Minor in Freshwater Science and Management (FSM)

The SAFS Freshwater Science and Management Minor is designed for students majoring in other departments who wish to understand the complex relationships between freshwater ecosystems and human societies, including topics associated with global change, ecosystem services, fisheries, water pollution, land use, climate change, watershed and river basin management, water technology, environmental engineering, stakeholder processes, and water policy.

The Minor provides breadth to a degree and additional opportunities for employment or graduate careers. The program is especially appropriate for students in Marine Biology, Oceanography, Forest Resources, Biology, and Environmental Studies.

Enrollment in the Minor

The minor is open to all UW students who have reached 45 credits. Contact your departmental adviser to declare a minor in Freshwater Science and Management.

Recommended Courses

Please pay attention to prerequisites and recommended courses for each of these classes. Students will likely need preparatory coursework in chemistry, biology, physics, and pre-calculus.

Minor Requirements

The Aquatic and Fishery Sciences Minor requires a minimum of 27 credits, as follows:

NOTE: No more than 10 credits may overlap with student’s major requirements; use this checklist to indicate whether course is being used for the FSM minor, non-FSM major, or both.

- **All core courses** (16cr):
  - COURSE | CREDITS | FSM MINOR □ | NON-FSM MAJOR □
  - FISH 200 (5)
  - FISH/ESRM 447 & 448 (5)
  - CEE 478 (3)
  - FISH 400 (3)

- **Limnology lecture and lab, choose ONE option** (5cr):
  - COURSE | CREDITS | FSM MINOR □ | NON-FSM MAJOR □
  - FISH/BIOL 473 & 474 (5)
  - CEE 462 & 463 (5)

- **Minimum of 2 approved electives, one from each category** (minimum 6cr):
  - **PHYSICAL PROCESSES**
    - COURSE | CREDITS | FSM MINOR □ | NON-FSM MAJOR □
  - 
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  - **BIOLOGICAL AND MANAGEMENT**
    - COURSE | CREDITS | FSM MINOR □ | NON-FSM MAJOR □
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A list of approved elective classes can be found on the following page.

- **Total Minor Credits** (minimum 27): ________
- **Total Overlapping Credits** (≤ 10): ________
- **Total Upper-Division (300–400 level) Credits** (minimum 15): ________
- **GPA Requirement**: Minimum 2.00 cumulative GPA for UW courses used toward minor

Questions about the minor may be emailed to the SAFS Adviser at mcfm@uw.edu.
## UW School of Aquatic and Fishery Sciences – Undergraduate Program

<table>
<thead>
<tr>
<th>□ Core</th>
<th>7 courses, 16cr</th>
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<tbody>
<tr>
<td>1. ☐ FISH 200 (5) Freshwater Ecology &amp; Conservation (Win)</td>
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<tr>
<td>2. ☐ FISH/ESRM 447 (3) Watershed Ecology &amp; Mgmt. (Spr) Pre-req: BIOL 180, ESRM 201, or FISH 200</td>
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<tr>
<td>3. ☐ FISH/ESRM 448 (2) Watershed Ecology &amp; Management Lab (Spr) Pre- or co-req: ESRM/FISH 447</td>
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<td>4. Choose one:</td>
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<tr>
<td>☐ FISH/Biol 473 (3) Limnology (Aut) Pre-req: BIOL 180</td>
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<tr>
<td>☐ CEE 462 (3) Applied Limnology &amp; Pollutant Effects on Freshwater (Aut)</td>
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<tr>
<td>5. ☐ FISH 474/Biol 474/CEE 463 (2) Limnology Lab (Aut) Pre- or co-req: BIOL 473/FISH 473 or CEE 462</td>
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<tr>
<td>6. ☐ CEE 478 (3) Water Systems Management &amp; Operations (Spr)</td>
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<td>7. ☐ FISH 400 (3) Seminar in Freshwater Sustainability (Spr) Pre-req: FISH 200</td>
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<tr>
<th>□ Electives, Physical Processes</th>
<th>1 course, min. 3cr</th>
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<tbody>
<tr>
<td>Choose one:</td>
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<tr>
<td>☐ CEE 250 (3) Environmental Processes &amp; Flows (Spr) Pre-req: MATH 120 or 124</td>
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<td>☐ CEE 348 (4) Hydrology &amp; Environ. Fluid Mechanics (Spr) Pre-req: CEE 347; PHYS 123 or PHYS 143</td>
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<td>☐ CEE 357 (5) Environmental Engineering (WinSpr) Pre-req: CHEM 142, 143, or 145</td>
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<td>☐ CEE 476 (3) Physical Hydrology (Aut) Pre-req: CEE 347</td>
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<td>☐ CEE 477 (3) Open-Channel Flow (Win) Pre-req: CEE 347</td>
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<tr>
<td>☐ ESS 326 (5) Geomorphology (Win) Pre-req: PHYS 114 or 121</td>
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<tr>
<td>☐ ESS 426 (5) Fluvial Geomorphology (Spr) Pre-req: ESS 311 or 326</td>
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<td>☐ ESS 454 (4) Hydrogeology (Win) Pre-req: ESS 311 or 314</td>
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<tr>
<td>☐ ESS 457 (4) Environmental Geochemistry (Win) Pre-req: ESS 316, CHEM 152, or CHEM 155</td>
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<td>☐ ESRM 426 (4) Wildland Hydrology (Spr)</td>
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<tr>
<th>□ Electives, Biological and Management</th>
<th>1 course, min. 3cr</th>
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<tr>
<td>Choose one:</td>
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<tr>
<td>☐ FISH 423 (4) Aquatic Invasion Ecology (Aut) Pre-req: BIOL 180 or 462</td>
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<td>☐ FISH 428 (5) Stream &amp; Watershed Restoration (Spr – even years) Pre-req: BIOL 356, ESRM 304, or FISH 312</td>
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<td>☐ FISH 450 (4) Salmonid Behavior and Life History (Aut)</td>
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