Please attach/submit additional documents as needed to fully complete each section of the form. Deadlines and instructions can be found on the Office of the Provost’s [curriculum website](#). Proposals for a NEW degree or center require notification in advance of this proposal. See the Office of the Provost’s [curriculum website](#) for information.

I. DEPARTMENT / PROGRAM

Water Science and Society Undergraduate Certificate

II. SUMMARY OF CHANGE REQUESTED (360 WORDS MAXIMUM)

What

A new undergraduate certificate focused on water science and society

Why

To provide a pathway for students to package existing UM courses into a credential on water and water-relevant skills. To demonstrate to prospective students the breadth and depth of water expertise at UM, so that it’s clear the multiple options they have to study water here.

Resources

No new resources are required or requested. This certificate builds on existing courses.

Relationship to similar MUS programs

There are no MUS certificates specifically focused on water science and society. There is a water resources minor at MSU, but it is not interdisciplinary or focused on skills like the proposed water science and society certificate.

III. ENDORSEMENTS AND APPROVALS

Requestor: Laurie Yung
(406) 270-7335  laurie.yung@umontana.edu

Program Chairs: Laurie Yung

Other Affected Programs:

Dean: Tom Deluca

Dean: Chris Comer

Signature ______________________ Date 9/14/17
Provide a brief description of the method of instructional delivery (i.e. percentage of face-to-face, hybrid, distance/online education).

100% face-to-face

VII. CATALOG LANGUAGE

Attach the current or proposed catalog language with any changes clearly identified.

**Water Science and Society Undergraduate Certificate**
College of Forestry and Conservation and College of Humanities and Sciences

The Water Science and Society Certificate provides students from a range of majors with foundational knowledge in water science and policy. Students take courses in the biological, physical, and policy sciences, and courses focused on skills relevant to understanding and managing water. The certificate culminates in a capstone experience that enables students to apply conceptual water knowledge to a project.

One course required in each of these three areas:
*Courses in first three categories have at least 70% content focused specifically on water*

**Social/Policy**
GPHY 335 Water Policy
NRSM 427 Advanced Water Policy

**Physical**
GEO 320 Global Water (prereqs: chemistry and Writt 101)
GEO 420 Hydrogeology (prereqs: calculus, physics)
GEO 421 Hydrology (prereqs: calculus, physics)
NRSM 385 Watershed Hydrology (prereq: M 115 or higher)

**Biological/Ecological**
BIOO 340 Biology & Management of Fishes (prereqs: BIOB 272 and STAT 216 or WILD 240)
BIOE 428 Freshwater Ecology (prereqs: BIOB 160N and CHMY 123N or 143N)
BIOE 438 Stream Ecology (prereqs: One year of college-level biology, chemistry, & math)
BIOE 453 Lake Ecology (prereqs: One year of college-level biology, chemistry, & math)
WILD 485 Aquatic Invertebrate Ecology

**Plus 3.0 credits in skills and 3.0 credits in capstone:**

**Skills (3.0 credits)**
CSCI 444 Data Visualization (prereqs: M 171; programming experience; and junior or senior standing; or consent of instructor)
ECNS 201 Principles of Microeconomics
ECNS 433 Economics of the Environment (prereq: ECNS 201)
ECNS 445 International Environmental Economics and Climate Change (prereq: ECNS 201)
GPHY 284 Introduction to GIS and Cartography OR FORS 250 Forestry GIS
GPHY 465 Planning Principles and Processes (prereq: junior or senior standing)
it. We hope to submit a new course proposal by the September 29th deadline and if we do so will amend this proposal to include that course.

Why this certificate is needed now:

The courses above are already in place, with the exception of the new aquatic ecology course for non-science majors. There is a tremendous interest in water and it is critical that we train and credential students to enter into a range of water professions, as well as better market existing opportunities to study water at UM. This certificate enables students from a range of majors to develop water expertise, and demonstrates the many ways that students can learn about water here.

IX. SUBMISSION

1. Submit a hard copy of this form with all required signatures to the Office of the Provost.

2. Submit an electronic copy of this Word document, along with all other required BOR forms (in Word) to jasminezink.laine@mso.umt.edu

- After approval by the Provost, the proposal will be submitted to the Faculty Senate Office.
- After approval by the appropriate Curriculum Committee (ASCRC or Graduate Council), the full Faculty Senate must approve the proposal.
- Upon Faculty Senate approval, the Office of the Provost will submit the proposal to OCHE for the next possible OCHE/BOR meeting.
  - Note that BOR and internal UM deadlines require submission quite in advance of the BOR meeting.
- The Office of the Provost will notify the proposer once the change has been approved by OCHE/BOR.