	Coastal Environmental Ecology (CHEM 107 or CHEM 113)	3		

**OR**

**Botany Options** (Botany option is recommended for all students who took LIFE102 and 103 and who are interested in working for a Federal Agency)

BZ	302 <sup>P</sup>	Poisonous Plants (BZ 102 or LIFE 103)	3		
BZ	321 <sup>P</sup>	Aquatic Vascular Plants (BZ 223 or BZ 325)	3		
BZ	325 <sup>P</sup>	Plant Systematics (BZ 220)	4		
BZ	331 <sup>P</sup>	Developmental Plant Anatomy (BZ 120 or LIFE 103)	4		
BZ	332 <sup>P</sup>	Introductory Phycology (BZ 120 or LIFE 102; BZ 220)	4		
BZ	333 <sup>P</sup>	Introductory Mycology (BZ 120 or LIFE 103)	4		
BZ	440 <sup>P</sup>	Plant Physiology (BZ 120 or LIFE 103)	3		
BZ	450 <sup>P</sup>	Plant Ecology (BZ 120 or LIFE 103)	4		
F/RS	310 <sup>P</sup>	Forest and Rangeland Ecogeography (BZ 101 or BZ 104 or BZ 110 or BZ 120 or LIFE 102)	3		
F	311 <sup>P</sup>	Forest Ecology (LAND/LIFE 220 or LIFE 320)	3		

<b>Select ONE of the following Wildlife courses not taken elsewhere</b>				
FW	304 <sup>P</sup>	Conservation of Marine Megafauna (BZ 101 or BZ110 or LIFE103)	3	
FW	375 <sup>P</sup>	Field Wildlife Studies (FW 260; LAND/LIFE 220 or LIFE 320)	3	
FW	430 <sup>P</sup>	Waterfowl Ecology and Management (FW 370)	3	
FW	455 <sup>P</sup>	Principles of Conservation Biology (FW 260; LIFE 320; STAT 301/307) *Credit not allowed for FW455 and NR300	3	
FW	465 <sup>P</sup>	Managing Human-Wildlife Conflicts (FW 260)	3	
FW	467 <sup>P</sup>	Wildlife Disease Ecology (LIFE 320)	3	
FW	469 <sup>P</sup>	Conservation and Management of Large Mammals (FW 260; BZ 330; LIFE 320; STAT 301/307)	3	
FW	472 <sup>P</sup>	Issues in Animal Conservation and Management (FW 260; LIFE 320)	3	
FW	475 <sup>P</sup>	Conservation Decision Making (MATH 155/160; STAT 301; an ECOL course)	3	
FW	477 <sup>P</sup>	Wildlife Habitat Use and Management (FW 260; NR 319 or NR 322)	3	
FW	544 <sup>P</sup>	Ecotoxicology (LAND/LIFE 220 or LIFE 320; STAT 301/307)	3	
FW	373A	Travel Abroad: Wildlife Conservation (requires Study Abroad application)	3	
FW	473A	Travel Abroad: Conservation of Desert and Marine Animals (requires Study Abroad application)	3	
<b>Select ONE of the following Human Dimensions courses not taken elsewhere</b>				
FW	472 <sup>P</sup>	Issues in Animal Conservation and Management (FW 260; LIFE 320)	3	
HIST	355 <sup>P</sup>	American Environmental History <sup>4</sup> (3 credits of history; completion of 45 credits)	3	
NR	320	Natural Resource History and Policy	3	
NR	400 <sup>P</sup>	Public Relations in Natural Resources (CO 300 or CO 301B or CO 301C or JTC 300 or LB 300)	3	
NRRT	330	Social Aspects of Natural Resource Management	3	
NRRT	400 <sup>P</sup>	Environmental Governance (NRRT 231)	3	
NRRT	440 <sup>P</sup>	Applications in Environmental Communication (NRRT 262)	3	
PHIL	320	Ethics of Sustainability	3	
PHIL	345	Environmental Ethics	3	
POLS	361 <sup>P</sup>	U.S. Environmental Politics and Policy (POLS 101)	3	
SOC	320 <sup>P</sup>	Population-Natural Resources and Environment (SOC 100/105)	3	
SOC	322 <sup>P</sup>	Introduction to Environmental Justice (SOC 100/105)	3	
SOC	460 <sup>P</sup>	Environment and Society (SOC 100/105)	3	
SOC	461 <sup>P</sup>	Water, Society, and Environment (SOC 100/105)	3	
<b>Select Guided Electives (see footnote #9 below)</b>				
See list	300+	Guided Electives <sup>9</sup> *remember - credit not allowed for both FW455 and NR300	9	
		<b>TOTAL</b>	22-27	
<b>PROGRAM TOTAL = 120-121 credits</b>				

<sup>P</sup> This course has at least one prerequisite. Check the courses of instruction section of the catalog or

<sup>1</sup> Students taking this biology selection should choose a botany related course in the electives options to meet botany/plant course requirements for certain federal positions related to wildlife, fisheries and/or conservation biology

<sup>2</sup> Select from the list of courses in category 3B of the all-university core curriculum (AUCC). Only 3 of the 6 credits required for the arts and humanities may come from the intermediate (L\*\*\* 200 and L\*\*\* 201) foreign language courses

<sup>3</sup> Students in the Honors Track 1 program must take HONR 499

<sup>4</sup> Students need to obtain registration override from the appropriate department to take this course

<sup>5</sup> Select from the list of courses in category 3C of the AUCC

<sup>6</sup> FW300 and FW 301 together count as one selection in this choice

<sup>7</sup> Select from the list of courses in category 3D of the AUCC

<sup>8</sup> Select from the list of courses in category 3E of the AUCC

<sup>9</sup> **Guided Electives** are courses intended to expand students depth and breadth of wildlife biology and include any 300- or 400- level regular course with a BC, BMS, BSPM, BZ, CHEM, ESS,F, FW, GES, MATH, MIP, NR, NRRT, PH, RS, SOCR, STAT or WR subject code (excluding courses that end in -80 to -99); or SOCR240; other course with prior approval by department and advisor. Courses may not double count as guided electives and for other requirements in the major.