**892 |Global Water and Food Seminar |Spring 2017**

**Credits:** 3 hours

**Prerequisites:**

There are no specific prerequisites. The course is aimed at graduate students in biological systems engineering, civil engineering, natural resources, economics, global studies, political science and other fields related to water, food and international development. Advanced undergraduates and others interested may enroll in the course with permission of the instructors. All those who wish to take the course should send a short note to the instructors providing a brief description of their background and interests.

**Time and place:** Lectures: One two-hour class per week in Room 112 in Chase Hall, East Campus, Tuesdays 3-5 pm, plus significant readings and assignments

**Instructors:** Dr. Roberto Lenton

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**Office hours:** Schedule appointment with the instructors

**Course website:** Available on Blackboard at <http://my.unl.edu>

**Course objectives:**

The overall objective of the course is to provide students with a global view of scientific and practical aspects of the role of water in international development and food security, from smallholder agriculture in Africa to large high-efficiency production in the High Plains. Students completing the course will have developed an understanding of water and food production issues globally and skills for assessing water development projects and policies from social, economic and environmental perspectives. The course will include discussion of case studies drawn from the instructors’ experiences at the intersection of science and practice, invited lectures from scholars and practitioners, class discussions of selected readings from the literature on water and development, and opportunities for participation in selected parts of the 2017 Water for Food Global Conference.

The course will provide an overview of global water and food security issues, with a focus on five topics relating to the use and management of water for food production: (1) closing water and agricultural productivity gaps; (2) groundwater management for agricultural production; (3) enhancing high-productivity irrigated agriculture; (4) freshwater and agricultural ecosystems and public health; and (5) management of agricultural drought. The course will provide an introduction to the global challenges of achieving food and water security in the context of sustainable development and poverty reduction, illustrated through case studies drawn from personal experience. Issues to be discussed include balancing economic efficiency, social equity and environmental sustainability; indicators for measuring physical, social, economic and environmental outcomes; and the roles and perspectives of different stakeholders, including communities and local, national and international agencies. Lectures and discussions will include discussions of supply and demand management policies, water and agricultural perspectives, and technological and entrepreneurial approaches.

 **Grading:**

Students will complete three projects, one on each of the three different issues. For each of these projects, students will prepare a brief written report (5 pages max). They will also be expected to make an oral PowerPoint presentation on one of these three projects (5 slides max.). Students will work in small groups to identify a water and development issue of interest to them, gather information about the topic, and present an evidence-based technical and/or policy recommendation. Students will have the opportunity to compete to present their project as a poster in the 2017 Water for Food Global Conference.

Students will be evaluated on the basis of:

 Project #1 25%

 Project #2 25%

Project #3 25%

 Class Participation and Attendance 25%

The course will be developed on a Pass/No Pass (PNP) grading option. Students must receive an overall percentage of 70% or better to pass the course.

**Materials and Tools:**

There will be 1-2 required readings for each class each week, which will be available on blackboard. Lecture materials and handouts will also be posted on blackboard after the lecture. Students are strongly encouraged to take notes during lectures.

**Exams:**

There will be no exams during the semester.

**Homework, quizzes, and in-class activities:**

The principal homework assignments will involve readings of selected papers in preparation for class discussion and related activities. A reading list with the required readings for each week of the class will be made available to course participants before the semester begins. Students will be expected to discuss papers during class time. Additionally, there will be other research assignments related to the course content. These might involve collecting data from online databases, literature or media reviews, data analysis with appropriate guidance, or synthesis of ideas or results.

**Course Guidelines & Policies:**

Students are expected to adhere to guidelines concerning academic dishonesty outlined in Section 4.2 of the University’s Student Code of Conduct (<http://stuafs.unl.edu/ja/code/>). The BSE Department process for grade and academic dishonesty appeals can be found at: <http://bse.unl.edu/academicadvising-index>. Students are encouraged to contact the instructor for clarification of these guidelines if they have questions or concerns.

Students with disabilities are encouraged to contact the instructor for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

**Classroom Emergency Preparedness and Response Information:**

* Fire Alarm (or other evacuation): In the event of a fire alarm: Gather belongings (Purse, keys, cellphone, N-Card, etc.) and use the nearest exit to leave the building. Do not use the elevators. After exiting notify emergency personnel of the location of persons unable to exit the building. Do not return to building unless told to do so by emergency personnel.
* Tornado Warning: When sirens sound, move to the lowest interior area of building or designated shelter. Stay away from windows and stay near an inside wall when possible.
* Active Shooter
	+ Evacuate: if there is a safe escape path, leave belongings behind, keep hands visible and follow police officer instructions.
	+ Hide out: If evacuation is impossible secure yourself in your space by turning out lights, closing blinds and barricading doors if possible.
	+ Take action: As a last resort, and only when your life is in imminent danger, attempt to disrupt and/or incapacitate the active shooter.
* UNL Alert: Notifications about serious incidents on campus are sent via text message, email, unl.edu website, and social media. For more information go to: unlalert.unl.edu.
* Additional Emergency Procedures can be found here: <http://emergency.unl.edu/doc/Emergency_Procedures_Quicklist.pdf>

**Tentative schedule and list of topics:**

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| **Date** | **Topics** |
| 10-Jan | Introduction |
| 17-Jan | Why do we irrigate? Global Overview |
| 24-Jan | Crop water production functions: How do we model irrigation? |
| 31-Jan | Economic and behavioral aspects of irrigation decision making |
| 7-Feb | Yield and water productivity gaps: Introductory concepts and discussion |
| 14-Feb | Why is it so difficult to close yield and water productivity gaps? |
| 21-Feb | Groundwater management for agricultural production: Introductory concepts and discussion |
| 28-Feb | Groundwater management for agricultural production: Applications  |
| 7-Mar | Agricultural water use and ecosystems |
| 14-Mar | Agricultural water use and public health |
| 21-Mar | **Spring Break** |
| 28-Mar | Drought management and sustainability  |
| 4-Apr | Water entrepreneurship: why farmers don’t always adopt new technology; the role of philanthropy in reaching sustainable water use |
| 11-Apr | Participation in 2017 Global Water for Food Conference |
| 18-Apr | Nebraska’s approach to irrigation and its global relevance |
| 25-Apr | Class discussion, conclusions and wrap-up |