

# Water Resources Minor (Non-Teaching)

The Water Resources Minor is designed to encourage a student from any discipline to explore water resources beyond course work in their major. As a result, the minor includes courses from the College of Agriculture, the College of Engineering, and the College of Letters and Science. The minor is administered by the Water Resources Committee (WRM) and the Department of Land Resources and Environmental Sciences. Any committee member may serve as an advisor for the minor (see the web page for current information about the committee <https://www.montana.edu/water-resources-minor> (<https://www.montana.edu/water-resources-minor/>)).

The chair of the WRM committee serves as the certifying officer and approves the minor for graduation after approval by the departmental advisor.

This minor requires a minimum of 21 credits, which must include at least one course from each of the categories of basic science, applied science, and social science. Students are expected to create a diverse program, with the guidance of their faculty advisor. **No more than 12 credits may be used to simultaneously fulfill Water Resources Minor requirements and the student's major. At least 9 credits must be unique to the minor.** The student's minor advisor must certify that the 12-credit restriction is not exceeded. Course substitutions are allowed only with approval by the WRM advisor and certification by the committee chair. The written appeal for a substitution should present a brief rationale.

**For more information**, please visit the Water Resources Minor website (<http://www.montana.edu/water-resources-minor/>).

## Required Courses

|            |                                                                  |   |
|------------|------------------------------------------------------------------|---|
| ENSC 272CS | Water Resources (classroom in Fall, online in Spring and Summer) | 3 |
|------------|------------------------------------------------------------------|---|

## Restricted Electives

Take 18 credits, at least one from each subject area; Internship courses are optional

### Basic Science Courses

|            |                                             |   |
|------------|---------------------------------------------|---|
| BIOE 427RN | Research in Freshwater Ecology              | 3 |
| BIOE 428   | Freshwater Ecology                          | 3 |
| BIOM 360   | General Microbiology                        | 5 |
| BIOM 415   | Microbial Diversity, Ecology, and Evolution | 3 |
| BIOM 452   | Soil & Environmental Microbiology           | 3 |
| BIOO 418   | Ecological Physiology of Aquatic Organisms  | 3 |
| EENV 434   | Groundwater Supply/Remediation              | 3 |
| CHMY 311   | Fundamental Analytical Chem                 | 4 |
| ENSC 444   | Watershed Hydrology                         | 3 |
| ENSC 445   | Watershed Analysis                          | 3 |
| ENSC 454   | Landscape Pedology                          | 3 |
| ENSC 468   | Ecosystem Biogeochem and Global Change      | 3 |
| ERTH 303   | Weather and Climate                         | 3 |
| ERTH 307   | Principles of Geomorphology                 | 4 |
| ERTH 450R  | Snow Dynamics and Accumulation              | 4 |

### Applied Science Courses

|          |                                         |   |
|----------|-----------------------------------------|---|
| ECIV 333 | Water Resources Engineering             | 4 |
| EENV 340 | Principles of Environmental Engineering | 3 |

|            |                                |     |
|------------|--------------------------------|-----|
| EENV 432   | Advanced Engineering Hydrology | 3   |
| EENV 441   | Natural Treatment Systems      | 3   |
| ENSC 353   | Environmental Biogeochemistry  | 3   |
| ENSC 407   | Environmental Risk Assessment  | 3   |
| ENSC 448   | Stream Restoration Ecology     | 3   |
| ENSC 461   | Restoration Ecology            | 3   |
| GPHY 384   | Adv GIS and Spatial Analysis   | 3   |
| GPHY 426   | Remote Sensing                 | 3   |
| GPHY 429R  | Applied Remote Sensing         | 3   |
| GPHY 484R  | Applied GIS & Spatial Analysis | 3   |
| GPHY 491   | Special Topics                 | 1-4 |
| NRSM 455   | Riparian Ecology & Management  | 3   |
| WILD 301   | Princ of Fish & Wildlife Mgmt  | 3   |
| WILD 401RN | Fish and Wildlife Capstone     | 4   |

### Social Science Courses

|           |                                |   |
|-----------|--------------------------------|---|
| ECNS 332  | Econ of Natural Resources      | 3 |
| ECNS 432R | Economic Policy Evaluation     | 3 |
| GPHY 402  | Water and Society              | 3 |
| HSTA 470  | American Environmental History | 3 |
| NRSM 421  | Holistic Thought/Mgmt          | 4 |
| NRSM 430  | Natural Resource Law           | 3 |
| PSCI 362  | Natural Resource Policy        | 3 |
| SOCI 470  | Environmental Sociology        | 3 |

Any 290, 490, 291, 491, 292 or 492 course(s) related to water may be used in the minor.

### Internship Courses

|          |            |      |
|----------|------------|------|
| BIOE 498 | Internship | 1-4  |
| ENSC 498 | Internship | 2-4  |
| ECIV 498 | Internship | 3    |
| GPHY 498 | Internship | 2-12 |
| PSCI 498 | Internship | 2-12 |
| WILD 498 | Internship | 1-4  |

**Note:** A C- minimum is required in all curriculum courses to graduate by Regents' policy. This includes electives in the curriculum. All students are responsible for meeting prerequisites for upper division courses.