

Bachelor of Science in Natural Resources: Fisheries Conservation and Management

FALL			SPRING		
Course Title	Units	Prerequisite?	Course Title	Units	Prerequisite?
Tier 1 Nat Sci – CHEM 151	4	MATH 112 or placement	Tier 1 Nat Sci – 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	
RNR 230R Field Botany lecture	2		MATH 113, 122A/B, or 125 (Calculus)	3-5	MATH 112 or placement test
RNR 230L Field Botany lab	1		Tier 1 Individuals and Societies	3	
TOTAL	13		TOTAL	16/18	
Tier 2 Ind & Soc – ECON 201a or ECON 200 (Economics)	3		CHEM 241a, 243a or PHYS 102, 181 or SWES 200, 201	4	varies
RNR 316 Natural Resources Ecology	3	ECOL 182R and L, RNR 230R	Tier 1 Traditions and Cultures	3	
MATH 163 or 263 (Statistics)	3	MATH 112 or placement	ENGL 308, 313 or 340, ENVS 408 or 415, AGTM 422, SCI 401	3	
RNR 200 Conservation of Natural Environments	3		COMM 119* or Technical Elective	3	
MCB 181R and L General Biology Lecture and Lab	4	MATH 112 or placement; CHEM 151	RNR 384 Natural Resources Management Practices	3	
TOTAL	17		TOTAL	15	
Genetics PLS 312 or ECOL 320	4	MCB 181R and L; CHEM 151 and 152	RNR 321 Ecological Surveys and Sampling	3	MATH 163 or 263
Tier 2 Arts or Humanities Elect.	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	
RNR 403 or RNR 417 or Technical Elective	3		Tier 1 Individuals and Societies	3	
			Technical Elective	3	
TOTAL	14		TOTAL	15/16	
			ECOL "ology" elective (e.g. Aquatic Entomology)	4	RNR 316 recommended
WFSC 441 Limnology	4		WFSC 456 Aquaculture or WFSC 444 (fall)	3-4	
Technical Electives	9		WFSC 455 R and L Fisheries Management	4	
TOTAL	13		RNR 480 Natural Resources Policy and Law	3	RNR 200
			TOTAL	14-15	

Diversity Emphasis: One general education course must have the non-Western Civilization, Gender, Race, Class, Ethnicity designation

* Required for certification as a Fisheries biologist by the American Fisheries Society. If you opt against certification, you must take a technical elective.

2nd semester language proficiency required

Suggested Technical Electives

Ecology/Zoology/Animal Health

WFSC 447 Wildlife Conservation Behavior
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
3rd "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:

WFSC 430 Conservation Genetics
WFSC 447 Wildlife Conservation Behavior

Economics/Policy/Planning

AREC 217 Resources & Environmental Econ
AREC 350 Econ, Ethics & Environmental Management
AREC 375 Econ of Land & Water in the American West
AREC 377 Econ of Environ. Resource Conservation
POL 481 Environmental Policy
PLG 472 - Environmental Land Use Planning

Botany/Plant Science

RAM 436A Grazing Ecology and Management
RAM 446 Management + Restoration of Wildland Vegetation
RAM 456 Rangeland Inventory & Monitoring

Marine Biology

ECOL 183 - Marine Biology
GEOS 212 Introduction to Oceanography
ENVS 475 - Freshwater and Marine Algae
ECOL 404R and L Biology of the Oceans (Fall)
ECOL 450 Marine Discovery
ECOL 496O- Galapagos Marine Ecology
ECOL 463 - Ecology & Natural History of the Sonoran Desert
& Gulf of California

Pre-Veterinary (based on CSU requirements*)

CHEM 241A and 243A Organic Chemistry (4)
MATH 263 (3)
BIOC 384 Foundations in Biochemistry (3)
PHYS 102 and 181 Physics (4)
PLS 312 Genetics or ECOL 320 (4)

**Check each vet school for their specific requirements*

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)