

# Water in a Changing World

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ENVIRON/EOS 390, ENVIRON593.08; Tuesdays 6:15-8:45 pm

Spring 2013

## *Course Summary*

The focus of this course is on water and change. The storyline begins with various perspectives on water and cultural identity from the viewpoints of history, religion, and art. The story then moves to water and the roles it plays in various systems (natural, socioeconomic, urban). These sessions will consider competing demands on water in a changing world and how change propagates through systems. Finally, the course turns to change itself: decision-making under uncertainty and how we adapt to change more generally.

The learning objective for the course is that students will explore multidisciplinary perspectives on this most ordinary but invaluable stuff, water. The systems perspective reinforces the reality that as part of various systems, what happens to water has implications in many other spheres, and that actions elsewhere often have impacts on water. Finally, as a resource under ever-increasing demand coupled to ever more risk and uncertainty, decision-making about water resources will only become even more complicated but more crucial. This class will touch directly on Duke's focus on interdisciplinary learning, globalization, and knowledge in service to society.

## *Course Format*

The course is structured as guest lectures following this storyline, showcasing the expertise of Duke's faculty. Each lecture session will be in plenary format and will include either single speakers or, more typically, a few speakers representing complementary perspectives on the same topic. These plenary sessions will be followed by small-group discussions for student reaction and reflection. Three recurring themes will be emphasized in these discussions: (1) disciplinary reflection on the inter- or trans-disciplinary nature of problem-solving, (2) evidence-based reasoning and its communication, and (3) the role of risk and uncertainty in public and private decision-making.

## *Class exercises and student participation*

Each student will be enrolled in a small discussion group (a course section). Groups will meet separately after each plenary session for reflection on the topic, sharing multidisciplinary perspectives. Participation in discussions will be tracked and will contribute to grades.

Quizzes. After each class session, students will take an on-line quiz (via Sakai), answering questions related to background readings and the plenary lectures. These quizzes will be open for a limited time after each class (tentatively, Wednesday-Friday).

Field Trips. Additionally, students will participate in occasional field trips to local sites that include water features. These field trips will be conducted as "reverse treasure hunts" in which students will be sent to specific locations and asked to retrieve what treasures they find there—as photos, drawings, writing, whatever. These will be shared within discussion sections and documented in a short paper to be turned after the discussion session. Possible locations for field trips include but are not limited to:

- Sarah Duke Gardens: an exemplary setting for multidisciplinary reflection, as it was designed for this (while also managing stormwater for Duke's campus);
- Various (small) water features around Duke's campus: built mostly as stormwater management infrastructure, they might play very different roles to students and passers-by;

- A restored creek in a local park (Ellerbe Creek in Durham Central Park, Northgate) or on Duke's Campus: attempts to improve water quality in city streams, these sites still provide a range of amenities to the public.
- The Eno River State Park, with its abandoned mill sites and other reminders of the changing role of the river in our region.

In addition, Keval Kaur Khalsa (Dance) will offer two voluntary "field trips" in Duke Gardens. These will be experiential sessions lasting approximately one hour, and will be scheduled later in the semester to take advantage of warmer weather. The sessions:

- A Kundalini Yoga session next to the pond behind the Sarah Duke building in Duke Gardens
- An improvisational movement session in Duke Gardens, meeting initially by the pond in the formal Terrace Garden, and moving to different "water" locations in the Gardens.

Field trips will be done on the student's own, either individual or in small groups; these can be done at any point during the semester. (The experiential sessions described above will also serve as field trips.) Students are encouraged to share their field trip experiences by posting discussion threads in Sakai.

Term paper. Finally, students will write a term paper (10-15 pages) that addresses a specific issue related to water (we will look at several during the semester) and explores the ramifications and possible solutions from an interdisciplinary perspective. Students should clear topics with a teaching assistant or instructor if unclear about the scope of a proposed term paper.

Student evaluation will be based on quizzes (40% of total grade), participation during discussions (15%) presentations of treasures retrieved from the field visits (15%), and the final reflection paper (30%).

### *Topical Outline and Guest Speakers*

A detailed schedule of guest lectures is posted separately on the course website:

<http://trinity.duke.edu/university-course/2013-water-in-a-changing-world/speaker-schedule>

The schedule is subject to change.