

## Bachelor of Science in Natural Resources: Fisheries Conservation and Management

		FALL				SPRING	
		Course Title	Units	Prerequisite?	Course Title	Units	Prerequisite?
<b>Freshman</b>		CHEM 151	4	MATH 112 or placement	CHEM 152	4	CHEM 151
		ENGL 101 or 109H	3		ENGL 102	3	
		Tier 1 Traditions and Cultures	3		ECOL 182R and L General Biology Lecture and Lab	4	
		<b>RNR 200 Conservation of Natural Environments</b>	3		Calculus: MATH 113, 122A/B, or 125	3-5	MATH 112 or placement test
		TOTAL	13		TOTAL	16/18	
<b>Sophomore</b>		Tier 2 Ind & Soc: ECON 200 (Economics)	3		Additional Physical Science: CHEM 241a, 243a or PHYS 102, 181 or SWES 200, 201 or GEOS 251	4	varies
		<b>RNR 316 Natural Resources Ecology</b>	3	ECOL 182R and L, RNR 230R	Tier 1 Traditions and Cultures	3	
		Statistics: MATH 163 or 263, or PSY 230, or SBS 200	3	MATH 112 or placement	Tier 2 Arts or Humanites	3	
		<b>RNR 230R and L Field Botany</b>	3		Tier 1 Individuals and Societies	3	
		MCB 181R and L General Biology Lecture and Lab	4	MATH 112 or placement; CHEM 151	<b>RNR 384 Natural Resources Management Practices</b>	3	
		TOTAL	17		TOTAL	15	
<b>Junior</b>		Genetics PLS 312 or ECOL 320	4	MCB 181R and L; CHEM 151 and 152	<b>RNR 321 Ecological Surveys and Sampling</b>	3	MATH 163 or 263
		Technical Writing: ENGL 308, 313, 340, or 414, ENVS 408 or 415	3		ENVS 474 (Aq Plants) or 475 (Algae) or RAM 382 (Plant Communities)	3/4	RNR 230R and L
		ECOL 482 Ichthyology (odd years in fall)	4	RNR 316 recommended	WSM 468 Wildland Water Quality	3	
		Technical Skills: RNR 403, 417, 429 or GEOG 330, or RAM 446, 456A	3		Oral or Media Communication: COMM 113, 119, AGTM 422, SCI 401, JOUR 455, JOUR 472, SBE 202	3	
		TOTAL	14		Technical Elective	3	
		TOTAL	14		TOTAL	15/16	
<b>Senior</b>					ECOL "ology" elective (e.g. Aquatic Entomology)	4	RNR 316 recommended
		WFSC 471 Stream Ecology	3		WFSC 456 Aquaculture or WFSC 444 (fall)	3-4	
		Technical Electives	10		WFSC 455 R and L Fisheries Management	4	even years
		TOTAL	13		<b>RNR 480 Natural Resources Policy and Law</b>	3	RNR 200
		TOTAL	13		TOTAL	14-15	

Diversity Emphasis: One general education course must have the non-Western Civilization, Gender, Race, Class, Ethnicity designation  
 2nd semester language proficiency required-- not included in this plan

## **Suggested Technical Electives**

### **Ecology/Zoology/Animal Health**

WFSC 385 Zoo and Aquarium Conservation  
ACBS 400A/B Animal Anatomy and Physiology  
ECOL 335 Evolution  
ECOL 473 Topics in Behavioral Ecology  
ECOL 487 Animal Behavior  
ECOL 403 Biology of Animal Parasites  
3<sup>rd</sup> "Ology" of ECOL 483 (Herpet), 484 (Ornith),  
485 (Mammal), 482 (Ichthy)  
ACBS 336A Applied Animal Nutrition  
ACBS 449 Diseases of Wildlife

### **Tools/Techniques/Internships**

RNR 403 -- Applications of GIS (3)  
RNR 417 -- GIS for Natural Resources (3)  
RNR 419 -- Cartographic Modeling for Nat  
RNR 420 -- Advanced GIS (3)  
RNR 422 -- Resource Mapping (3)  
RNR 473 Spatial Analysis and Modeling (3)  
RNR 493 Internship  
RNR 499 Independent Study

### **Fire Ecology and Natural Resources Management**

RNR 448 Conservation Planning & Wildland Recreation  
RNR 355 Intro to Wildland Fire  
RNR 438 Wildland Fire Management  
RNR 496B Natural Resources Seminar (1-3)  
RNR 441A - Natural Resource Management in Native Communities

### **Other Ecology/Conservation**

RNR 458 Ecosystem Ecology  
ECOL 438 Biogeography  
ECOL 406R Conservation Biology  
ECOL 464 - Sonoran Desert Discovery  
RNR 495A Study Abroad Namibia/Australia/Ecuador  
WFSC 430 Conservation Genetics  
WFSC 447 Wildlife Conservation Behavior

### **Economics/Policy/Planning**

AREC 217 Resources & Environmental Econ  
AREC 373 Environmental Economics  
AREC 476 Environmental Law and Economics  
POL 481 Environmental Policy  
PLG 472 Environmental Land Use Planning  
GEOG 404 The Politics of Nature

### **Certificate in Rangeland Management courses**

RAM 382 Rangeland Plant Communities  
RAM 436A Grazing Ecology and Management  
RAM 446 Management + Restoration of Wildland Vegetation  
RAM 456 Rangeland Inventory & Monitoring  
RAM 487 Rangeland Management Planning

### **Marine Sciences Minor courses**

ECOL 496O- Galapagos Marine Ecology  
GEOS 212 Introduction to Oceanography  
ENVS 475 - Freshwater and Marine Algae  
ECOL 404R and L Biology of the Oceans (Fall)  
ECOL 412A and B Ocean Sciences  
ECOL 360 Marine Ecology and Conservation  
ECOL 450 Marine Discovery

## **Courses Required for Certification by the American Fisheries Society**

Course Grade must be "C" or better (No Pass/Fail)

- A. **Fisheries and Aquatic Sciences**: Four courses, 2 must be directly related to fisheries sciences (e.g., Ichthyology, Fishery Management, Aquatic Plants, Aquatic Entomology, Algae, Aquaculture, Limnology)
- B. **Other Biological Sciences**: When added to the courses in section A, must total 30 semester hours (e.g., Basic Biology, Genetics, Anatomy, Disease, Nutrition, Botany, Zoology)
- C. **Physical Sciences**: Must total 15 semester hours (e.g., Chemistry, Physics, Soils, Water Quality)
- D. **Mathematics and Statistics**: Must include college algebra or calculus and 1 course in statistics. Must total 6 semester hours.
- E. **Communications**: Must total 6 semester hours (e.g., Public Speaking, Technical Writing)