Adaptation and Resilience in Water Resources Systems

GEOG 696O Seminar, Fall Semester 2010
Meets in Altschul Lab (Harvill Bldg. Room 402), Fridays 12:30 – 3:00

Instructor
Christopher Scott cascott@email.arizona.edu
Harvill Room 410 (phone 626-8473), or
Udall Center for Studies in Public Policy (803 E. 1st St. [corner of 1st & Euclid], phone 626-4393)
Office hours: by appointment

Seminar summary
[for course catalog - 280 character limit] Climate change, urban growth, energy demand, and global food trade alter water in coupled human-natural systems. This seminar addresses adaptation and resilience using material on river basins, aquifers, infrastructure, policy, and institutions from Southwest U.S., transboundary U.S.-Mexico, and international cases.
[for syllabus] As we enter an era of drastically heightened pressure on water resources combined with greater exposure to extremes (drought and floods), human societies and ecosystems adapt in unforeseen ways. Decision-making by water users, agencies, and global water initiatives must rethink conventional approaches that have assumed bounded variability in hydrologic, water demand, and institutional terms. The new conception of water resource systems — unbounded to allow for multiple future outcomes — seeks to better integrate scientific, engineering, social, and institutional perspectives. It requires new understanding of multiple factors that influence how water is used and managed and how innovation and adaptation arise and can be strengthened. Thresholds, system reorganization, multiple equilibria, and the societal and ecosystem implications of alternative water resource systems will be addressed.

What can students expect to gain from this seminar?
This is an opportunity to refine your interests related to adaptation and resilience of water resource systems in the context of global change, inter-sectoral water allocation, and progressive policy. I emphasize a geographical perspective on international and transboundary dimensions of adaptive water management, and promote inter-disciplinary scholarship. I strongly encourage you to use seminar discussions and the research paper as the means to fine-tune your own research design and make headway on thesis/dissertation research and writing. Please feel free to contact me if you need further information.

Seminar objectives
1. Place societal water use and dependence in the broader context of global change
2. Sample the literature on the theory and application of adaptation and resilience with particular emphasis on water resources
3. Identify and discuss the role of agriculture and irrigation in complex human-natural systems
4. Relate seminar content to your experience and provide insights that should be useful in your future
5. Write a scholarly, instructor-approved seminar research paper
6. Build inter-disciplinary bridges among students and faculty across campus and beyond
Requirements

Students must actively participate in seminar discussions, and must write an original research paper (min. 20 pages, double-spaced) that is conceptualized, researched, orally presented in seminar (with feedback from the instructor and fellow students), and finalized as part of the course.

There is no pre-requisite for this course.

Grading policy

Grades are based on regular participation in seminar discussions, in-class presentation of your research paper, and satisfactory revision and submission of your research paper. Using the rubrics below, regular grades (A, B, C, D, or E) will be awarded upon completion of the seminar.

Seminar participation (total 30%) based on:

- 20% - Lead min. two discussions of readings
- 10% - Join discussions led by others

Expectation for A-grade

- Clearly relate theory/ main argument to broader context,
- pose questions for discussion & conceptual development.
- Insightful comments showing you have read the material.

Research paper (total 70%) based on:

- 5% - Abstract & prelim. lit review (due 9/18)
- 5% - Assessment by fellow students
- 10% - Assessment by instructor
- 50% - Final paper (due 12/4)

Descriptive title, articulate research question, 10 annotated references (not including seminar readings).

Presentation (during 11/20 seminar)

- 5% - Effective communication, intriguing topic.
- 10% - Concisely summarize research questions and findings.
- 50% - 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.

Invited speakers (indicative list only, not yet invited)

- Diana Liverman, Institute of the Environment
- Connie Woodhouse, School of Geography & Development
- Gregg Garfin, Institute of the Environment
- Carl Bauer, School of Geography & Development
- Margaret Wilder, Latin American Studies
- George Frisvold, Dept. Agricultural & Resource Economics
- Sharon Megdal, Water Resources Research Center
- Charles Gerba, Dept. Soil, Water & Environmental Science
- Barbara Morehouse, Institute of the Environment
- Robert Varady, Udall Center for Studies in Public Policy

Course materials

Journal articles and book chapters will be posted on the course D2L website or distributed in class.

**Seminar policies**
All students should be familiar with the following University of Arizona policies:
- Student Code of Conduct: http://web.arizona.edu/~studpubs/policies/studcofc.htm
- Code of Academic Integrity: http://web.arizona.edu/~studpubs/policies/cacaint.htm

**Students with disabilities**
Please register with the Disability Resource Center and see me in order to accommodate any special needs you may have.
### SCHEDULE of TOPICS (subject to revision as agreed/ announced)

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<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading / Notes</th>
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|      | Global change: climate, growth, energy, and food trade | Press coverage on food, energy, agriculture, and water  


**Recommended reading:**


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**Abstract and preliminary literature review for research paper due.**


**Recommended reading:**
Das, Raju J. 2002. The green revolution and poverty: A theoretical and empirical
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<td>San Diego County Water Authority. 2006. Canal Lining Projects Factsheet.</td>
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<td><strong>Recommended reading:</strong></td>
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**Recommended reading:**


**Recommended reading:**

Shomaker, John. 2007. What shall we do with all of this ground water? *Natural Resources Journal* 47: 781-791.


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<td>Research paper presentations during seminar; discussion &amp; feedback</td>
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| Final paper due | Walker and Salt. 2006. Resilience Thinking – selected readings.  
Recommended reading:  
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.