Urban Soil and Water Systems  
SWS 4204/6209

Instructors:

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Course credits: 3

Teaching Format and Course Communications:

- Exclusively online (no on-campus instruction and all online activities asynchronous).
- Pre-recorded lectures, supplementary readings, discussion boards, assignments and project.
- Canvas eLearning Login: http://elearning.ufl.edu/
- Contact instructors by office phone or through email (directly or through Canvas messaging system). Allow 24 hours for a response during the week. Questions posted over the weekend will not receive a response until Monday.

Pre-Requisites: SWS 3022 (Introduction to Soils in the Environment)

Required Textbook:

- Sedlak, David L. 2014. Water 4.0: The past, present, and future of the world's most vital resource. 332 pages.
  - Note: Available in hard copy (2014), paperback (2015) or ebook format (Kindle, iBooks).
- Additional required readings are available in Canvas.

Course Description:

This course introduces students to issues and opportunities related to soil and water quality in urban systems. Through a combination of asynchronous lectures, quizzes, assignments, and online discussions, students will explore and discuss the impacts of urbanization on soil and water systems and approaches for strengthening resiliency in urban communities.
Course Learning Objectives:

After successfully completing the course, students will be able to:

- Define urban soil and water systems and describe the types of ecosystem services they provide.
- Describe the consequences of urban growth on soil and water systems.
- Analyze the various issues related to urban contaminants (toxic metals, organic compounds, excessive nutrients) and impacts on ecosystem services.
- Describe challenges and opportunities related to water supply, wastewater and stormwater in urban systems.
- Analyze approaches for strengthening resiliency of urban soil and water systems to impacts of climate change and urban growth.

Topic Outline:

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Module</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>1 Introduction to Urban Soil and Water Systems</td>
<td>Course introduction, Identifying Information Sources, Introduction to Studying Systems, Introduction to Ecosystem Services, Introduction to the Urban Ecosystem, Urban Growth, History of Urban Infrastructure, Module Review</td>
</tr>
<tr>
<td>3-4</td>
<td>2 Urban Soil Systems</td>
<td>Direct and Indirect Effects of Urbanization on Soils, Characteristics of Urban Soils, Urban Soils and Ecosystem Services, Components of Urban Soil Systems, Biogeochemistry, Module Review</td>
</tr>
<tr>
<td>5-7</td>
<td>3 Urban Water Systems</td>
<td>Effects of Urbanization on Water Demand and Quality, Urban Water Systems, Urban Water and Ecosystem Services, Components of Urban Water Systems</td>
</tr>
<tr>
<td>8</td>
<td>4 Review/ Wrap Up/ Midterm Evaluation</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>SPRING BREAK</td>
<td></td>
</tr>
<tr>
<td>Weeks</td>
<td>Module</td>
<td>Topics</td>
</tr>
<tr>
<td>-------</td>
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</tbody>
</table>
| 10-12 | 5 Challenges for Urban Soil and Water Systems | Introduction  
Soil and Water Contamination  
Water Availability  
Infrastructure  
Climate change  
Flooding and Sea Level Rise  
Module Review |
| 13-15 | 6 Improving Resilience of Urban Soil and Water Systems | Green infrastructure  
Water reuse  
Improving health of urban soils  
Climate change adaptation  
Regulatory tools  
Community planning |
| 16 | 7 Review/ Wrap up / Final Evaluation | |

**Disclaimer:**

As we go through the semester, specific topics and activities on the syllabus may change to enhance the class learning opportunity. Such changes, communicated clearly and in advance, are not unusual and should be expected.

**Grading Structure:**

<table>
<thead>
<tr>
<th>Assessment Type</th>
<th>Percent of Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>5</td>
</tr>
<tr>
<td>Midterm</td>
<td>15</td>
</tr>
<tr>
<td>Final</td>
<td>15</td>
</tr>
<tr>
<td>Assignments</td>
<td>25</td>
</tr>
<tr>
<td>Discussions</td>
<td>10</td>
</tr>
<tr>
<td>Project</td>
<td>30</td>
</tr>
</tbody>
</table>

Graduate students have additional exam questions and responsibilities during projects and assignments to receive graduate level credits for this class.

Rubrics will be provided with graded activities. See Canvas assignments for individual rubrics.
Grading Scale:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Numerical Grade</th>
<th>GPA Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90 – 100%</td>
<td>4.0</td>
</tr>
<tr>
<td>B+</td>
<td>87 – 89%</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>80 – 86%</td>
<td>3.0</td>
</tr>
<tr>
<td>C+</td>
<td>77 – 79%</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>70 – 76%</td>
<td>2.0</td>
</tr>
<tr>
<td>D+</td>
<td>67 – 69%</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>60 – 66%</td>
<td>1.0</td>
</tr>
<tr>
<td>E</td>
<td>&lt; 60%</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Current UF grading policy for assigning grade point averages can be found here: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Attendance and Late Policy:

Requirements for class attendance (online participation) and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Late submission of assignments and assessments must be approved by instructors in advance and may be subject to a grade penalty.

**Online Course Evaluation:** Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semesters, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

**UF Policies**

**University Policy on Accommodating Students with Disabilities:** Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter, which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

**University Policy on Academic Conduct:** UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code
(http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the class instructor.

**Class Demeanor or Netiquette:** All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats.

**Getting Help, Technical difficulties:** For issues with technical difficulties for Canvas, please contact the UF Help Desk.

http://helpdesk.ufl.edu
(352) 392-HELP (4357)
Walk-in: HUB 132

Note, any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from the Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

**Getting Help, Other Concerns:** Resources are available at http://www.distance.ufl.edu/getting-help for:

- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

Should you have any complaints with your experience in this course, please visit http://www.distance.ufl.edu/student-complaints to submit a complaint.