

**2009-2010 Post Bac/Double Degree Curriculum**

**Department of Fisheries & Wildlife**

Updated 5/09

Courses	Credits	Terms offered			
		F	W	Sp	Su
<b>Fisheries and Wildlife Core</b>					
COMM 111: Public Speaking	3	X	X	X	X
Biology 211	4	X			X
Biology 212	4		X		X
Biology 213	4			X	X
Chemistry 121	5	X,E	X,E	E	X,E
Chemistry 122	5		X,E	X,E	X,E
Chemistry 123	5			X,E	X,E
or Chemistry 221	5	X	X		X
Chemistry 222	5		X	X	X
Chemistry 223	5			X	X
Math 241: Calculus of Mgt & Soc Sci	4	X,E	X,E	X,E	E
or Math 251: Differential Calculus	4	X,E	X,E	X,E	E
ST 351 Statistics	4	X,E	X,E	E	X,E
ST 352 Statistics	4		X	X	X
Bi 370: Ecology (prerequisite: BI 211-213)	3	X,E	X,E	X,E	X
FW 251: Principles of Wildlife Conservation	3	E	X,E	E	E
FW 255: Field Sampling of Fish and Wildlife	3	X	X	X	
FW 320: Population Dynamics (prerequisite: BI 370)	4		X	E	E
FW 321: Applied Community and Ecosystem Ecology	3	E	E	X	
(prerequisite: FW320)					
<b>Select 3 additional courses in Chemistry, Physics, and/or Earth Sciences (from attached list)</b>	9 to 12				
<b>Select 2 courses in Human Dimensions of Natural Resources (from attached list)</b>	6 to 8				
<b>&gt;Select one of the following:</b>					
FW 311: Ornithology	3	E	E	X,E	E
FW 315: Ichthyology	3	X	E	E	E
FW 317: Mammology	3	E	X	E	E
Z 473: Biology of Amphibians and Reptiles	3			X	
<b>&gt;Select one of the following:</b>					
FW 312: Systematics of Birds	2	X,E		E	E
FW 316: Systematics of Fish	2	X			
FW 318: Systematics of Mammals	2		X		
Z 474: Systematic Herpetology	2			X	
<b>&gt;Select one additional course from preceding 2 lists</b>	2 to 3				

*X= offered main campus; E= offered thru E-campus; \* = Bacc Core; ^ = Writing Intensive Course; AE= Alt. even yrs; AO= Alt. odd yrs  
 Note: Classes are subject to change at any time. Double check course catalog online often for updates.*

	FW 410: Internship experience (confer with advisor)		4 to 6		all terms		
	FW 488: Problem Solving in Fisheries and Wildlife		3		X		
	FW 489: Communication in Fisheries and Wildlife		3			X	
<b>Habitats &amp; Ecosystems: choose one</b>			<b>3-5</b>				
	FOR 341 Forest Ecology		3			X, E	
	FW 426 Coastal Ecology and Resource Management		5	HMSC			
	FW 435 Wildlife in Agricultural Ecosystems*^		3	E	X, E		E
	FW 446 Wildland Fire Ecology		3		X		
	FW 453 Forest Management and Wildlife Conservation		3			X	
	FW 456 Limnology		5			X	
	FW 479 Wetlands and Riparian Ecology		3	E	E	X-AE	E
	Z 351 Marine Ecology		3			X	
<b>Species Conservation &amp; Management: choose one</b>			<b>6-8</b>				
	FW 451 Avian Conservation and Management		3	X-AO			
	FW 458 Mammal Conservation and Management		4			X	
	FW 454 Fishery Biology*^		4	HMSC			
	FW 473 Fish Ecology		4			X	
	FW 481 Wildlife Ecology		4	X		E	E
	FW 464 Marine Conservation Biology		3	X-AE			
	FW 499 ST/Whales and Whaling		3	X			
<b>Behavior &amp; Physiology: choose one</b>			<b>7-8</b>				
	ANS 314 Animal Physiology		4		X		E
	BOT 313 Plant Structure		4		X		
	BOT 331 Plant Physiology		4		X		
	FW 471 Environmental Physiology of Fishes		4		X		
	Z 350 Animal Behavior		3		X		X
	Z 423 Environmental Physiology		4	X			
	Z 431 Vertebrate Physiology		4		X		
	Z 437 Vertebrate Endocrinology		4			X	
<b>Genetics &amp; Evolution: choose one</b>			<b>3-5</b>				
	ANS 378 Animal Genetics		4	X			
	BI 311 Genetics		4	X, E	X, E	X, E	
	BI 445 Evolution (prerequisites: BI 311, 370)		3	X	X	X	
	CSS 430 Plant Genetics		3		X		
	GEN 430 Introduction to Population Genetics		3	Check course listing			
	Z 422 Comparative Anatomy		5	Check course listing			
	Z 345 Introduction to Evolution (STS)		3	Check course listing			

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Note: Classes are subject to change at any time. Double check course catalog online often for updates.

## Physics, Chemistry, Earth Sciences

**Requirement:** Choose three courses in physics, chemistry, and/or earth sciences. No more than two from one category is allowed.

**Goal:** To provide students the opportunity to acquire basic knowledge in physical and chemical sciences as a base on which to build an individual option to match their career goals.

PHYSICS	Terms Offered on Campus	Credits
PH 201, 202, 203: General Physics	201: F; 202: W; 203: Sp	5 (each)
PH 205: Solar System Astronomy	F	4
PH 206: Stars and Stellar Evolution	not scheduled	4
PH 207: Galaxies, Quasars, and Cosmology	not scheduled	4
PH 211, 212, 213: General Physics with Calculus	211: F, Sp; 212: F, W; 213: W, Sp	4 (each)
PH 331: Sound, Hearing, and Music* (STS)	W	3
PH 332: Light, Vision, and Color* (STS)	F	3
<b>CHEMISTRY</b>		
CH 324: Quantitative Analysis	W, Sp (self paced)	4
CH 331, 332: Organic Chemistry**	331: F; 332: W	4
CH 334, 335, 336: Organic Chemistry	334: F; 335: W; 336: Sp	4
CH 390: Environmental Chemistry	Ecampus only	3
BB 350: Elemental Biochemistry**	Sp	4
<b>EARTH SCIENCES</b>		
ATS 210: Introduction to the Atmospheric Sciences	Sp	3
GEO 201: Physical Geology	F	4
GEO 202: Earth System Science	W	4
GEO 203: Evolution of Planet Earth	Sp	4
GEO 221: Environmental Geology**	Sp	3
GEO 305: Living with Active Cascade Volcanoes* (STS) **	W	3
GEO 306: Minerals, Energy, Water, and the Environment* (STS)	Ecampus only	3
GEO 307: Geology of National Parks* (STS) **	W	3
GEO 308: Global Change and Earth Sciences* (CGI) **	W	3
GEO 310: Earth Materials I: Mineralogy	F	4
GEO 315: Earth Materials II: Petrology	W	4
GEO 322: Surface Processes	F	4
GEO 323: Climatology	Ecampus only	4
GEO 360: Cartography	F	4
OC 331: Introduction to Oceanography	F, W, Sp	3
OC 332: Coastal Oceanography	W	3

**\*\* = Course is also offered through Ecampus**

Most 400 geology courses would be appropriate, but many have 200 and 300 level prerequisites.

\*Bacc Core Synthesis - STS=Science, Tech & Society, CGI=Contemporary Global Issues

### Human Dimensions Courses

**Requirement:** Two courses from the following list of Human Dimensions courses.

**Goal:** To provide students a broad perspective at an advanced level of the interface between humans and the natural resources upon which we depend. This experience is intended to build upon and complement the Baccalaureate Core Perspectives requirement.

Course	Credits
AG 301: Ecosystem Science of Pacific NW Indians*(DPD) **	3
ANTH 481: Natural Resources and Community Values* (STS) **	3
AREC 351: Natural Resource Management* (CGI) **	3
AREC 352: Environmental Economics and Policy* (STS) **	3
AREC 432: Environmental Law**	4
BI 301: Human Impacts on Ecosystems* (CGI)	3
BOT 322: Economic and Ethnobotany: Role of plants in human culture	3
FOR 330: Forest Resource Economics	4
FOR 351: Recreation Behavior and Management	4
FOR 355: Management for Multiple Resource Values	4
FOR 365: Issues in Natural Resource Conservation* (CGI) **	3
FOR 432: Economics of Recreation Resources	4
FOR/FE 456: International Forestry* (CGI)	3
FOR 460: Forest Policy^	4
FOR 462 Natural Resource Policy and Law	3
FOR 463: Environmental Policy and Law Interactions	3
FW 340: Multicultural Perspectives in Natural Resources* (DPD) **	3
FW 350: Endangered Species/Society/Sustainability* (STS) **	3
FW 360: Origins of Fish & Wildlife Management -Evolution, Genetics & Ecology* (STS)	3
FW 415/515: Fisheries and Wildlife Law and Policy	3
FW 470: Ecology and History: Landscapes of the Columbia Basin* (STS) **	3
FW 485: Consensus and Natural Resources* (STS) **	3
GEO 311: 20th Century U.S. Environmental Policy* (CGI)	3
HST 481: Environmental History of the U.S.* (STS) **	4
HSTS 415: Theory of Evolution and Foundation of Modern Biology*^ (STS)	4
PHL 440: Environmental Ethics**	3
PHL 443: World Views and Environmental Values* (CGI) **	3
PS 474: Bureaucratic Politics	4
PS 475: Environmental Politics and Policy**	4
PS 476: Science and Politics* (STS)	4
SOC 480: Environmental Sociology* (CGI) **	3
SOC 481: Society and Natural Resources**	3
WS 470: Women: Creating Multicultural Alliances	3

\* = Bacc Core: CGI= Contemporary Global Issues; STS= Science, Tech, & Society; DPD= Difference, Power, and Discrimination; ^ = Writing Intensive Course

\*\* = Course is also offered through Ecampus

## **INTERNSHIP/EXPERIENCE REQUIREMENT      4-6 credits**

**REQUIREMENT:** Two experience activities are required for graduation. These will be taken as FW 410, Internship, for 1-3 credits each for a total of 4-6 credits. The student should sign up for the appropriate number of credits the term they plan to complete their internship requirements. All internships must be completed at least two terms before graduation. At least one of the experiences must be “substantial” and valued at 3 credits. The coordinator will determine the credits for each experience based on the activities involved and in consultation with the student and the experience mentor. Internship is a graded class.

**GOAL:** The goal of this requirement is for students to apply the concepts, principles and skills acquired in the classroom to a professional, “real-world” context. Additionally students will gain an understanding of the structure and function of natural resource organizations. This experience will allow students to recognize their personal strengths and refine their professional goals.

**EXPLANATION:** We define an experience as an active learning activity that applies classroom knowledge in a “real-world” setting, and involves students with natural resource professionals in management, research, policy making, and education positions. The experience must occur during a student’s tenure at OSU, must not be a part of other credit courses, and must receive prior approval from the faculty coordinator. Experiences will be formalized with a letter of understanding between the student, the department and the mentor overseeing the experience. At the conclusion of the experience the student will complete the course by meeting the class syllabus requirements, including submission of a resume and a brief report describing the activities and what was learned; mentors may provide a brief evaluation of the student’s performance. Credit value will be based upon the contribution of the experience to the student’s education. Generally, major experience will consist of continuing involvement over several months, while minor experiences will be of shorter duration (days). Examples of experiences would include full or part-time employee/volunteer during the summer or academic year in a natural resource related area, participation in professional meetings, and teaching natural resource subjects in school or community forums.

This requirement will be administered by a faculty coordinator who will be responsible for planning, general oversight and final evaluation of the experience requirement. The coordinator will serve as liaison between students and agencies/groups/individuals providing experience activities, and will actively seek out experience opportunities. The coordinator will provide guidance to students to maximize the educational value of the experiences.

Internship Coordinator: Rebecca Goggans, [Rebecca.goggans@oregonstate.edu](mailto:Rebecca.goggans@oregonstate.edu), Nash 104A

## CAPSTONE COURSES     6 credits

**FW 488. Problem Solving in Fisheries and Wildlife Science** (3 credits, Winter term)

**Enforced Pre-requisites:** FW 320, 321

**Recommended pre-requisites:** One or more 400-level FW courses, such as FW 481 Wildlife Ecology, FW 454 Fishery Biology, or FW 426 Coastal Ecology and Resource Management

**Description:** This is the first of a two-course capstone sequence 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. The course will center on three activities: 1) a review of three or four 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, leading to development of 3) independent work by students in small groups on a select topic of their choice. The intent of the case history studies is to provide an in-depth treatment of a “real life” complex issue in natural resource management. Each case study will be presented using a common framework that will provide students with a logical process for addressing complex problems in general, and their group problem specifically. 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. Each student group will work on a project that includes data analysis and/or synthesis, literature review, and evaluation of the social and economic systems that are involved in the controversy or management problem. Project write-up and presentation will be completed in the subsequent companion course, FW 489 Effective Communications in Fisheries and Wildlife Science, offered in Spring term. Students are required to take the two courses sequentially.

This will be a required course in the FW curriculum, offered each Winter term as part of a 2 course sequence that must be taken together (FW 488 (Winter) and FW 489 (Spring)). The course sequence will be restricted to majors with senior status. A distance version of the course will be developed in 2010.

This course and FW 489 Effective Communications in Fisheries and Wildlife Science will replace the three course Group Problem Solving sequence, FW441, 442 and 443.

**FW 489: Effective Communications in Fisheries and Wildlife Science** (3 credits, Spring term)

**Enforced Prerequisites:** FW488

**Description:** This continues the 2 course capstone sequence for FW majors emphasizing the analysis, synthesis and interpretation of information and written and oral communication of management, education or policy statements. The course will be taught spring term every year and in sequence with FW488 that will be taught during winter. We will meet twice per week (80 minutes each session) with a lecture and discussion on the first day each week and Group Project work on the second day to assure designated time for Group Project activities.

In this course, groups will work on a variety of methods for presenting their projects to different audiences. In addition to lectures on how to communicate effectively, we will discuss science and advocacy, the role of science in policy-making, conflict resolution skills for communicating with diverse audiences, and working with the media.