FRSHWTR 512  
Policy and Science of the Water Wars of the Southeastern U.S.

This course is designed to give graduate students and advanced undergraduate students an understanding of the science and policy issues behind freshwater conflicts in the Southeastern United States (Florida, Alabama, Georgia). This course will use a combination of classroom discussion, research and a field trip to discuss water laws, local regulations, and behaviors in each state that have led to the current water issues. In addition the science of surface and groundwater resources that play a role in the conflicts that occur will be covered.

Credits: 2  
Meeting: Fridays 9-11 am April 7, 14, 21, 28, May 5  
Field trip to Georgia, Alabama and Florida May 21-27, 2017

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Course Format:  
Course will involve 5 lecture/discussions on background material to prepare for a week long field trip to the southeastern United States to meet with scientists and stakeholders involved in the freshwater struggles in those regions. Students will be expected to do readings and participate in discussions in class and on the field trip. In addition, students will be responsible for providing a short background presentation on a topic related to the field trip to provide the class further background, and at the end of the trip each student will be expected to submit a paper on the experience.

Course Costs:  
The cost per student will be $600 each for van rental, lodging (field stations and dorms), food and fuel.

Course Schedule:

Lecture/Discussions:

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>7-Apr</td>
<td>Introduction to the Tri-State Water Wars (Georgia, Alabama, Florida) and visit by Laurie Fowler, University of Georgia, River Basin Ecology Center</td>
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<tr>
<td>14-Apr</td>
<td>Science of surface water resources in Georgia, Alabama, Florida</td>
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<tr>
<td>21-Apr</td>
<td>Hydrology, modeling, hydrologic cycle of the area</td>
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<td></td>
<td>Who uses the water, stakeholders and regional Freshwater Policy</td>
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View from Georgia, Alabama, and Florida respectively

Field trip to Georgia, Alabama and Florida May 21-27, 2017

Sunday May 21, 2017: Leave from SFS at 6 am and drive to Georgia
Monday May 22: Lake Lanier, speaking with Wilton Rooks, Lake Lanier Association
Tuesday May 23, Atlanta area ----possibly talking with Riverkeepers and kyaking on river from Lanier towards Atlanta
Wednesday May 24: Troy U. - speaking with Bill Turner, Center for Water Resource Economics, formerly Columbus Water Works, possibly rafting and visiting river redevelopment
Thursday May 25: Dr. Calvin Perry, Charles Stripling at the Stripling Center (morning) and the Jones Center -Kathleen Rugel (afternoon)
Friday May 26: Apalachicola - meeting with Don Tansmiere and Shannon Lease, Apalachicola Riverkeeper
Leave to start journey back towards Milwaukee
Saturday May 27: arrive back in Milwaukee School of Freshwater Sciences by noon.

Text: The required text for the course is Thirsty City, by Skye Borden, ISBN-10: 1438452780. Students are required to read this text prior to the first class meeting. Students are also responsible for obtaining a copy of the research articles from the Desire2Learn course site

Course Description and Learning Objectives:

The course is designed such that students will:

• Develop an understanding of freshwater issues that reach beyond the Great Lakes
• Understand the connection between surface water and groundwater
• Understand some of the techniques used to measure water resources
• Demonstrate their understanding of how of freshwater data has been derived from field studies to impact the different "water wars"
• Understand the role stakeholders play in freshwater protection
• Learn about how local policies impact regional water resources
• (Graduate Students only) Using real world data to evaluate the appropriateness of various solutions proposed.

At the completion of this course, students should be able to:

1) Find or collect data regarding groundwater and surface water resources;
2) Discuss the role of stakeholders and regional regulations on water resources;
3) Present and analyze solutions to a complex environmental problem of freshwater resource limitation

EVALUATION

Students will be required to attend 5 in person lecture/discussion sessions that will provide background in topics. Each student will be required to prepare a short presentation on one
of the background issues for the rest of the class. The class will then go on a week-long field trip to Georgia, Alabama and Florida to talk in person to stakeholders involved in these conflicts. A final project paper will be required from each participant within a week of the field trip. Final course grade will depend on your performance in each of the following areas.

<table>
<thead>
<tr>
<th>Graduate</th>
<th>Undergraduate</th>
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<tbody>
<tr>
<td>Discussion in class and field</td>
<td>25%</td>
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<tr>
<td>Presentation</td>
<td>25%</td>
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<tr>
<td>Field Reflections</td>
<td>25%</td>
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<tr>
<td>Final report</td>
<td>25%</td>
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Discussion: Students will be required to read articles related to the topics that will be provided on D2L. Discussion will occur at each class meeting and periodically during the field trip. Every student will be expected to speak of their impressions and questions during these discussion periods.

Field/Laboratory Reflections: Students will be required to keep a daily journal regarding the sites visited and thoughts related to the information obtained from local stakeholders and scientists dealing with the water issues presented.

Presentations: Two short presentations will be required. Students will be responsible for choosing a subtopic from one of the sites (this may be more location information, data on water resources, information on policies or stakeholders or economics related to one of the two areas). The student will give a 20 minute presentation during class time to provide the class with additional background for the trip. In addition, each student will be responsible for researching one of the people or organizations we will be talking to and giving a 15 minute oral presentation the evening prior to that meeting to prepare the class for the next days presentation.

Final Report: Each student will be expected to write a 5 page report on one of the two areas visited that includes chronological background information on how the site became an issue, the main stressors, and solutions that have been proposed. This should include background information on the policies and science that has been brought to solve the topic. Graduate students will be required to do an additional analysis regarding water resources including estimates of use for different purposes either on a local or regional scale and how each solution would be estimated to impact the groundwater or surface water resource.

Graduate Students: Graduate students will additionally be required to create a longer and more complex final report that consists of analysis of water resources at one of the sites. Undergrads will instead provide an overall review of one of the sites for their report. Hence the weight given to these activities differs in the final grade assessment. In addition, more weight will be given to field reflections and discussion for undergraduates.
Workload:

The estimate of average workload is below. However please be aware that the workload is concentrated into two time periods which consist of the 5 weeks at the end of the Spring 2017 semester and a week-long field trip at the end of the course.

<table>
<thead>
<tr>
<th>Course element</th>
<th>Approximation of (Minutes/week) x (weeks required) = total hrs in semester</th>
<th>Total Grad</th>
<th>Total Undergrad</th>
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<tbody>
<tr>
<td>Readings</td>
<td>180 x 5 = 45 hours</td>
<td>15</td>
<td>15</td>
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<tr>
<td>Preparing for Presentation</td>
<td>300 minutes = 6 hours</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Researching and writing Final Paper</td>
<td>20 hours</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Participation in field trip</td>
<td>70 hours</td>
<td>50</td>
<td>50</td>
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<tr>
<td>Estimated Total semester commitment</td>
<td></td>
<td>91</td>
<td>91</td>
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<tr>
<td>Average per week</td>
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<td>6</td>
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Course Policies: General campus policies that apply to this course are listed on the Secretary of the University’s web site: [http://www.uwm.edu/Dept/SecU/SyllabusLinks.pdf](http://www.uwm.edu/Dept/SecU/SyllabusLinks.pdf)

University Policies

Other general campus policies that apply to this course are listed on the Secretary of the University’s web site: [http://www.uwm.edu/Dept/SecU/SyllabusLinks.pdf](http://www.uwm.edu/Dept/SecU/SyllabusLinks.pdf). This includes information and participation by students with disabilities, accommodation for religious observances, complaint procedures, grade appeal procedures, and other standing policies.

Students with Disabilities:

If you have a documented disability and need special accommodations in order to meet course requirements please contact the instructor. You will need to provide your VISA form which you can obtain at the Student Accessibility Center (Mitchell 112: 2229---6287; http://www4.uwm.edu/sac/)