

FISHERIES AND WILDLIFE SCIENCES UNDERGRADUATE MAJOR (BS, HBS)

The undergraduate curriculum for the Fisheries and Wildlife Sciences BS degree (180 credits) is composed of core courses as well as specializations of 24 credits. The core represents the educational foundation of fish and wildlife conservation, and the specializations provide students with an opportunity to build their curriculum to meet specific goals. Working with faculty in formal and informal settings, students are encouraged to become engaged in designing their own education. The core courses required of all students seeking the BS degree are listed below.

For further information, see the Fisheries and Wildlife website (<http://fw.oregonstate.edu/>).

Specializations

Through the specialization, undergraduate students are encouraged to become engaged in designing their own education. Students work with faculty in formal and informal settings to define career and life goals and then develop a course of study to achieve those goals. Specialization plans should be developed during the junior year and will be presented to the faculty for review and comment. Specializations must contain at least 24 credits and must be upper division with four lower-division credits allowed. No courses included may be taken for a satisfactory/unsatisfactory (S/U) grade. A maximum of two courses may be completed prior to approval of the specialization. Additional upper-division credits taken prior to approval of the specialization may be allowed through petition to advisor. Double counting (when credit is given twice for a course) is not permitted between the specialization and other university or departmental course work except in the following circumstances:

- The writing intensive courses (WIC) may double count with the OSU Baccalaureate Core requirements;
- Students completing their first BS degree may apply 12 credits from the minor towards the specialization (requires approval by advisor in minor department and FW advisor);
- Postbaccalaureate students who are completing their second degree may use a maximum of 12 credits from their first degree towards their specialization (approved by FW advisor).

Specializations are given titles to reflect their content, but titles must not substantially duplicate titles of existing degree programs. Examples of specializations include forest wildlife management, stream ecology, fish and wildlife law enforcement, marine fisheries, aquaculture, avian conservation and management, conservation education and extension, fisheries business, human dimensions of resource management, conservation biology, and many others. Specializations may include typical on-campus courses, special field courses (when college credit is earned), a full term of course work at the Hatfield Marine Science Center in Newport, Oregon, or one or more terms of international exchange. A maximum of 12 credits in any combination of FW 401 and FW 410 can be used towards the specialization. Combined with required internships and a capstone course, fisheries and wildlife sciences graduates will be well-prepared to begin professional careers in fish and wildlife conservation, or to continue their education in graduate school. For those students unsure

of their professional goals or seeking diversity in course work, a broad specialization may be declared.

Specialization guidelines (<http://fw.oregonstate.edu/department-fisheries-and-wildlife/undergraduate/curricula-course-offerings/>) are available online.

Internships

One of the best avenues to a permanent job in fisheries and wildlife is through a strong internship and temporary employment or volunteer positions. Students are required to complete a minimum of two internships or other approved alternative experiences (one of each type) for their degree. There are two types of internships: exploratory (1–2 credits) and intensive (3–6 credits). Students are encouraged to start gaining professional experience by volunteering or interning with a natural resource agency as early as possible, and no later than their junior year. This requirement is listed as FW 410, (2 required) (4–6), under the Fisheries and Wildlife Core.

Major Code: 733

- Understand the physical and ecological elements and processes sustaining ecosystems, and recognize the implications of altering those components.
- Apply conservation principles in developing conservation approaches for ecosystems or organisms within ecosystems.
- Incorporate social information in fisheries and wildlife management.
- Understand the biology, ecology, and evolution of at least one major vertebrate taxon, and explain how the structure, behavior, and physiology of animals in that taxon adapts them to their environment and influences their ecology.
- Interpret, represent, and present data in accordance with professional standards.
- Recognize biases and assumptions in published and unpublished scientific writing.
- Use logic, reasoning, analysis, and synthesis to arrive at defensible conclusions.
- Demonstrate the capacity to clearly and effectively express themselves in written communication.
- Demonstrate the capacity to clearly and effectively express themselves in oral presentations.
- Develop and learn about the importance of professional collegiality and team building.

Code	Title	Credits
Baccalaureate Core		
Skills Courses (16 credits)		
<i>Fitness</i>		
HHS 231	*LIFETIME FITNESS FOR HEALTH	
HHS 241	*LIFETIME FITNESS (or approved PAC course)	
<i>Mathematics</i>		
Met with Fisheries and Wildlife Core		
<i>Speech</i>		
Met with Fisheries and Wildlife Communications		
<i>Writing I</i>		

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Met with Fisheries and Wildlife Communications		
<i>Writing II</i>		
Met with Fisheries and Wildlife Communications		
Perspectice Courses (24 credits) ¹		24
<i>Biological Science (Lecture/Lab)</i>		
Met with Fisheries and Wildlife Core		
<i>Cultural Diversity (CD)</i>		
<i>Literature and the Arts (LA)</i>		
<i>Physical Science (Lecture/Lab or Lab)</i>		
Met with Fisheries and Wildlife Physical and Earth Sciences sections		
<i>Social Processes and Institutions (SPI)</i>		
<i>Western Culture (WC)</i>		
Difference, Power, and Discrimination Courses (DPD) (3 credits)		
Met with Fisheries and Wildlife Human Dimensions section		
Synthesis Courses (6 credits) ²		
Select one course from each of the following sections:		
Contemporary Global Issues (CGI)		
Science, Technology, and Society (STS)		
Writing Intensive Course (WIC)		
Select one course from the following:		3-4
FW 435 *WILDLIFE IN AGRICULTURAL ECOSYSTEMS		
FW 439 *HUMAN DIMENSIONS OF FISHERIES AND WILDLIFE MANAGEMENT		
FW 454 *FISHERY BIOLOGY		
FW 497 *AQUACULTURE		
Communications		
Select one course from the following:		3
WR 222 *ENGLISH COMPOSITION		
HC 199 *HONORS WRITING		
WR 327 *TECHNICAL WRITING		
WR 362 *SCIENCE WRITING		
Fisheries and Wildlife Core (69-71 credits)		
Select one of the following series:		12
Series 1: Principles of Biology		
BI 221 *PRINCIPLES OF BIOLOGY: CELLS		
& BI 222 and *PRINCIPLES OF BIOLOGY: ORGANISMS		
& BI 223 and *PRINCIPLES OF BIOLOGY: POPULATIONS		
Series 2: Introductory Biology		
BI 204 *INTRODUCTORY BIOLOGY I		
& BI 205 and *INTRODUCTORY BIOLOGY II		
& BI 206 and *INTRODUCTORY BIOLOGY III		
Select one of the following series:		15
Series 1: General Chemistry		
CH 121 GENERAL CHEMISTRY		
& CH 122 and *GENERAL CHEMISTRY		
& CH 123 and *GENERAL CHEMISTRY		
Series 2: General Chemistry and Lab		
CH 231 GENERAL CHEMISTRY		
& CH 261 and *LABORATORY FOR CHEMISTRY 231		
CH 232 GENERAL CHEMISTRY		
& CH 262 and *LABORATORY FOR CHEMISTRY 232		
CH 233 GENERAL CHEMISTRY		
& CH 263 and *LABORATORY FOR CHEMISTRY 233		
BI 370 ECOLOGY		3
FW 107 ORIENTATION TO FISHERIES AND WILDLIFE		1
FW 209 CAREER SKILLS IN FISHERIES AND WILDLIFE SCIENCES		1
FW 251 PRINCIPLES OF FISH AND WILDLIFE CONSERVATION		3
FW 255 FIELD SAMPLING OF FISH AND WILDLIFE		3
FW 289 COMMUNICATION SKILLS FOR FISHERIES AND WILDLIFE PROFESSIONALS		4
FW 307 SPECIALIZATION DEVELOPMENT		1
FW 320 INTRODUCTORY POPULATION DYNAMICS		4
FW 321 APPLIED COMMUNITY AND ECOSYSTEM ECOLOGY		3
FW 410 INTERNSHIP		4-6

FW 488 PROBLEM SOLVING IN FISHERIES AND WILDLIFE SCIENCE		3
MTH 227 *CALCULUS AND PROBABILITY FOR THE LIFE SCIENCES I		4
or MTH 241 *CALCULUS FOR MANAGEMENT AND SOCIAL SCIENCE		
or MTH 245 *MATHEMATICS FOR MANAGEMENT, LIFE, AND SOCIAL SCIENCES		
or MTH 251 *DIFFERENTIAL CALCULUS		
ST 351 INTRODUCTION TO STATISTICAL METHODS		8
& ST 352 and INTRODUCTION TO STATISTICAL METHODS		
Vertebrate Biology (7-11 credits)		
Select one course from the following:		3-4
FW 302 BIOLOGY AND CONSERVATION OF MARINE MAMMALS		
FW 311 ORNITHOLOGY		
FW 315 ICHTHYOLOGY		
FW 317 MAMMALOLOGY		
FW 331 ECOLOGY OF MARINE AND ESTUARINE BIRDS		
Z 473 HERPETOLOGY		
Select one course from the following:		2-3
FW 312 SYSTEMATICS OF BIRDS		
FW 316 SYSTEMATICS OF FISHES		
FW 318 SYSTEMATICS OF MAMMALS		
Select one additional course from the preceding two lists:		2-4
Advanced Core (18-26 credits)		
Select one course from each of the following categories, and one additional course from any category. ³		5
<i>Genetics and Evolution</i>		
Select one course from the following:		3-4
ANS 378 ANIMAL GENETICS		
BI 311 GENETICS		
BI 345 *INTRODUCTION TO EVOLUTION		
FW 370 CONSERVATION GENETICS		
PBG 430 PLANT GENETICS		
<i>Behavior and Physiology</i>		
Select one course from the following:		3-4
ANS 311 PRINCIPLES OF ANIMAL NUTRITION		
ANS 314 ANIMAL PHYSIOLOGY		
FW 469 METHODS IN PHYSIOLOGY AND BEHAVIOR OF MARINE MEGAFUNA		
FW 471 ENVIRONMENTAL PHYSIOLOGY OF FISHES		
FW 475 WILDLIFE BEHAVIOR		
FW 476 FISH PHYSIOLOGY		
Z 350 ANIMAL BEHAVIOR		
Z 423 ENVIRONMENTAL PHYSIOLOGY		
Z 431 VERTEBRATE PHYSIOLOGY I		
Z 432 VERTEBRATE PHYSIOLOGY II		
<i>Habitats and Ecosystems</i>		
Select one course from the following:		3-5
BI 351 MARINE ECOLOGY		
FES 341 FOREST ECOLOGY		
FES 342 FOREST TYPES OF THE NORTHWEST		
FES 440 WILDLAND FIRE ECOLOGY		
FW 345 *GLOBAL CHANGE BIOLOGY		
FW 426 COASTAL ECOLOGY AND RESOURCE MANAGEMENT		
FW 434/OC 434 ESTUARINE ECOLOGY		
FW 435 *WILDLIFE IN AGRICULTURAL ECOSYSTEMS		
FW 445/FES 445 ECOLOGICAL RESTORATION		
FW 452/FES 452 BIODIVERSITY CONSERVATION IN MANAGED FORESTS		
FW 456 FRESHWATER ECOLOGY AND CONSERVATION		
FW 462 ECOSYSTEM SERVICES		
FW 467 ANTARCTIC SCIENCE AND CONSERVATION		
FW 479 WETLANDS AND RIPARIAN ECOLOGY		
RNG 341 RANGELAND ECOLOGY AND MANAGEMENT		
<i>Species Conservation and Management</i>		

Select one course from the following: 3-4

FW 419	THE NATURAL HISTORY OF WHALES AND WHALING
FW 421	AQUATIC BIOLOGICAL INVASIONS
FW 427	PRINCIPLES OF WILDLIFE DISEASES
FW 451	AVIAN CONSERVATION AND MANAGEMENT
FW 454	*FISHERY BIOLOGY
FW 458	MAMMAL CONSERVATION AND MANAGEMENT
FW 464	MARINE CONSERVATION BIOLOGY
FW 473	FISH ECOLOGY
FW 474	EARLY LIFE HISTORY OF FISHES
FW 481	WILDLIFE ECOLOGY
FW 491/MB 491	FISH DISEASES IN CONSERVATION BIOLOGY AND AQUACULTURE

Botany

Select one course from the following: 3-4

BOT 313	PLANT STRUCTURE
BOT 321	PLANT SYSTEMATICS
BOT 323	*FLOWERING PLANTS OF THE WORLD
BOT 331	PLANT PHYSIOLOGY
BOT 341	PLANT ECOLOGY
BOT 416	AQUATIC BOTANY
BOT 440	FIELD METHODS IN PLANT ECOLOGY
BOT 442	PLANT POPULATION ECOLOGY
BOT 488	ENVIRONMENTAL PHYSIOLOGY OF PLANTS
RNG 353	WILDLAND PLANT IDENTIFICATION

Physical and Earth Sciences (9-14 credits)

Select three courses from the following two categories: 4

Physics, Math, and Chemistry

Select no more than two courses from the following (cannot double count with FW core): 6-10

CH 130	GENERAL CHEMISTRY OF LIVING SYSTEMS
CH 331	ORGANIC CHEMISTRY
CH 332	ORGANIC CHEMISTRY
CH 390	ENVIRONMENTAL CHEMISTRY
MTH 227	*CALCULUS AND PROBABILITY FOR THE LIFE SCIENCES I
MTH 228	CALCULUS AND PROBABILITY FOR THE LIFE SCIENCES II
MTH 241	*CALCULUS FOR MANAGEMENT AND SOCIAL SCIENCE
MTH 251	*DIFFERENTIAL CALCULUS
MTH 252	INTEGRAL CALCULUS
OC 450	CHEMICAL OCEANOGRAPHY
PH 201	*GENERAL PHYSICS
PH 202	*GENERAL PHYSICS
PH 205	*SOLAR SYSTEM ASTRONOMY
PH 206	*STARS AND STELLAR EVOLUTION
PH 207	*GALAXIES, COSMOLOGY, LIFE IN THE UNIVERSE
PH 211	*GENERAL PHYSICS WITH CALCULUS
PH 212	*GENERAL PHYSICS WITH CALCULUS
PH 331	*SOUND, HEARING, AND MUSIC
PH 332	*LIGHT, VISION, AND COLOR

Earth Sciences

Select no more than two courses from the following: 6-8

ATS 201	*CLIMATE SCIENCE
GEO 201	*PHYSICAL GEOLOGY
GEO 202	*EARTH SYSTEMS SCIENCE
GEO 203	*EVOLUTION OF PLANET EARTH
GEO 221	*ENVIRONMENTAL GEOLOGY
GEO 305	*LIVING WITH ACTIVE CASCADE VOLCANOES
GEO 306	*MINERALS, ENERGY, WATER AND THE ENVIRONMENT
GEO 307	*NATIONAL PARK GEOLOGY AND PRESERVATION
GEO 308	*GLOBAL CHANGE AND EARTH SCIENCES
OC 201	*OCEANOGRAPHY

OC 332	COASTAL OCEANOGRAPHY
SOIL 205 & SOIL 206	SOIL SCIENCE and *SOIL SCIENCE LABORATORY FOR SOIL 205 ⁵
or CSS 205	*SOIL SCIENCE
or CSS 305	PRINCIPLES OF SOIL SCIENCE

Human Dimensions (9-11 credits)

Select one course from each of the following lists: 6 7

Difference, Power and Discrimination

Select one course from the following: 3

AG 301	*ECOSYSTEM SCIENCE OF PACIFIC NW INDIANS
FW 340	*MULTICULTURAL PERSPECTIVES IN NATURAL RESOURCES
GEO 309	*ENVIRONMENTAL JUSTICE

Environmental Law, Policy and Economics

Select one course from the following: 3-4

AEC 250	*INTRODUCTION TO ENVIRONMENTAL ECONOMICS AND POLICY
AEC 253	*ENVIRONMENTAL LAW, POLICY, AND ECONOMICS
AEC 351	*NATURAL RESOURCE ECONOMICS AND POLICY
AEC 352/ECON 352	*ENVIRONMENTAL ECONOMICS AND POLICY
AEC 432	ENVIRONMENTAL LAW
FOR 462	NATURAL RESOURCE POLICY AND LAW
FW 350	*ENDANGERED SPECIES, SOCIETY AND SUSTAINABILITY
FW 415	FISHERIES AND WILDLIFE LAW AND POLICY
FW 422	INTRODUCTION TO OCEAN LAW
PPOL 448	MARINE POLICY IN THE UNITED STATES
PS 475	ENVIRONMENTAL POLITICS AND POLICY
PS 477	INTERNATIONAL ENVIRONMENTAL POLITICS AND POLICY

Other

Select one course from the following: 3-4

ANTH 477	ECOLOGICAL ANTHROPOLOGY
ANTH 481	*NATURAL RESOURCES AND COMMUNITY VALUES
BOT 322	ECONOMIC AND ETHNOBOTANY: ROLE OF PLANTS IN HUMAN CULTURE
FES 355	MANAGEMENT FOR MULTIPLE RESOURCE VALUES
FES 422	RESEARCH METHODS IN SOCIAL SCIENCE
FES 485	*CONSENSUS AND NATURAL RESOURCES
FW 324	*FOOD FROM THE SEA
FW 325	*GLOBAL CRISES IN RESOURCE ECOLOGY
FW 360	*ORIGINS OF F&W MANAGEMENT-EVOLUTION, GENETICS, AND ECOLOGY
FW 391	*RIDGE TO REEF: SUSTAINABLE RESOURCE MANAGEMENT IN PALAU
FW 439	*HUMAN DIMENSIONS OF FISHERIES AND WILDLIFE MANAGEMENT
GEOG 340	*INTRODUCTION TO WATER SCIENCE AND POLICY
HST 481	*ENVIRONMENTAL HISTORY OF THE UNITED STATES
PHL 440	*ENVIRONMENTAL ETHICS
PHL 443/REL 443	*WORLD VIEWS AND ENVIRONMENTAL VALUES
PS 461	ENVIRONMENTAL POLITICAL THEORY
PS 476	*SCIENCE AND POLITICS
SOC 480	*ENVIRONMENTAL SOCIOLOGY
SOC 481	*SOCIETY AND NATURAL RESOURCES

Specialization (24 credits) 24

Total credits required for graduation 180

* Baccalaureate Core Course (BCC)

^ Writing Intensive Course (WIC)

1

No more than two courses (or lecture/lab combinations) from any one department may be used by a student to satisfy the Perspectives category of the core.

Please reference the BCC list (<http://catalog.oregonstate.edu/earning-degrees/bcc/>) of approved courses in the Catalog

2

The two courses used to fulfill the Synthesis requirement may not be in the same department

3

^WIC courses may double count

4

CGI, STS, WC, SPI, and DPD courses can double count as BCC. CGI and STS courses cannot be from the same department

5

SOIL 205 and SOIL 206 Corvallis campus only
 CSS 205 via Ecampus only
 CSS 305 EOU campus only

6

CGI, STS, WC, SPI, and DPD courses can double count as baccalaureate core. CGI and STS courses cannot be from the same department

Major Code: 733

Notes:

- This is a sample plan for first-year entering students on the Corvallis Campus; individual plans will be developed after consultation with our head advisor.
- Ecampus students will consult with their advisor for course planning.
- Year 1: CH 231–CH 233 and CH 261–CH 263 series is optional. WR I and COMM requirement taken this year (COMM 111 or COMM 114).
- Year 2: FW 255: Field Sampling of Fish & Wildlife can be taken any term. WR II requirement taken this year.
- Year 3: ST 351 and 352 can be taken F, W or W, S. *FW 410: Intensive Internship can be taken any term, usually in summer.
- Year 4: WIC course can double count with other FW requirement.

First Year

Fall		Credits
CH 121	GENERAL CHEMISTRY	5
FW 107	ORIENTATION TO FISHERIES AND WILDLIFE	1
Math Course		4
Bacc Core Course		3
PAC XXX	Physical Activity Course	1
Credits		14
Winter		
CH 122	*GENERAL CHEMISTRY	5
Math Course (if needed)		4
Bacc Core Course		3
PAC XXX	Physical Activity Course	1
Credits		13
Spring		
CH 123	*GENERAL CHEMISTRY	5
Bacc Core Course		3
Bacc Core Course		3
PAC XX	Physical Activity Course	1
Physical and Earth Sciences Course		3
Credits		15

Second Year

Fall		Credits
BI 221	*PRINCIPLES OF BIOLOGY: CELLS	4
FW 209	CAREER SKILLS IN FISHERIES AND WILDLIFE SCIENCES	1
Physical & Earth Sciences Course		4
Bacc Core Course		3
Bacc Core Course		3
Credits		15
Winter		
BI 222	*PRINCIPLES OF BIOLOGY: ORGANISMS	4
FW 251	PRINCIPLES OF FISH AND WILDLIFE CONSERVATION	3
Physical & Earth Sciences Course		4
PAC XXX	Physical Activity Course	1
Bacc Core Course		3
Credits		15
Spring		
BI 223	*PRINCIPLES OF BIOLOGY: POPULATIONS	4
FW 255	FIELD SAMPLING OF FISH AND WILDLIFE	3
FW 289	COMMUNICATION SKILLS FOR FISHERIES AND WILDLIFE PROFESSIONALS	4
Bacc Core		3
Credits		14
Third Year		
Fall		
BI 370	ECOLOGY	3
FW 307	SPECIALIZATION DEVELOPMENT	1
Human Dimensions Course		3
Vertebrate Biology Course		3
Advanced Core Course		4
PAC XXX	Physical Activity Course	1
Credits		15
Winter		
FW 320	INTRODUCTORY POPULATION DYNAMICS	4
FW 410	INTERNSHIP	1
ST 351	INTRODUCTION TO STATISTICAL METHODS	4
Advanced Core Course		4
Vertebrate Biology Course		2
Credits		15
Spring		
FW 321	APPLIED COMMUNITY AND ECOSYSTEM ECOLOGY	3
ST 352	INTRODUCTION TO STATISTICAL METHODS	4
Advanced Core Course		4
Vertebrate Biology Course		3
PAC XXX	Physical Activity Course	1
Credits		15
Summer		
FW 410	INTERNSHIP	3
Credits		3
Fourth Year		
Fall		
Advanced Core Course		3
Human Dimensions Course		3
Specialization Course		4
Specialization Course		4
Credits		14
Winter		
FW 488	PROBLEM SOLVING IN FISHERIES AND WILDLIFE SCIENCE	3
Advanced Core Course		4
Specialization Course		3
Specialization Course		4
Credits		14

Spring

Advanced Core Course	3
Advanced Core Course	3
Human Dimensions Course	3
Specialization Course	3
Specialization Course	3
Credits	15
Total Credits	177