

BACHELOR OF SCIENCE IN ECOSYSTEM SCIENCE & RESTORATION AQUATIC OPTION

(Curriculum outline for 2016 catalog or later)

FALL			SPRING		
COURSE#	DESCRIPTION	CR	COURSE#	DESCRIPTION	CR
FRESHMAN					
BIOB 160N & BIOB 161N	Principles of Living Systems (<i>lab required</i>) [F]	3 1	CHMY 123N	Intro. to Organic & Biochemistry (<i>lab optional</i>) [F/Sp]	3
CHMY 121N	Intro. to General Chemistry [F/Sp]	3	COMX 111A	Intro. to Public Speaking [F/W/Sp/Su] -OR-	3
NRSM 121S	Nature of Montana [F] -OR-	2-3	THTR 120A	Intro. to Acting 1 [F/Wi/Sp]	3
NRSM 170	Intern'l Environ. Change [Sp] -OR-		GEO 101N	General Geology (<i>lab required</i>) [F/Sp]	3
NRSM 180	Careers in Natural Resources [F/Sp]		& 102NL		1
WRIT 101	College Writing I [F/W/Sp/Su]	3	M 171	Calculus I [F/Sp]	4
	GEN ED/Elective	3		GEN ED/Elective	3
TOTAL			TOTAL		
15-16			17		
SOPHOMORE					
BIOB 260	Cell & Molecular Biology [F/Su]	4	BIOB 272	Genetics & Evolution [Sp]	4
M 172	Calculus II [F/Sp]	4	NRSM 200	Nat. Res. Professional Writing [F/Sp] -OR-	3
NRSM 265	Elements of Ecol. Restoration [F]	3	WRIT 325	Science Writing (honors) [Intern]	3
	GEN ED/Elective	4	STAT 216	Statistics [F/Sp/Su] -OR-	3-4
			FORS 201	Forest Biometrics [F] -OR-	
			WILD 240	Intro. to Biostats [F, even yrs]	
				GEN ED/Elective	3-5
TOTAL			TOTAL		
15			13-16		
JUNIOR					
BIOE 370	General Ecology (<i>lab optional</i>) [F]	3	NRSM 344*	Ecosystem Science and Restoration Capstone [Sp]	5
NRSM 385	Watershed Hydrology [F/Sp]	3	BIOE 428*	Freshwater Ecology [Sp]	5
	ESR Aquatic Electives ¹	3		ESR Aquatic Electives ¹	3
	ESR Social-Science Electives ²	3		GEN ED/Elective	3
	GEN ED/Elective	3			
TOTAL			TOTAL		
15			16		
SENIOR					
NRSM 489E*	Ethics Forestry & Conservation [F] -OR-	3	NRSM 422	Natural Resource Policy & Admin. [F/Sp]	3
NRSM 449E*	Climate Change Ethics [F]		NRSM 465	Restoration Ecology [Sp] -OR- Ecosystem	3
NRSM 495*	Practicum [F]	3-6	BIOE 447	Ecology [Sp, even yrs]	
	ESR Aquatic Electives ¹	3-4	NRSM 494	ESR Seminar [Sp]	1
	GEN ED/Elective	3-6		GEN ED/Elective	6-9
TOTAL			TOTAL		
12-19			15		

Notes:

- Shading indicates that students have more than one course option.
- Letters in brackets after course titles indicate semesters offered: F=Fall; W=Winter Session; Sp=Spring; and Su=Summer.
- Letters/symbols after course rubrics indicate general education requirements: A=expressive arts; E=ethical and human values; N=natural science; NL=natural science w/lab; S=social science; and *=upper-division writing (three * courses required) (see back page).
- Electives are listed on the following page: ¹ESR/aquatic electives (9 cr); ²ESR/social-science electives (3 cr).

General requirements:

1) A total of 120 credits, 39 of which must be upper division (300 level or higher); 2) a total of 36 traditional letter-graded semester credits in the College of Forestry and Conservation (CFC); and 3) at least 400 hrs of work experience (see your advisor for details).

ESR AQUATIC ELECTIVES (≥ 9 cr.)

BIOE 342 Field Ecology, 3 cr. [Su]	GEO 421 Hydrology, 3 cr. [F]
BIOE 447 Ecosystem Ecology, 3 cr. [Sp, odd yrs]	GEO 460 Process Geomorph., 4 cr. [F, even yrs]
BIOE 451 Landscape Ecology, 3 cr. [Su]	NRSM 210 Soils, Water, and Climate 3 cr. [Sp]
BIOO 340 Biology & Mgmt. of Fishes, 4 cr. [F]	NRSM 408 Global Cycles and Climate, 3 cr. [Sp, Even yrs]
GPHY 284 (FOR 250) Intro to GIS and Cart., 3 cr. [F/Sp]	NRSM 418 Ecosystem Climatology, 3 cr. [Sp, Odd yrs]
GEO 318 Surface Processes, 4 cr. [Sp]	NRSM 485 Watershed Mgmt., 3 cr. [Interm]
GEO 420 Hydrogeology, 3 cr. [Sp]	WILD 485 Aquatic Macroinvertebrate Ecol., 3 cr. [F]

* BIOE 439 Stream Ecology AND BIOE 453 Lake Ecology can substitute for BIOE 428 Freshwater Ecology (but not for UD writing)

ESR SOCIAL-SCIENCE ELECTIVES (≥ 3 cr.)

ECNS 433 Economics of the Environment, 3 cr. [Interm]	NRSM 379* Collaboration in Natural Res. Decisions, 3 cr. [Sp]
FORS 320 Forest Environmental Econ., 3 cr. [F]	NRSM 426* Climate and Society, 3 cr. [Sp, odd yrs]
GPHY 335** Water Policy, 3 cr. [F]	NRSM 475* Environ. and Development, 3 cr. [Sp]

Notes: Letters in brackets indicate semesters offered: F=Fall; W=Winter Session; Sp=Spring; Su=Summer; Interm = Intermittent.

*=upper-division writing option 1 (see below); ** = upper-division writing option 2 (see below)

GENERAL EDUCATION REQUIREMENTS

A student following the Ecosystem Science and Restoration (ESR) curriculum can fulfill part of their General Education requirements by taking the ER degree course requirements that are listed below.

I. WRITING SKILLS. The writing skills requirements are met by the ESR curriculum:

—**Lower-Division Writing.** All students must complete WRIT 101 unless exempt and one of the following additional lower-division writing courses: NRSM 200 or WRIT 325 honors.

—**Upper-Division Writing.** Students must complete one of the following options: Option 1 — Three of the following upper-division writing courses († denotes courses that are elective or required for ESR): BIOE 428†; FORS 330, 341, 342, 347, 437, 440, 490, and 499; NASX 403; NRSM 379†, 426, 344†, 449E, 495†, 462, 475†, 489E†, and 499; PTRM 300; and WILD 410. Option 2 — One course that has a W († denotes courses that are elective for ER), such as GPHY 335†, PTRM 451W or PTRM 482W.

II. MATHEMATICS

The mathematics requirements are met by the ESR curriculum: M 171.

III. FOREIGN LANGUAGES/SYMBOLIC SYSTEMS

The foreign language/symbolic systems requirements are met by the ESR curriculum: M 171 or M172; and STAT 216 or FORS 201 or WILD 240.

GENERAL EDUCATION PERSPECTIVES

Students must successfully complete 3 credits from each perspective group below, except for Natural Sciences, in which 6 credits (including at least one course with a lab [NL]) are required. Approved courses may meet more than one perspective.

IV. EXPRESSIVE ARTS (A) 3 cr. — This perspective is fulfilled by the ESR curriculum: COMX IIIA or THTR 120A.

VIII. ETHICAL AND HUMAN VALUES (E) 3 cr. — This perspective is fulfilled by the ESR curriculum: NRSM 489E or NRSM449E.

V. LITERARY AND ARTISTIC STUDIES (L) 3 cr. — This perspective is NOT fulfilled by the ESR curriculum.

IX. AMERICAN AND EUROPEAN PERSPECTIVES (Y) 3 cr. — This perspective is NOT fulfilled by the ESR curriculum.

VI. HISTORIAL AND CULTURAL STUDIES (H) 3 cr. — This perspective is NOT fulfilled by the ESR curriculum.

X. INDIGENEOUS AND GLOBAL PERSPECTIVES (X) 3 cr. — This perspective is NOT fulfilled by the ESR curriculum.

VII. SOCIAL SCIENCES (S) 3 cr. — This perspective is NOT fulfilled by the ESR curriculum: NRSM 121S is an elective and is recommended.

XI. NATURAL SCIENCES (N/NL) 6 cr. — This perspective is fulfilled by the ESR curriculum: BIOB 160N, CHMY 121N, CHMY 123N, and GEOL 101N/102NL.

CIVIL SERVICE REQUIREMENTS

The ESR aquatic option qualifies students for the federal civil service jobs listed below, with the following additional requirements (for more information see: <http://www.opm.gov/qualifications/standards/indexes/alph-ndx.asp>):

- **Biological Science Technician** (Series GS-0404): ESR meets all requirements.
- **Ecologist** (Series GS-408): ESR meets all requirements.
- **Hydrologist** (Series GS-1315): To meet the physics requirement, ESR students must take 6 credits of physics.