ENVIRONMENTAL SCIENCE AND SUSTAINABILITY B.S. -ECOSYSTEM SCIENCE AND RESTORATION

The Ecosystem Science and Restoration concentration spans the range of ecology from microbial to global scales and includes basic and applied science. Students will focus on learning about how ecosystems work, solving pressing environmental problems, and/or helping to restore degraded ecosystems. In the ESR concentration, students can focus on either aquatic or terrestrial ecosystems and tailor their capstone experience to best fit their interests and career path.

Bachelor of Science - Environmental Science and Sustainability; Ecosystem Science and Restoration Concentration **General Education Requirements**

Information regarding these requirements can be found in the General Education Section (http://catalog.umt.edu/academics/generaleducation-requirements/) of the catalog.

Summary

Code	Title	Hours
Lower-Division Rec	uired Courses	17-19
Ecosystem Science Requirements	e and Restoration Cond	centration
Lower-Division Rec	uired Courses	26-27
Upper-Division Rec	uired Courses	21-23
ESR Natural Science	ce Electives	9
Ethics		3
Policy		3
Social Science		3
Advanced Writing I	Requirement	
Total Hours		82-87

Degree Specific Credits: 82-87

Required Cumulative GPA: 2.0

Complete one of the following:

Lower-Division Required Courses

Note: NRSM 110 will not be required if students declare the major with 60+ credits.

Code	Title	Hours
Complete the	following courses:	
NRSM 110	First Year Seminar in Environmental Science and Sustainability	1
NRSM 121S	Environmental Science and Sustainability	3

Total Hours		17-19
CHMY 121N	Introduction to General Chemistry	4
Chemistry - Comp	lete the following course:	
WILD 240	Intro to Biostatistics	
STAT 216	Introduction to Statistics	
FORS 201	Forest Biometrics	
Statistics Require courses:	ment - Complete one of the following	3-4
or THTR 120A	Introduction to Acting I	
COMX 111A	Introduction to Public Speaking	3
Oral Communicat	on - Complete one of the following courses:	
NRSM 211N & NRSM 212N	Soils and Water and Ecology, Physics and Taxonomy of Soils	
GPHY 111N & GPHY 112N	Intro to Physical Geography: Climate, Landforms, and Vegetation and Intro to Physical Geography Laboratory: Climate, Landforms, and Vegetation	

Minimum Required Grade: C-

Ecosystem Science and Restoration Concentration Requirements

Rule: Complete all of the following subcategories.

Lower-Division Required Courses

Code	Title	Hours
Complete all of th	e following courses:	
BIOB 160N	Principles of Living Systems	3
BIOB 161N	Principles of Living Systems Lab	1
BIOB 260	Cellular and Molecular Biology	4
BIOB 272	Genetics and Evolution	4
CHMY 123	Introduction to Organic and Biochemistry	4
M 162	Applied Calculus	4
NRSM 265	Elements of Ecological Restoration	3
Complete one of t	he following:	3-4
GEO 101N & GEO 102N	Introduction to Physical Geology and Introduction to Physical Geology Lab	
GEO 103N & GEO 104N	Introduction to Environmental Geology and Introduction to Environmental Geology Laboratory	
BIOO 105N	Introduction to Botany	
Total Hours		26-27

Total Hours

3-4

Minimum Required Grade: C-

Upper-Division Required Courses

Code	Title	Hours
Complete all of t	he following courses:	
BIOE 370	General Ecology	3
BIOE 428	Freshwater Ecology	3-5
or BIOO 335	Rocky Mountain Flora	

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Total Hours		21-23
or NRSM 499	Senior Thesis	
or NRSM 498	Internship	
NRSM 495	Ecosystem Science and Restoration Practicum	3
NRSM 494	Ecosystem Science and Restoration Seminar	1
or BIOE 447	Ecosystem Ecology	
NRSM 465	Foundations of Restoration Ecology	3
NRSM 385	Watershed Hydrology	3
NRSM 344	Ecosystem Science and Restoration Capstone	5

Minimum Required Grade: C-

ESR Natural Science Electives

Note: courses may not count as an elective if taken to satisfy other listed requirements.

Code	Title	Hours
Complete three of	the following courses:	9
BIOE 416	Alpine Ecology	
BIOE 447	Ecosystem Ecology	
BIOE 448	Terrestrial Plant Ecology	
BIOE 451	Landscape Ecology	
BIOE 458	Forest and Fire Ecology	
BIOO 320	General Botany	
BIOO 340	Biology and Management of Fishes	
BIOO 433	Plant Physiology	
ERTH 303N	Weather and Climate	
FORS 202	Forest Mensuration	
FORS 250	Intro to GIS for Forest Mgt	
FORS 330	Forest Ecology	
FORS 331	Wildland Fuel Management	
FORS 333	Fire Ecology	
FORS 347	Multiple Resource Silviculture	
GEO 318	Earth's Changing Climate	
GEO 420	Hydrogeology	
GEO 421	Hydrology	
GEO 460	Process Geomorphology	
GPHY 111N & GPHY 112N	Intro to Physical Geography: Climate, Landforms, and Vegetation and Intro to Physical Geography Laboratory: Climate, Landforms, and Vegetation	
GPHY 317	Geomorphology	
NRSM 211N & NRSM 212N	Soils and Water and Ecology, Physics and Taxonomy of Soils	
NRSM 360	Rangeland Management	
NRSM 408	Global Cycles and Climate	
NRSM 415	Environmental Soil Science	
NRSM 418	Ecosystem Climatology	
NRSM 462	Rangeland Ecology	
NRSM 465	Foundations of Restoration Ecology	

WILD 485	Aquatic Invertebrate Ecology	
Total Hours		9
Minimum Requi	red Grade: C-	
Ethics		
Code	Title	Hours
Complete one o	f the following courses:	3
NRSM 349E	Climate Change Ethics and Policy	
NRSM 389E	Ethics and Sustainability	
Total Hours		3
Minimum Requi	red Grade: C-	
Policy		
Code	Title	Hours
Complete one o	f the following courses:	3
NRSM 422	Natural Resource Policy and	
	Administration	
NRSM 427	Water Policy	
NRSM 428	Climate Policy	
WILD 410	Wildlife Policy & Biopolitics	
Total Hours		3
Minimum Requi	red Grade: C-	
Social Science		
Code	Title	Hours
Complete one o	f the following courses:	3
NRSM 326	Climate and Society	
NRSM 379	Collaborations in Natural Resource Decisions	
NRSM 424		
NRSM 475	Environment & Development	
PTRM 300	Recreation Behavior	

Conservation of Wildlife Populations

Minimum Required Grade: C-

Total Hours

WILD 470

Advanced Writing Requirement

Code	Title	Hours
Complete three of	f the following courses:	9
BIOE 428	Freshwater Ecology	
BIOE 447	Ecosystem Ecology	
FORS 330	Forest Ecology	
FORS 341	Timber Harvesting & Roads	
FORS 347	Multiple Resource Silviculture	
FORS 349	Practice of Silviculture	
FORS 440	Forest Stand Management	
FORS 499	Senior Thesis	
NASX 403		
NRSM 326	Climate and Society	

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Total Hours

Minimum Required Grade: C-