

BACHELOR OF SCIENCE IN ECOSYSTEM SCIENCE & RESTORATION AQUATIC OPTION

(Curriculum outline for 2018 catalog or later)

| FALL | | | SPRING | | |
|------------------|--|--------------|--------------|--|--------------|
| COURSE# | DESCRIPTION | CR | COURSE# | DESCRIPTION | CR |
| FRESHMAN | | | | | |
| BIOB 160N | Principles of Living Systems (<i>lab req</i>) [F/Sp] | 3 | CHMY 123N | Intro. to Organic & Biochemistry (<i>lab optional</i>) [F/Sp] | 4 |
| BIOB 161N | Principles of Living Systems Lab [F] | 1 | COMX 111A | Intro. to Public Speaking [F/Sp/Su] -OR- | 3 |
| CHMY 121N | Intro. to General Chemistry [F/Sp] | 3 | THTR 120A | Intro. to Acting 1 [F/Sp] | 3 |
| NRSM 121S | Nature of Montana [F] -OR- | 3 | GEO 101N | General Geology (<i>lab required</i>) [F/Sp] | 3 |
| NRSM 170 | Intern'l Environ. Change [Sp] | 3 | & 102NL | | 1 |
| WRIT 101 | College Writing I [F/Sp/Su] | 3 | M 171 | Calculus I [F/Sp] | 4 |
| | GEN ED/Elective | 3 | | | |
| TOTAL | | | TOTAL | | |
| | | 16 | | | 15 |
| SOPHOMORE | | | | | |
| BIOB 260 | Cell & Molecular Biology [F/Su] | 4 | BIOB 272 | Genetics & Evolution [Sp] | 4 |
| M 172 | Calculus II [F/Sp] | 4 | STAT 216 | Statistics [F/Sp/Su] -OR- | 3-4 |
| NRSM 265 | Elements of Ecol. Restoration [F] | 3 | FORS 201 | Forest Biometrics [F] -OR- | 3 |
| | GEN ED/Elective | 4 | WILD 240 | Intro. to Biostats [F, even yrs] | 3 |
| | | | | GEN ED/Elective | 3 |
| | | | | GEN ED Intermediate Writing (Useful: WRIT 201, WRIT 121, ENST 201, ENST 231H) | 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 389E* | Ethics Forestry & Conservation [F] -OR- | 3 | NRSM 422 | Natural Resource Policy & Admin. [F/Sp] | 3 |
| NRSM 349E* | Climate Change Ethics [F] | 3 | NRSM 465 | Restoration Ecology [Sp] -OR- | 3 |
| NRSM 495* | Ecol. Restoration Practicum [F] -OR- | 3-6 | BIOE 447 | Ecosystem Ecology [Sp, even yrs] | 1 |
| NRSM 498 | Internship (ESR Capstone Int Exp) -OR- | 3 | NRSM 494 | ESR Seminar [Sp] | 1 |
| NRSM 499 | Senior Thesis | 3 | | GEN ED/Elective | 6-9 |
| | ESR Aquatic Electives ¹ | 3-4 | | | |
| | GEN ED/Elective | 3-6 | | | |
| TOTAL | | | TOTAL | | |
| | | 12-19 | | | 13-16 |

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.)

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| 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 210N Soils, Water, and Climate 3 cr. [Sp] |
| BIOE 453 Ecology of Small & Large Lakes, 3 cr. [Su] | NRSM 408 Global Cycles and Climate, 3 cr. [Sp, Even yrs] |
| BIOO 340 Biology & Mgmt. of Fishes, 4 cr. [F] | NRSM 418 Ecosystem Climatology, 3 cr. [Sp, Odd yrs] |
| GPHY 284 (FOR 250) Intro to GIS and Cart., 3 cr. [F/Sp] | NRSM 465 Foundations of Restoration Ecology, 3 cr. [Sp] |
| GEO 318 Surface Processes, 4 cr. [Sp] | WILD 485 Aquatic Macroinvertebrate Ecol., 3 cr. [F] |
| GEO 420 Hydrogeology, 3 cr. [Sp] | |

* 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.)

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| ECNS 433 Economics of the Environment, 3 cr. [Interm] | NRSM 426* Climate and Society, 3 cr. [Sp, odd yrs] |
| FORS 320 Forest Environmental Econ., 3 cr. [Sp] | NRSM 427 Advanced Water Policy, 3 cr. [Sp] |
| GPHY 335** Water Policy, 3 cr. [F] | NRSM 475* Environ. and Development, 3 cr. [Sp] |
| NRSM 379* Collaboration in Natural Res. Decisions, 3 cr. [Sp] | |

Notes: Letters in brackets indicate semesters offered: F=Fall; 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:
 —**Introductory College Writing.** All students must complete WRIT 101 unless exempt.
 —**Intermediate College Writing.** This perspective is NOT fulfilled by the ESR curriculum.
 — **Advanced College Writing.** Students must complete one of the following two options. Option 1 — Three of the following upper-division writing courses († denotes courses that are elective or required for ER): BIOE 428; BIOO 320; FORS 330†, 341, 342, 347, 437, 440, 490, and 499; NASX 403; NRSM 344†, 349E, 379†, 389E†, 426, 462, 475†, 495†, and 499; PTRM 300; and WILD 410. Option 2 — one course that has a W, such as PTRM 451W, or PTRM 482W; please check for prerequisites.

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| 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. |
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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.

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| 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 349E or NRSM 389E. |
| V. LITERARY AND ARTISTIC STUDIES (L) 3 cr. — This perspective is NOT fulfilled by the ESR curriculum. | IX. DEMOCRACY AND CITIZENSHIP (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. CULTURAL AND INTERNATIONAL DIVERSITY (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.