

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.

Course		Title (prerequisites)	Credit	AUCC	✓
Freshman (suggested course progressions, however some courses may be more appropriate for later years)					
<i>The following courses are REQUIRED (NO Electives)</i>					
CO	150 ^P	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 ²	3	3B	
<i>Select ONE SET of the following Biology tracks</i>					
BZ	110	Principles of Animal Biology	3	3A	
BZ	111 ^P	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 ¹	4	3A	
LIFE	103 ^P	Biology of Organisms- Animals and Plants ¹ (LIFE 102)	4		
<i>Select ONE SET of the following Chemistry and Physics tracks</i>					
CHEM	107 ^P	Fundamentals of Chemistry (MATH 117 or place into MATH 118 or higher)	4	3A	
CHEM	108 ^P	Fundamentals of Chemistry Laboratory (CHEM 107 or concurrent registration)	1	3A	
PH	121 ^P	General Physics 1 (MATH 125 or concurrent registration)	5	3A	
PH	122 ^P	General Physics 2 (PH 121)	5	3A	
OR					
CHEM	111 ^P	General Chemistry 1 (MATH118 or place into MATH124 or higher; CHEM105 or appropriate score in chem prep course)	4	3A	
CHEM	112 ^P	General Chemistry Laboratory 1 (CHEM 111 or concurrent registration)	1	3A	
CHEM	113 ^P	General Chemistry 2 (CHEM 107 or CHEM 111; MATH 124 or higher or concurrent registration)	3		
CHEM	114 ^P	General Chemistry Laboratory 2 (CHEM 112; CHEM 113 or concurrent registration)	1		
PH	110	Descriptive Physics	3	3A	
PH	111 ^P	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!)					
<i>The following courses are REQUIRED (NO Electives)</i>					
BZ	223 ^P	Plant Identification (BZ 120 or LIFE 103)	3		
FW	260 ^P	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 ^P	Ecology (one course in biology, MATH 141 or MATH 155 or MATH 160)	3		
AUCC		Arts and Humanities ²	3	3B	
AUCC		Social and Behavioral Sciences ⁵	3	3C	

Select ONE of the following Calculus courses

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

Summer (suggested course progression - it may be taken your Junior year summer - watch prereqs!)

NR	220 ^P	Natural Resources Ecology and Measurements (LIFE 103 or BZ 110 & BZ 111 or BZ 120; MATH 118)	5		
		TOTAL	5		

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

The following courses are REQUIRED (NO Electives)

FW	370 ^P	Design of Fish and Wildlife Projects (FW 260; LAND/LIFE 220 or LIFE 320; NR 220; MATH 155/160; STAT 301/307)	3	4A, 4B	
AUCC		Diversity, Equity, and Inclusion ⁸	3	1C	
AUCC		Historical Perspectives ⁷	3	3D	

Select ONE of the following Invertebrate courses or course pair for 4 credits (Inverts)

BSPM	302	Applied and General Entomology	2		
AND					
BSPM	303A	Entomology Lab - General (BSPM 302 or concurrent registration)	2		
OR					
BSPM	445 ^P	Aquatic Insects (BZ 111 or LIFE 103)	4		
OR					
BZ	212 ^P	Animal Biology - Invertebrates (BZ 110 and 111 or LIFE 103)	4		
OR					
NR	312 ^P	Applied Insect Ecology (Completion of AUCC Categories 1B and 3A, must not be a freshman)	3		

Select ONE of the following Vertebrates courses not selected elsewhere (Vertebrates I)

BZ	330 ^P	Mammalogy (BZ 110 and 111 or LIFE 103)	3		
OR					
BZ	335 ^P	Ornithology (BZ 110 and 111 or LIFE 103)	3		

Select ONE of the following Vertebrates courses or PAIR not taken elsewhere (Vertebrates II)

BZ	214 ^P	Animal Biology - Vertebrates (BZ 110 and 111 or LIFE 103)	4		
BZ	329 ^P	Herpetology (BZ 110 and 111 or LIFE 103)	4		
BZ	330 ^P	Mammalogy (BZ 110 and 111 or LIFE 103)	3		
BZ	335 ^P	Ornithology (BZ 110 and 111 or LIFE 103)	3		
FW	300 ^P	Biology and Diversity of Fishes (BZ 110 and 111 or LIFE 103)	2		
AND					
FW	301 ^P	Ichthyology Laboratory (FW 300 or concurrent registration)	1		

Select ONE of the following Genetics/Evolution courses					
BZ	220 ^P	Introduction to Evolution (BZ 110 & 111 or BZ 120 or LIFE 103)	3		
BZ	346 ^P	Population and Evolutionary Genetics ⁴ (BZ 220; MATH 155; STAT 301 or STAT 307)	3		
BZ	350 ^P	Molecular and General Genetics (BZ 110 or BZ 120 or LIFE 102; STAT 201 or concurrent registration or STAT	4		
SOCR	330 ^P	Principles of Genetics (BZ 110 or BZ 120 or LIFE 102)	3		
Select ONE of the following Advanced Writing courses					
CO	300 ^P	Writing Arguments (CO 150 or HONR 193)	3	2	
CO	301 A-D ^P	Writing in the Disciplines (CO 150 or HONR 193)	3	2	
JTC	300 ^P	Professional and Technical Communication (CO 150 or HONR 193)	3	2	
Select ONE of the following Geospatial courses (GIS)					
FW	310 ^P	Mapping Diverse Perspectives in Conservation (NR 140)	3		
OR					
NR	319 ^P	Geospatial Applications in Natural Resources (Jr. Standing)	4		
OR					
NR	322	Introduction to Geographic Information Systems	4		
TOTAL			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 ^P	Wildlife Data Collection and Analysis (FW 370; NR 220)	4	4C	
Select ONE of the following Biology OR Botany courses not taken elsewhere					
Biology Options					
ANEQ	320 ^P	Principles of Animal Nutrition ⁴ (ANEQ 230 or 305 or BMS 300 or BMS 360; 3 credits of 100-level Chem)	4		
BZ	220 ^P	Introduction to Evolution (BZ 110 & 111 or BZ 120 or LIFE 103)	3		
BZ	300 ^P	Animal Behavior (BZ 110; BZ 111 or LIFE 103)	3		
BZ	310 ^P	Cell Biology (BZ 110 or BZ 120 or LIFE 103; CHEM 245 or CHEM 341 w/ C or better)	4		
BZ	346 ^P	Population and Evolutionary Genetics ⁴ (BZ 220; MATH 155; STAT 301 or STAT 307)	3		
BZ	401 ^P	Comparative Animal Physiology (BZ 214)	3		
BZ	415 ^P	Marine Biology ⁴ (LIFE 320)	4		
BZ	471 ^P	Stream Biology and Ecology (LIFE 320 or LAND/LIFE 220)	3		
BZ	474 ^P	Limnology (LIFE 320 or LAND/LIFE 220)	3		
FW	400 ^P	Conservation of Fish in Aquatic Systems (FW 300; LIFE 320)	3		
FW	430 ^P	Waterfowl Ecology and Management (FW 370)	3		
FW/BZ	568	Sustaining River Ecosystems in a Changing World	3		
MIP	300 ^P	General Microbiology (BZ110 or 120 or LIFE102; CHEM245; CHEM341 or CHEM345 or concurrent registration)	3		
MIP	315	Human and Animal Disease	3		
NR	367 ^P	Concepts in Vertebrate Nutrition (CHEM 245)	3		
NR	370 ^P	Coastal Environmental Ecology (CHEM 107 or CHEM 113)	3		
OR					
Botany Options					
BZ	325 ^P	Plant Systematics (BZ 220)	4		
BZ	331 ^P	Developmental Plant Anatomy (BZ 120 or LIFE 103)	4		
BZ	332 ^P	Introductory Phycology (BZ 120 or LIFE 102; BZ 220)	4		

BZ	333 ^P	Introductory Mycology (BZ 120 or LIFE 103)	4		
BZ	440 ^P	Plant Physiology (BZ 120 or LIFE 103)	3		
BZ	450 ^P	Plant Ecology (BZ 120 or LIFE 103)	4		
F/RS	310 ^P	Forest and Rangeland Ecogeography (BZ 101 or BZ 104 or BZ 110 or BZ 120 or LIFE 102)	3		
F	311 ^P	Forest Ecology	3		
RS	300 ^P	Rangeland Conservation and Stewardship (BZ 120 or LIFE 102)	3		

Select ONE of the following Wildlife courses not taken elsewhere

FW	310 ^P	Mapping Diverse Perspectives in Conservation (NR 140)	3		
FW	468 ^P	Bird Ecology and Conservation (LIFE 320)	3		
FW	375 ^P	Field Wildlife Studies (FW 260; LAND/LIFE 220 or LIFE 320)	3		
FW	430 ^P	Waterfowl Ecology and Management (FW 370)	3		
FW	455 ^P	Principles of Conservation Biology (FW 260; LIFE 320; STAT 301/307) *Credit not allowed for FW455 and NR 301/307	3		
FW	465 ^P	Managing Human-Wildlife Conflicts (FW 260)	3		
FW	467 ^P	Wildlife Disease Ecology (LIFE 320)	3		
FW	469 ^P	Conservation and Management of Large Mammals (FW 260; BZ 330; LIFE 320; NR 319/322; STAT 301/307)	3		
FW	472 ^P	Issues in Animal Conservation and Management (FW 260; LIFE 320)	3		
FW	475 ^P	Conservation Decision Making (MATH 155/160; STAT 301; an ECOL course)	3		
FW	477 ^P	Wildlife Habitat Use and Management (FW 260; NR 319 or NR 322)	3		
FW	544 ^P	Ecotoxicology (LAND/LIFE 220 or LIFE 320; STAT 301/307)	3		
FW	382A	Travel Abroad: Wildlife Conservation (requires Study Abroad application)	3		
FW	482A	Travel Abroad: Conservation of Desert and Marine Animals (requires Study Abroad application)	16		

Select ONE of the following Human Dimensions courses not taken elsewhere

FW	310 ^P	Mapping Diverse Perspectives in Conservation (NR 140)	3		
FW	472 ^P	Issues in Animal Conservation and Management (FW 260; LIFE 320)	3		
HIST	355 ^P	American Environmental History ⁴ (3 credits of history; completion of 45 credits)	3		
NR	320	Natural Resource History and Policy			
NR	400 ^P	Public Relations in Natural Resources (NR 320)	3		
NRRT	320	International Issues - Recreation and Tourism	3		
NRRT	330	Social Aspects of Natural Resource Management	3		
NRRT	400 ^P	Environmental Governance (NRRT 231)	3		
NRRT	440 ^P	Applications in Environmental Communication (NRRT 262)	3		
PHIL	320	Ethics of Sustainability	3		
PHIL	345	Environmental Ethics	3		
POLS	361 ^P	U.S. Environmental Politics and Policy (POLS 101)	3		
SOC	320 ^P	Population-Natural Resources and Environment (SOC 100/105)	3		
SOC	322	Introduction to Environmental Justice (SOC 100/105)	3		
SOC	460 ^P	Environment and Society (SOC 100/105)	3		

Select Guided Electives (see footnote #9 below)

See list	300+	Guided Elective ¹⁰ *Remember - credit not allowed for both FW 455 and NR 300	9		
TOTAL			22-27		
PROGRAM TOTAL = 120-121 credits					

^P This course has at least one prerequisite. Check the courses of instruction section of the catalog or

- ¹ 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
- ² 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
- ³ Students in the Honors Track 1 program must take HONR 499
- ⁴ Students may need to obtain registration override from the appropriate department to take this course
- ⁵ Select from the list of courses in category 3C of the AUCC
- ⁶ FW300 and FW 301 together count as one selection in this choice
- ⁷ Select from the list of courses in Category 3D of the AUCC.
- ⁸ Select from the list of courses in Category 1C of the AUCC. If you have already taken an AUCC 3E course you do not need to take an additional 1C (3E requirement replaced with 1C effective Fall 2022)
- ⁹ Restricted to FW subject code, department travel abroad courses, taught by FWCB faculty. No transfer or substitute courses will be accepted
- ¹⁰ 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, CHEM245, CHEM 246; other course with prior approval by department and advisor. Courses may not double count as guided electives and for other requirements in the major.
- ¹¹ Select enough elective credits to bring program total to a minimum of 120-121 credits, of which at least 42 must be upper division (300- to 400- level)