**Water Management & Policy: The Water-Energy-Food Nexus**

Spring Semester 2016, Seminar: Thursdays, 12:30-3:00PM, ENR2 Building, Room S223

**Instructor**
Christopher Scott

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Office hours: By appointment.

**Course summary**

This seminar provides participants with a global overview of water management and policy challenges. Emphasis is placed on the water-energy-food nexus. Related topics include options and alternatives for managing demands for water for agriculture and urban growth in order to conserve critical ecosystems.

New insights on the coupled linkages between water, energy, and food have moved “nexus assessment” beyond straightforward resource quantification, e.g., water-for-energy coefficient analysis. In the context of global change (including climate change, rapid urbanization, and global markets for energy, biofuels, and food), research and decision-making on nexus coupling increasingly focuses on:

- spatial patterns of water, food, and energy use (source to consumption),
- mutual influences between energy, agricultural, and water policy and planning,
- internalizing ‘externalities’ (unintended consequences—indeed reinterpretation—of ‘waste, including deferred impacts), and
- policy formulation (with emphasis on global change adaptation involving water, energy, and food that does not undermine long-term mitigation)

The seminar addresses the following list of topics:

- the energy futures to meet agricultural and urban water demand,
- water resources needs for power generation using conventional fuels and renewables,
- the implications and role of water and agriculture in the emerging carbon-neutral economy,
- comparative energy- and water-based perspectives on efficiency and conservation, and
- co-production of research and policy-making on water, energy, and food.

While the primary focus is on applied assessment of the drivers and potential solutions to challenges encountered, the theoretical underpinnings are strongly informed by coupled natural and human systems, resilience theory, ecohydrology, and stakeholder-based policy analysis. As a result, seminar participants will be exposed to physical and social science approaches to water management and policy. Participants interested in exploring specific topics in greater detail, or related issues not covered in the syllabus, are encouraged to meet with the instructor. To the degree possible, students should build synergies between their term paper for this seminar and their ongoing or planned Masters or Doctoral research.

We follow a seminar format in which participants play a central role in leading discussions. Individually or in groups of two, students must lead discussion of two topics of their interest from the syllabus, and if applicable, help to host the guest speaker on the day of their session. Discussion leaders may, in advance of their selected sessions and with the concurrence of the instructor, identify and assign additional material for all participants to read.

**Course materials** - Reading materials will be posted on the course D2L site.
Grading policy

Grades are based on regular participation in the seminar (both as discussion leader and active participant in discussions led by others) and submission of the abstract and full version of your research paper. Absences for important study, work, and life events should be cleared with the instructor in advance.

Grades are based on regular participation in seminar discussions, using the rubrics below, regular grades (A, B, C, D, or E) will be awarded upon completion of the seminar.

Seminar participation (total 40%) based on:

- **Expectation for A-grade**
  - Clearly relate theory/main argument to broader context, prepare written questions/commentary (1-page per student per session selected) for discussion & conceptual development.

- **20%** - Lead discussions of readings

- **20%** - Join discussions led by others
  - Insightful comments showing you have read the material.

Research paper (total 60%) based on:

- **Expectation for A-grade**
  - Descriptive title, articulate research question, 10 annotated references (not including seminar readings).

- **20%** - Abstract & prelim. lit review (due 2/11)

- **40%** - Final paper (due 4/28)
  - Review literature, identify theoretical/conceptual gaps in which to situate your research, demonstrate analytical rigor, relate findings/discussion to theory and concept, explore ways forward/next steps.

Guest speakers

Robert Varady, Interim Director & Research Professor of Environmental Policy, Udall Center for Studies in Public Policy, University of Arizona
Lily House-Peters, PhD Candidate, School of Geography & Development, University of Arizona
Gary Nabhan, Director, Center for Regional Food Studies, University of Arizona
Carl Bauer, Associate Professor, School of Geography & Development, University of Arizona
Asia Philbin, Marana Water, Marana, Arizona
Gregg Garfin, Associate Professor, School of Natural Resources & Environment, University of Arizona

Requirements

Course participants must write an original research paper that is conceptualized and researched as part of the course. Term papers are expected to be a minimum of 20 pages double-spaced (not counting pages listing references; however, a consistently formatted reference section is required). Primary data collection (including as part of students’ ongoing Masters or PhD research) is encouraged but not required.

Additionally, students must lead discussion of two topics of their interest from the syllabus.

There is no pre-requisite for this course.

Final note

All information contained in this syllabus (except the grading policy) may be subject to change with reasonable advance notice, and considering student input.
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<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading / Notes</th>
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<tr>
<td>1/14/16</td>
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<td>1/21/16</td>
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| Week 3.  | Water security: passing fad or durable concept?  
| 1/28/16  |                                                                          |                                                                                                                                                 |

**SCHEDULE of TOPICS** (subject to revision as agreed/ announced)
|-------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Week 6. 2/18/16 | Water for energy: carbon and nuclear legacies  
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<tr>
<th>3/17/16</th>
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