

Notice of Change for: Addition of a Minor in “Global Water Resources”

Date: December 8, 2015

A. PROGRAM INFORMATION

1. Name of institution

University of Rhode Island

2. Name of department, division, school or college

Department: Geosciences (GEO), Natural Resources Management (NRS), Environmental and Natural Resource Economics (ENRE)
College: College of the Environment and Life Sciences (CELS)

3. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.

Initiation date: Sept. 01, 2016
First degree date: May 2019

4. Intended location of the program

URI Main Campus, College of the Environment and Life Sciences

5. Summary description of proposed program (not to exceed 2 pages).

Minor in Global Water Resources

Faculty comprising of the Water Cluster propose a minor in Global Water Resources (GWR); the effort is led by faculty from the College of Environment and Life Sciences (CELS). GWR students will take courses from across multiple departments in order to gain necessary interdisciplinary skills that are directly relevant to understanding global water issues. Todd Guilfoos, Assistant Professor in the Department of Environmental and Natural Resource

Economics, and Soni Pradhanang, Assistant Professor in the Department of Geosciences will serve as the directors of this minor.

Water is a critical issue for societies and the environment around the world and water will continue to be one of the highest priorities for governments in the future due to the pressures exerted by climate and environmental change and population growth. The minor in Global Water Resources is designed to provide students with a strong and structured understanding of hydrological processes that affect the quantity and movement of surface and groundwater and the impacts of human activities on water supply and characteristics at a global scale.

The interdisciplinary minor in Global Water Resources is designed as a flexible program for undergraduate students to study and integrate principles of physical hydrology, geochemistry, aquatic and terrestrial ecology, natural resources management, and environmental economics and policy. This minor can include College of the Environment and Life Sciences (CELS) courses in the Departments of Geosciences (GEO), Natural Resources Management (NRS), Environmental Resources Economics (ENRE), and Biology (BIO), as well as courses in the College of Engineering, i.e., Civil and Environmental Engineering (CVE), and the College of Arts and Sciences, i.e., Landscape Architecture (LAR), and the Graduate School of Oceanography, i.e. Oceanography (OCG).

The Global Water Resources minor comprises a minimum of 18 credit hours, including three required course, GEO/NRS/EEC 234 Introduction to Water Resources, EEC 430 Water Resource Economics, and one course from a list of three hydrology courses (NRS 461 Watershed Hydrology and Management, GEO 482/582 Innovative Subsurface Remediation Technologies, GEO 484/584 Environmental Hydrogeology). The remaining credits must be taken from a list of approved elective courses. Admission to this minor requires that a student from any URI program has a cumulative grade point average of 2.70 or better after one semester at URI (or as a transfer student with same GPA). Students are responsible for meeting the prerequisite requirements for individual courses, as applicable.

Formalizing a minor in water science and management will help fulfill the vision of the URI Academic Plan [AP] which states as a goal “Internationalizing and Globalizing the University of Rhode Island.” All of the required courses will include aspects of global water issues through case studies and applied examples of core concepts of the course which expands understanding of global physical and cultural differences related to water. Programmatically, GWR students will pursue a curriculum that is inherently interdisciplinary with breadth across the natural and social sciences. Specifically, a co-taught course (234: Intro to Water Resources) by Todd Guilfoos (ENRE), Soni Pradhanang (GEO), and Ali Akanda (CVE) is designed as the entry point into the Minor and exposes students to an interdisciplinary approach to water studies.

Learning Goals:

On completion of the minor in Global Water Resources, students will have the knowledge and skills to:

- Understand water resource issues in the region, the USA, and the world in the context of the complex interplay between climate, land, water, people and economic development.
- Integrate information across a range of disciplines into a comprehensive analysis of water issues.

- Appreciate the relationships between raw data and their interpretation(s), and how lack of knowledge or uncertain knowledge influence decision making relevant to water.

If applicable, please include the existing URI catalog language and proposed catalog language changes that relate to your request.

Global Water Resources

The minor in Global Water Resources is an interdisciplinary field of study and focuses on the study of the physico-chemical, social, political, and economic factors of water resources from a global perspective. It provides students with the opportunity to develop knowledge central to the understanding and management of water resources and to develop expertise relevant to the human dimensions of water quality and quantity at the global scale. Students are trained in the fundamental background and key practical skills required to address the emerging water problems in a world faced with changing climates and population growth. Opportunities exist for students to explore ecosystem interactions of water, remediation strategies of polluted water, policy and economics of water, and to better understand the linkages between water, landscape and climate. The curriculum is attractive to students from a wide range of co-curricular programs within the College of the Environment and Life Sciences and other colleges.

Students who declare a minor in Global Water Resources are required to complete a minimum of 18 credits, including three required course (GEO/NRS/EEC 234 Introduction to Water Resources, EEC 430 Water Resource Economics, and one course from a list of three hydrology courses (NRS 461 Watershed Hydrology and Management, GEO 482/582 Innovative Subsurface Remediation Technologies, GEO 484/584 Environmental Hydrogeology). The remaining credits must be taken from a list of approved elective courses. A list of water related course currently offered at URI is attached. Students accepted into the minor may have prerequisites waived in consultation with instructor.

6. Signature of the President

David M. Dooley

Required Courses:

GEO/NRS/EEC 234 Introduction to Water Resources (3)

EEC 430 Water Resource Economics (3)

1 course from the following list:

NRS 461 Watershed Hydrology and Management (4)

GEO 482/582 Innovative Subsurface Remediation Technologies (Boving; 4, Spring- odd years)

GEO 484/584 Environmental Hydrogeology (Boving; 3+1; Spring - even years)

Related Elective Courses:

GEG 101 World Geography (3) S

GCH 103 Grand Challenges in the Natural Sciences (Boving, 4, F)

NRS 100 Natural Resource Conservation (3)

NRS 300 Introduction to Global Issues in Sustainable Development (3)

NRS 461 Watershed Hydrology and Management (4)

NRS 496 Seminar in International Development (Abedon, 3 cr., Spring)

BIO/NRS 563 Biology and Ecology for Fish (4)

GEO/OCG 110 The Ocean Planet (3)

GEO 491 J-Term Indonesia (Boving, 3)

GEO 562 Aqueous Geochemistry (Cardace, 4, Spring)

GEO/NRS/CVE 535 Geospatial Watershed Modeling (Pradhanang, 3, Spring)

GEO 482/582 Innovative Subsurface Remediation Technologies (Boving; 4, Spring- odd years)

GEO 483 Hydrogeology (Veeger, 3+1; Fall)

GEO 484/584 Environmental Hydrogeology (Boving; 3+1; Spring - even years)

GEO 586 Hydro Reading Seminar (Boving, 1-3, F and S)

CVE 471 Water and Water Treatment Systems (3)

CVE 475 Water and the Environment (3)

OCG 200 Extreme Weather, (Heikes&Donohue; 3 cr, Spring)

OCG 480 Introduction To Marine Pollution (3)

CPL/LAR 434 Introduction to Environmental Law (3 crs.; Gordon)

CPL 485 Environmental Planning: (3 crs., Gordon)

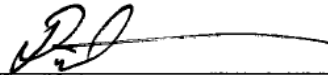
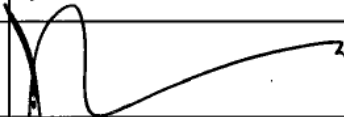
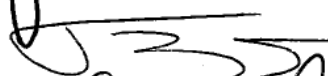
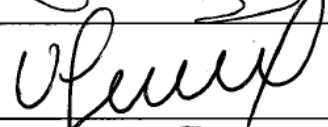

EEC 310 Economics for Natural Resource Management and Policy (3)

EEC 440 Benefit-Cost Analysis (3)

PSC 422 International Political Economy (4)

Participant faculty signatures

The following faculty members express their support for the Minor in Global Water Studies

Name (alphabetical order)	College	Dept.	Signature
David Abedon	CELS	NRS	
Ali Akanda	COE	CVE	Ali Shetout Akanda
Jose Amador	CELS	NRS	
Farhad Atash	A&S	LAR	Farhad Atash
Thomas Boving	CELS	GEO	
Vinka Oyanedel-Craver	COE	CVE	
Art Gold	CELS	NRS	
Todd Guilfoos	CELS	ENRE	Todd Guilfoos
Brian Heikes	GSO	OCG	Brian Heikes
Kristin Johnson	A&S	PSC	Kristin Johnson
Rainer Lohmann	GSO	OCG	Rainer Lohmann
Jim Opaluch	CELS	ENRE	Jim Opaluch
Soni Pradhanang	CELS	GEO	Soni Pradhanang
Anne Veeger	CELS	GEO	Anne Veeger
Dawn Cardace	CELS	GEO	Dawn Cardace