

Fisheries and Wildlife Sciences Curriculum 2013-2014

Courses are subject to change, check online catalog for updated class schedule. FW Core Courses may double count with Bacc. Core.

BACCALAUREATE CORE					
This section is only required for students earning their first degree with the exception of the speech requirement.					
Writing I, Speech & Math 111 must be completed within the first 45 OSU credit hours & Writing II within the first 90 OSU credit hours. Transfer students must complete Writing II & Speech within first 45 OSU credit hours.					
Literature & Arts (LA)	Social Processes & Institutions (SPI)	Contemporary Global Issues (CGI)			
Western Culture (WC)	Difference, Power, & Discrimination (DPD)	Science, Technology, and Society (STS)			
Cultural Diversity (CD)	Fitness HHS 231 & 241 -or- PAC	Synthesis courses cannot be from the same Department (CGI & STS)			
No more than two courses from one Department can be taken to fulfill perspective courses (CD, LA, SPI & WC)		CREDITS	Select one WR II:	CREDITS	
WR I: WR 121 English Composition	3	Select one WR II:	WR 222 English Composition -or- WR 327 Technical Writing -or- WR 362 Science Writing -or-	3	
Speech: COMM 111 Public Speaking or Comm 114	3		PHL 121 Reasoning and Writing -or-	3	
Writing Intensive Course (can double count) ^	3		HC 199 Honors Writing		
			CREDITS	24-25	
FISHERIES AND WILDLIFE SCIENCES CORE					
Complete Series:	BI 211 Principles of Biology I	4	Select One:	MTH 241 Calculus for Mgmt. -or- MTH 245 Math for Mgmt., Life & SS-or- MTH 251 Differential Calculus	4 4 4
	BI 212 Principles of Biology II	4		BI 370 Ecology (prereqs: BI 211-213)	3
	BI 213 Principles of Biology III	4		ST 351 Intro to Statistical Methods I	4
Complete Series:	CH 121 General Chemistry I	5		ST 352 Intro to Statistical Methods II	4
	CH 122 General Chemistry II	5			
	CH 123 General Chemistry III	5			
For on campus students CH 231-233 Corvallis campus labs 261-263 may be substituted for CH 121-123.			CREDITS	42	
FISHERIES AND WILDLIFE SCIENCES SPECIFIC CORE					
	FW 107 Orientation to Fisheries and Wildlife	1		FW 321 App. Comm. & Ecosystem Eco. (Prereq: FW 320)	3
	FW 251 Principles of F&W Conservation	3		FW 410 Internship Experience (2 required)	4 - 6
	FW 255 Field Sampling of Fish and Wildlife	3		FW 488 Problem Solving in F & W	3
	FW 307 Specialization Development	1		FW 489 Effective Communications in F & W	3
	FW 320 Population Dynamics (Prereq: BI 370)	4			
			CREDITS	25 - 27	
VERTEBRATE BIOLOGY CORE (choose one)		SYSTEMATICS CORE (choose one)			
	FW 311 Ornithology	3		FW 312 Systematics of Birds	2
	FW 315 Ichthyology	3		FW 316 Systematics of Fish	3
	FW 317 Mammalogy	3		FW 318 Systematics of Mammals	2
	BI/FW 302 Bio. & Conservation of Marine Mammals	4		Z 474 Systematic Herpetology	2
	Z 473 Biology of Amphibians and Reptiles	3			
Select one additional course from vertebrate or Systematics column (2 or 3 or 4 credits)			CREDITS	7 - 10	
ADVANCED FISHERIES AND WILDLIFE SCIENCES CORE					
Species Conservation Management (choose two)		Genetics and Evolution (choose one)			
	FW 419 ST/Whales and Whaling	3		ANS 378 Animal Genetics	4
	FW 421 Aquatic Biological Invasions	4		BI 311 Genetics	4
	FW 451 Avian Conservation & Management	4		BI 445 Evolution	3
	FW 454 Fishery Biology^	4		PBG 430 Plant Genetics	3
	FW 458 Mammal Conservation & Management	3		FW 370 Conservation Genetics	4
	FW 464 Marine Conservation Biology (F '12)	4		Z 345 Introduction to Evolution* (STS)	3
	FW 473 Fish Ecology	4		Z 422 Comparative Anatomy	5
	FW 481 Wildlife Ecology	3			
CREDITS		6 - 8	CREDITS		3 - 5
Specialization (see text for details)			CREDITS		24
Electives			CREDITS		0-22

CGI=Contemporary Global Issues STS=Science, Technology and Society DPD=Difference, Power, Discrimination *=Bacc Core

^Writing Intensive Course: approved list of WIC courses on curricula webpage

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ADVANCED FISHERIES AND WILDLIFE SCIENCES CORE (cont..)			
Habitats and Ecosystems (choose one)		Behavior and Physiology (choose two)	
FOR/FES 341 Forest Ecology	3	ANS 311 Principles of Animal Nutrition	3
FOR/FES 342 Forest Types of the Northwest	3	ANS 314 Animal Physiology	4
FW 426 Coastal Ecology and Resource Mgmt.	5	ANS 413 Comp. Nutrition of Domestic & Wild Animals	3
FW 435 Wildlife in Agricultural Ecosystems^	3	BOT 313 Plant Structure	4
FW 445 Ecological Restoration	4	BOT 331 Plant Physiology	4
FW 446 Wildland Fire Ecology	3	FW 471 Environmental Physiology of Fishes	4
FW 452 Biodiversity Conservation in Managed Forests	3	FW 474 Early Life History of Fishes	4
FW 456 Limnology	5	FW 475 Wildlife Behavior	4
FW 467 Antarctic Science	4	FW 476 Fish Physiology	4
FW 479 Wetlands & Riparian Ecology (prereq: BI 370)	3	Z/BI 350 Animal Behavior	3
RNG 341 Rangeland Ecology and Management	3	Z 423 Environmental Physiology	3
Z 351 Marine Ecology	3	Z 430, 1, 2 Vertebrate Physiology	4
CREDITS		3 - 5	CREDITS
		6 - 8	

PHYSICS, EARTH SCIENCE, CHEMISTRY Choose 3 courses from the lists below, NO MORE than 2 courses from a category		
PHYSICS & MATH	EARTH SCIENCES	CHEMISTRY
PH 201 General Physics I (5)	ATS 210 Introduction to the Atmospheric Sciences (3)	BB 350 Elemental Biochemistry (4)
PH 202 General Physics II (5)	ATS 320 The Changing Climate* (3) (STS)	CH 130 Gen. Chem. Of Living Systems (4)
PH 203 General Physics III (5)	SOIL 205 Soil Science (4)	CH 324 Quantitative Analysis (4)
PH 211 General Physics with Calculus I (4)	GEO 201 Physical Geology* (4)	CH 331 Organic Chemistry (4)
PH 212 General Physics with Calculus II (4)	GEO 202 Earth System Science* (4)	CH 332 Organic Chemistry (4)
PH 213 General Physics with Calculus III (4)	GEO 203 Evolution of Planet Earth* (4)	CH 334 Organic Chemistry (4)
PH 331 Sound, Hearing, and Music* (STS) (3)	GEO 221 Environmental Geology (4)	CH 335 Organic Chemistry (4)
PH 332 Light, Vision, and Color* (STS) (3)	GEO 305 Living with Active Cascade Volcanoes* (STS) (3)	CH 336 Organic Chemistry (4)
MTH 252 Integral Calculus (4)	GEO 306 Minerals, Energy, Water, and Envrmt.* (STS) (3)	CH 390 Environmental Chemistry (3)
	GEO 307 Nat'l Park Geo. And Preservation* (STS) (3)	TOX 360 The World of Poisons* (STS) (3)
	GEO 308 Global Change and Earth Sciences* (CGI) (3)	1.) _____ 2.) _____ 3.) _____
	GEO 322 Surface Processes (4)	Credit hours per course are listed after
	GEO 323 Climatology^ (4)	course names in parentheses
	OC 332 Coastal Oceanography (3)	CREDITS
		9 - 14

HUMAN DIMENSIONS Choose 3 courses from the list of Human Dimensions courses (credit hours listed after course name)	
AG 301 Ecosystem Science of Pac. NW Indians* (DPD) (3)	FW 360 Origins of F & W Management- Evolution, Genetics & Ecology* (STS) (3)
ANTH 481 Natural Resources & Community Values* (STS) (3)	FW 415 Fisheries and Wildlife Law and Policy (3)
AREC 351 Natural Resource Economics & Policy* (CGI) (3)	FW 439 Human Dimensions of Fisheries and Wildlife Management^ (3)
AREC 352 Environmental Economics & Policy (CGI) (3)	FW 462 Ecosystem Services (3)
AREC 432 Environmental Law (4)	FW 470 Ecology and History: Landscapes of the Columbia Basin* (STS) (3)
BI 301 Human Impacts on Ecosystems* (CGI) (3)	FW 485 Consensus and Natural Resources* (STS) (3)
BOT 322 Economic and Ethnobotany: Role of plants (3)	GEO 300 Sustainability for the Common Good* (CGI) (STS) (3)
FOR 330 Forest Resource Economics I (4)	HST 481 Environmental History of the U.S.* (STS) (3)
FES 351 Recreation Behavior and Management (4)	HSTS 415 Theory of Evolution and Foundation of Modern Biology*^(STS) (4)
FES 355 Management for Multiple Resource Values (3)	PHL 440 Environmental Ethics (3)
FES 360 Collaboration and Conflict Management (3)	PHL 443 World Views and Environmental Values* (CGI) (3)
FES 432 Economics of Recreation Resources (4)	PS 475 Environmental Politics and Policy (4)
FES 365 Issues in Natural Resources Conservation* (3) (CGI)	PS 476 Science and Politics* (STS) (4)
FE 456 International Forestry* (CGI) (3)	SOC 480 Environmental Sociology* (CGI) (4)
FOR 462 Natural Resource Policy and Law (3)	SOC 481 Society and Natural Resources* (STS) (4)
FW 325 Global Crises in Resource Ecology* (CGI) (3)	SOIL 335 Introduction to Water Science and Policy* (STS) (3)
FW 340 Multicultural Perspectives in Natural Resources* (DPD) (3)	Z/BI 349 Biodiversity: Causes, Consequences and Conservation* (CGI) (3)
FW 350 Endangered Species/Society/Sustainability* (STS) (3)	
3.)	CREDITS
	9 - 12
Total Credit Hours	
	CREDITS
	180

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^Writing Intensive Course: approved list of WIC courses on curricula webpage

AREA OF SPECIALIZATION (24 credit minimum)

To supplement the Advanced Fisheries and Wildlife Core, students (except Post Baccalaureates) develop an additional set of classes, called the "Specialization," that are focused on an area of interest for further study. The Specialization selection process, along with career development activities, is part of FW 307: Specialization Development. Students generally take this course their junior year after consultation with their advisor. Students work with the course instructor and their advisor to finalize the courses within their Specialization.

Specializations are in addition to Fisheries and Wildlife Core/Advanced Core courses and must contain a minimum of 24 credits. At least 20 credits within a Specialization will be from upper division (300 and 400 level) courses; no more than four lower division credits are allowed. A maximum of two courses may be completed prior to approval of the Specialization, additional upper division credits may be allowed through petition to advisor. With the exception of Writing Intensive Courses (WIC), double counting (when credit is given twice for a course), is not permitted between the Specialization and other University or Departmental course work.

FW 410 INTERNSHIPS (4 credits minimum)

There are two types of internships: Exploratory (1-2 credits) and Intensive (3-6) credits. Students are required to complete a minimum of two internships or other approved alternative experiences (one of each type) for their degree. 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. Both internships should be completed at least two terms prior to graduation and need not be sequential.

The **Exploratory Internship** helps students explore career directions. It involves a professional experience with at least 40 hours of learning time off campus natural resource setting. Most students attend a professional conference, such as the Annual Conference of The Wildlife Society or American Fisheries Society, or assist a professional biologist with field work.

The **Intensive Internship** helps students experience work as a professional and gain technical skills that complement the academic/conceptual knowledge learned in classes. It involves a professional experience in an off-campus natural resource organization for a long enough time period and with enough depth and breadth to gain competence in one or more facets of a position or organization. This experience often leads to the student performing professional duties independent of supervision.

Students need to register for the FW 410 internship class for the term in which their internship occurs (even if it is summer term). Before registering, students must have their internship approved by the FW Internship Coordinator. The Internship Coordinator is responsible for guiding students, providing general oversight, and final evaluation of the internship/experience requirement. Before beginning the internship, a formal letter of understanding between the student, department, and mentor in the natural resource profession must be submitted by the student.

At the conclusion of the experience the student will complete the course by meeting the requirements listed on the FW 410 class syllabus, including submission of a resume and brief report describing the activities and what was learned. Mentors may provide a brief evaluation of the student's education.

For more information, contact the Internship Coordinator.

Corvallis Campus students: Danielle Jarkowsky, Danielle.Jarkowsky@oregonstate.edu, Nash 104E.

Ecampus students: Rebecca Goggans, Rebecca.Goggans@oregonstate.edu.

FW 488/489 CAPSTONE COURSES 6 credits

Students participate in a capstone experience through courses FW 488 & FW 489. These two courses are taken in sequential terms after a student has reached at least senior standing and is as close to the end of their degree requirements as possible. Both courses must be taken on the same campus (either through Ecampus or Corvallis Campus but not a combination of the two). Students are required to complete FW 320 & FW 321 and are recommended to have taken one or more 400 level FW classes before they begin the capstone sequence. The two capstone courses are designed to introduce students to the synthesis of scientific information on species, habitats and ecosystems and the use of such data in shaping fisheries and wildlife conservation, management, and policy. It includes a group problem solving project and case studies.

FW 488 Problem Solving in Fisheries & Wildlife Science (3 credits)

This course focuses on three activities: 1) a review of several case histories on current, “real world” conservation and management problems presented by faculty or agency biologists who have worked on each problem; 2) discussion about the process used to logically address complex problems in fish and wildlife conservation, and; 3) independent work by students in small groups on a selected topic of their choice. The group project provides an opportunity for students to apply what they have learned in this and previous courses to address a conservation or management issue of interest. Projects include data analysis and/or synthesis, literature review, and/or evaluation of the social and economic systems involved in the controversy or management problem

FW 489 Effective Communications in Fisheries & Wildlife Science (3 credits)

This course is a continuation of projects started in FW 488. It centers on analysis, synthesis, and interpretation of data and written and oral communication of management, education or policy statements. Discussions include science and advocacy, the role of science in policy-making, conflict resolution skills for communicating with diverse audiences, and working with the media. Groups work on a variety of methods for presenting their projects to different audiences.