BIOLOGY 5440/CMP 6610
Urban Ecology
Fall Semester, 2019

**Time and Place:** Tuesday & Thursday 10:45 a.m. 12:05, Social & Behavioral Science (BEH S) 102

**Instructor:** Dr. Rose Smith (she/her)

**Textbook:** I pull a lot of course material from this textbook- Urban Ecosystems: Ecology Principles for the Built Environment (F. R. Adler and C. J. Tanner). However, purchase of this book is completely optional and not necessary for the class. I will scan and post any required readings from the book on canvas, and Marriott Library has at least one copy of the book.

**Office:** 502B ASB  
**Office Hours:** Tuesday & Thursday 1:00-3:00 or by appointment  
**Email:** rose.smith@utah.edu

**BIOL 5440 Course Description:** Applying the principles of modern ecology to urban ecosystems. Detailed examination of how altered flows of energy, water, and nutrients affect plants, animals and ecological communities in highly modified environments.

**CMP 6610 Course Description:** Urban ecology discusses the convergence of natural systems with human habitation and civilization. It explores the capacity for synthetic cooperation between natural and cultural systems which lessens the conflict between them and offers opportunities for innovative design and planning applications by enhancing local ecosystem services.

**Combined Course Description:** The two catalogue descriptions above illustrate that the study of urban ecosystems involves both biological and social perspectives on the science of ecology. We will try to integrate these two perspectives in this class. Urban ecological processes are dominated by human activities and decision-making, but also interact with the local environment and with other organisms to influence biodiversity, habitat, resources, pollution, public health, and many other aspects of human-environment interactions. We will examine different methods and perspectives of the study of cities as ecosystems, and the implications for urban policy, planning, and design. We will focus on several case studies in Salt Lake City and its surroundings, which will provide a framework for place-based urban ecology.

**Course Outcomes:** By the end of this course, students will be able to:

- **Describe** the major biophysical components of dynamic urban ecosystems in your own words, and evaluate the role of dynamism when addressing ecological challenges.
- **Compare and contrast** various intervention strategies used in urban planning and design, through in-class discussions and written research papers.
- **Proactively source and synthesize** a wide range of quantitative and qualitative information to generate new knowledge in urban ecology and its application to urban health and wellbeing through completion of term papers and background research for the capstone project.
- **Formulate testable hypotheses** related to the effectiveness of various intervention strategies for biophysical and/or socioeconomic outcomes, and **design a study** to test them.
**Teaching and Learning Methods:** This course is problem-based and employs active learning. Class attendance is mandatory for success. There will be some short lectures, interspersed with discussions and in-class activities, short field trips and guest speakers. There will be a focus on both quantitative and qualitative methods, and students should be prepared to carry out calculations both independently and in groups. In addition to class activities, you will also work in interdisciplinary teams on an applied project that will be graded in phases throughout the semester. Some of this work will take place outside of class hours, but some will occur during the class period. Therefore, attendance is essential. Exams will be based on understanding concepts, not memorization. It will be very difficult to succeed in this class without keeping up with the readings and attending almost every class session.

**Classes:** Class on most Tuesdays will be lecture and discussion to present general concepts. On Thursdays, we will examine interventions related to the week’s topic using Salt Lake City as a test case through guests, discussions, field trips, and in-class activities.

**Readings and Assignments:** Weekly readings are due before class. On Tuesdays, our in-class lectures and activities assume that you have already done the assigned textbook and supplemental reading for that week. You won’t get much out of your time in class if you skip the readings. Everyone gets busy during the semester and readings tend to fall by the wayside… so, each week there will be quiz in Canvas due before Tuesday’s class to make sure that you’ve understood the key points from the reading assigned for that week. No one likes quizzes, but this is the only way to keep readings high on the priority list they are important! Every semester we try to make sure the readings are current, relevant, and engaging.

**Deliverables.** Grades will be determined by performance on the following elements.

1. Midterm, October 3 2019 (15%),
2. Three 5-page term papers (30%)
3. One capstone project, developed in groups, to be submitted in two phases (15% each for a total of 30% due October 17 and December 5). Capstone project groups and projects will be assigned in week 1 or 2.
4. Participation in discussions and other class activities, including leading discussions (CMP MS students only) (15%)
5. Weekly quizzes based on assigned readings are due in canvas before class each Tuesday (10%)

**Canvas:** This syllabus and all course material including assignments, readings (except the text- book), announcements, and other useful information can be found on the Canvas site for this course. Weekly quizzes on the readings will be submitted through Canvas.

**Grading Policy (Evaluation Methods & Criteria):**

*Weekly quizzes* are based on the readings, and open-note but must be completed individually. No late quizzes will be accepted, however I will drop the lowest quiz grade so you may miss one without penalty.

*Midterm exam:* The exam will focus on the material we cover in class. The class meeting prior to the midterm will be devoted to a review session for the exam. This class is focused on understanding concepts, not memorization; therefore the exam and quizzes are open book and open notes. However, during the midterm, electronics (computers, e-readers, phones) are not allowed. Many aspects of urban ecology are quantitative so some simple calculations may be required, as well as short essay questions. Therefore, calculators are allowed but not phones. Study questions are provided at the end of every lecture so you will know which concepts are important for you to learn. Assigned grades are final and non-negotiable; requests for grade changes will be denied.

*The capstone project* is a semester-long group project that will have two phases, each worth 15% of your grade.
Term papers must be submitted as an electronic copy on Canvas on the due date. 10 points (on a scale of 0 to 100) will be deducted each day for late papers. There are no exceptions to this policy. Term papers must be completed independently, and plagiarism will not be tolerated. A detailed description of the consequences for plagiarism is outlined in the campus code. Papers will be graded based on the rubric provided with each assignment, which includes both the content of the paper and the quality of writing. Students are encouraged to seek peer review and/or visit the writing center prior to submitting papers.

Classroom etiquette. Students will maintain a respectful and safe learning atmosphere, and class will be cancelled if this atmosphere is violated.

University Policies

The Americans with Disabilities Act. The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.

University Safety Statement. The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.

Addressing Sexual Misconduct. Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veterans status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS). As a responsible employee and your instructor, I (Dr. Smith) am required to report instances of sexual misconduct that I witness or learn about to Office of Equal Opportunity and Affirmative Action. More information about this process can be found in the links below. More resources regarding sexual misconduct or discrimination (definitions, information about reporting, confidential resources, etc.) can be found here: [https://oeo.utah.edu/services/sexual-misconduct.php](https://oeo.utah.edu/services/sexual-misconduct.php) and here: [https://sexualassault.utah.edu/](https://sexualassault.utah.edu/).

Student Code: [http://regulations.utah.edu/academics/6-400.php](http://regulations.utah.edu/academics/6-400.php)

Accommodation Policy (see Section Q): [http://regulations.utah.edu/academics/6-100.php](http://regulations.utah.edu/academics/6-100.php)

Course Policies: It is my responsibility to come to class on time and prepared, to be available during office hours and by email to answer your questions, and to grade your assignments and exams fairly and in a timely manner. It is your responsibility to come to class on time and prepared, to turn in your assignments on time, and to complete your assignments and exams honestly, refraining from academic misconduct as defined in the campus wide Student Code. Documented cases of academic misconduct will result in sanctions according to university policy.

Attendance & Punctuality: Attendance of all class sessions is mandatory. Attendance will not be recorded; however, 5% of your grade will be based on class participation and assignments that are completed and turned in during class. You can miss one of these assignments without penalty. If you will
be absent from class for officially sanctioned university activities or government obligations ("type 1" absences as defined in Policy 6-100-III-O), you can arrange for a makeup assignment with at least 1 week notice beforehand. For illnesses or other emergencies, you can request a makeup assignment no more than twice during the semester. If you have questions about these policies, or extenuating circumstances please contact me directly.

**Food & Drink:** Beverages will be allowed within reason. Please respect our janitorial staff and leave the classroom as clean as you found it.

**Electronic Devices in Class:** With the exception of exams, laptops and other electronic devices are allowed in our classroom if you are using them for taking notes or otherwise taking part in the classwork of this course. At the discretion of the instructor or teaching assistant, you will be asked to turn off your devices if you are using them for non-academic purposes in class. No electronic devices will be allowed during in-class exams.

**Inclusivity Statements & Resources**

*Names/Pronouns.* Class rosters are provided to the instructor with the student’s legal name as well as “Preferred first name” (if previously entered by you in the Student Profile section of your CIS account, which managed can be managed at any time). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class or on assignments. Please advise me of any name or pronoun changes so I can help create a learning environment in which you, your name, and your pronoun are respected. If you need any assistance or support, please reach out to the LGBT Resource Center. [https://lgbt.utah.edu/campus/faculty_resources.php](https://lgbt.utah.edu/campus/faculty_resources.php)

*Wellness Statement.* Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student’s ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at [www.wellness.utah.edu](http://www.wellness.utah.edu) or 801-581-7776.

*Diversity / Inclusivity Statement.* It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students’ learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, if any of our class meetings conflict with your religious events, please let me know so that we can make arrangements for you. (Source: University of Iowa College of Education) Further examples of diversity statements: [https://ctl.yale.edu/DiversityStatements](https://ctl.yale.edu/DiversityStatements)

*Veterans Center.* If you are a student veteran, the U of Utah has a Veterans Support Center located in Room 161 in the Olpin Union Building. Hours: M-F 8-5pm. Please visit their website for more information about what support they offer, a list of ongoing events and links to outside resources: [http://veteranscenter.utah.edu/](http://veteranscenter.utah.edu/). Please also let me know if you need any additional support in this class for any reason.

*English Language Learners.* If you are an English language learner, please be aware of several resources on campus that will support you with your language and writing development. These resources include: the Writing Center ([http://writingcenter.utah.edu/](http://writingcenter.utah.edu/)); the Writing Program ([http://writingprogram.utah.edu/](http://writingprogram.utah.edu/)); the English Language Institute ([http://continue.utah.edu/eli/](http://continue.utah.edu/eli/)). Please let me know if there is any additional support you would like to discuss for this class.
Note: This syllabus serves as an outline and guide for our course. Please note that we may modify it with reasonable notice to you. I may also modify the Course Schedule to accommodate the needs of our class. Any changes will be announced in class and posted on Canvas under Announcements.

<table>
<thead>
<tr>
<th>Week of</th>
<th>Topic</th>
<th>Thursday activity</th>
<th>Assignment</th>
<th>Reading</th>
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</thead>
<tbody>
<tr>
<td>Aug 20 &amp; 22</td>
<td>Introductions &amp; Interdisciplinary Perspectives on Urban Ecology</td>
<td>Discussion &amp; Begin capstone project</td>
<td>Quiz 1: Practice quiz *Due Thursday 10:45am</td>
<td>Tanner et al. 2012, Pickett et al. 2004; Optional: TNOC Discussion 2018</td>
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<tr>
<td>Sept 10 &amp; 12</td>
<td>Urban Nutrient Cycles</td>
<td>Lynn de Freitas guest</td>
<td>Quiz 3</td>
<td>Bernhardt et al. 2008; Pataki et al. 2011</td>
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<td>Sept 17 &amp; 19</td>
<td>Urban climate</td>
<td>Urban heat island interventions discussion</td>
<td>Quiz 4, Term paper #1 due 9/19</td>
<td>[Adler Ch 3.1, Imhoff et al. 2010]</td>
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<td>Sept 24 &amp; 26</td>
<td>Air quality – visiting lecture by Dr. Daniel Mendoza</td>
<td>Discussion &amp; Capstone project lightening talks (5 min/group)</td>
<td>Quiz 5</td>
<td>TBD</td>
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<tr>
<td>Oct 1 &amp; 3</td>
<td>Midterm review</td>
<td>MIDTERM EXAM (in-class)</td>
<td>Quiz 6</td>
<td>[NONE]</td>
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<tr>
<td>Oct 8 &amp; 10</td>
<td>FALL BREAK- NO CLASS</td>
<td>FALL BREAK- NO CLASS</td>
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<td>[NONE]</td>
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<tr>
<td>Oct 15 &amp; 17</td>
<td>Biodiversity</td>
<td>Discussion &amp; Capstone work time</td>
<td>Quiz 7, Capstone Phase 1 written portion due October 17</td>
<td>[TBD]</td>
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<tr>
<td>Oct 22 &amp; 24</td>
<td>Global ecological footprint of cities</td>
<td>Discussion &amp; HESTIA Model exercise</td>
<td>Quiz 8, Term paper 2 due October 24</td>
<td>[TBD]</td>
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<tr>
<td>Oct 29 &amp; 31</td>
<td>Urban ecological design &amp; planning</td>
<td>Discussion</td>
<td>Quiz 9</td>
<td>Felson et al. 2013</td>
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<tr>
<td>Nov 5 &amp; 7</td>
<td>Urban streams &amp; restoration</td>
<td>Discussion</td>
<td>Quiz 10</td>
<td>Rose 2017 &amp; TBD</td>
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<td>Nov 12 &amp; 14</td>
<td>Local Pollution issues</td>
<td>Discussion: Inland Port</td>
<td>Quiz 11</td>
<td>[TBD]</td>
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<tr>
<td>Nov 19 &amp; 21</td>
<td>Political Ecology</td>
<td>Discussion</td>
<td>Quiz 12, Term paper #3 due 11/21</td>
<td>TBD</td>
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<tr>
<td>Nov 26 &amp; 28</td>
<td>TBD</td>
<td>Thanksgiving Holiday- no class</td>
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<td>[NONE]</td>
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<tr>
<td>Dec 3 &amp; 5</td>
<td>CAPSTONE Presentations</td>
<td>Capstone Presentations</td>
<td>Capstone Written Phase 2 &amp; Individual assessments due Thursday 12/5</td>
<td>none</td>
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