PLAN 451/674

Tools for Sustainable Communities

Fall 2018

Instructor:
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COURSE OUTLINE

Calendar Description
This seminar course will focus on conceptual frameworks and tools intended to guide communities to a more sustainable condition. Examples of possible concepts covered in the course are material and energy flows, resilience, adaptability, passive survivability, sufficiency, biophilia, and localization. Course focus will vary from year to year. Recent topics have included The Natural Step, transition towns, LEED-ND, microclimate design, biophilia, and community energy systems.

Prerequisite: Level at least 3B

Introduction
Welcome to PLAN 451/674! This course offers an introduction to tools for sustainable communities, their origins, and how they can be applied. More specifically, this course is intended to help students understand the complexity of sustainability challenges currently facing human communities and how to navigate this complexity in the context of planning. We will explore topics such as sustainable development, social-ecological connectivity, and disaster risk reduction.

These topics and tools will largely be explored in the context of nature-based solutions. Nature-based solutions are often proposed as a means to address many contemporary sustainability challenges, including climate change and biodiversity loss. The purpose of this course is (a) to explore the multiple ways that nature-based solutions are conceptualized and articulated, (b) to understand the options, strategies or tools usually considered to be ‘nature-based’, and (c) to examine the evidence that nature-based solutions are meeting their desired outcomes. The course will be structured as a participatory and case-based learning exercise, where the students will work in a multidisciplinary team to conduct a systematic and evidence-based review of nature-based solutions as tools for tackling sustainability challenges in particular case studies.
Course Objectives:
1. Learn the principles and concepts of sustainable development and how they can be translated into tools for enhancing community sustainability;
2. Understand the breadth of tools used to tackle sustainability in communities, their origins, strengths, and weaknesses;
3. Apply cutting edge sustainability tools relevant to planning; and
4. Enhance practical and transferable skills, such as case study research and critical thinking.

Learning Modes:
The course has been designed to strike a balance between understanding theory and demonstrating applications of relevant methods or tools. The theory-based portion of lectures will provide an in-depth overview of relevant concepts and ideas and how they apply to planning and sustainability. The demonstration-based portion of lectures will introduce a method or tool and then guide students through an applied exercise associated with the method or tool. All classes will be interactive, and students are expected to come prepared to discuss, interpret and critique the assigned readings as well as undertake critical applied work. The course will draw from a wide range of interdisciplinary literature.

SCHEDULES

Class Meetings
The lectures will be held every Monday from 2:30 pm to 4:20pm in room RCH 206, and the tutorial will be held every Tuesday in RCH 206 from 1:30 pm to 2:20 pm.

Scheduled Office Hours or Consulting
Office hours will be held every Tuesday from 2:30 pm to 3:30 pm in room EV3 3308.
# Sequence of Course Topics

Students are responsible for all of the topics listed below. There may be minor adjustments from time to time in sequence and date.

<table>
<thead>
<tr>
<th>Week</th>
<th>Theme</th>
<th>Readings</th>
<th>Assignments / Exercises</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Sept 10 What are sustainability and sustainable development?</td>
<td>No assigned readings</td>
<td>None</td>
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<tr>
<td>Week 2</td>
<td>Sept 17 Nature-based solutions</td>
<td>(Faivre et al. 2017, Nesshöver et al. 2017)</td>
<td>Reading journal due</td>
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<td>Week 3</td>
<td>Sept 24 Ecosystem services</td>
<td>(Keesstra et al. 2018, Lafortezza et al. 2018)</td>
<td>Reading journal due</td>
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<td>Week 4</td>
<td>Oct 1 Urban biodiversity and stewardship</td>
<td>(Bellamy et al. 2017, Peçanha Enqvist et al. 2018)</td>
<td>Reading journal due</td>
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<tr>
<td>Week 5</td>
<td>Oct 8 No class – Thanksgiving</td>
<td>No assigned readings</td>
<td>None</td>
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<tr>
<td>Week 6</td>
<td>Oct 15 Social-ecological connectivity</td>
<td>(Opdam et al. 2006, Bodin and Tengö 2012)</td>
<td>Reading journal due</td>
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<tr>
<td>Week 7</td>
<td>Oct 22 Proposal speed talks and discussion</td>
<td>No assigned readings</td>
<td>Proposal speed talks Proposal due</td>
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<tr>
<td>Week 8</td>
<td>Oct 29 Disaster risk reduction and climate change adaptation</td>
<td>(Kabisch et al. 2016, Brink and Wamsler 2018)</td>
<td>Reading journal due</td>
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<td>Week 9</td>
<td>Nov 5 Eco-gentrification</td>
<td>(Quastel 2009, Cucca 2012)</td>
<td>Reading journal due</td>
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<td>Week 10</td>
<td>Nov 12 Urban heat and inequality</td>
<td>(Benmarhnia et al. 2017, Panno et al. 2017)</td>
<td>Reading journal due</td>
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<td>Week 11</td>
<td>Nov 19 Health and mental health</td>
<td>(Ruijsbroek et al. 2017, van den Bosch and Sang 2017)</td>
<td>Reading journal due</td>
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<tr>
<td>Week 12</td>
<td>Nov 26 Project presentations</td>
<td>No assigned readings</td>
<td>Full presentations Final paper due</td>
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<tr>
<td>Week 13</td>
<td>Dec 3 Project presentations</td>
<td>No assigned readings</td>
<td>Full presentations</td>
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Student Evaluation

Students will be evaluated based on the assignments and activities outlined below. To obtain a passing grade in the course, students are expected to achieve a pass in each graded course component. When determining a student's final grade in the course, the professor will examine the record of each individual student's achievement; the final grade may be adjusted to take into account the component passing requirement, extenuating and compassionate circumstances and the student's general pattern of achievement in the course.

<table>
<thead>
<tr>
<th>Assignment/Activity</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Participation</td>
<td>5 %</td>
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<tr>
<td>Weekly reading journals (8 X 5% each)</td>
<td>40 %</td>
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<tr>
<td>Case study proposal</td>
<td>5 %</td>
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<tr>
<td>Case study proposal speed talk and discussion</td>
<td>5 %</td>
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<tr>
<td>Final case study paper</td>
<td>35 %</td>
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<tr>
<td>Final case study presentation</td>
<td>10 %</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100 %</strong></td>
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Participation

We will spend the opening of every class discussing the readings for each week. Students are expected to lead and participate in these discussions. Additionally, we will spend time during each class and during the tutorials completing applied exercises and developing case studies (see below). Students must partake in these exercises in class. Participation will be documented throughout the semester and a grade will be provided at the end. Grades will be determined based on attendance, attention (i.e., no phones), staying up-to-date on the readings, being able to effectively discuss readings in class or ask meaningful questions about the readings, and partaking in the exercises. If you will not be able to attend a class, please let me know in advance.

Reading journals

Students will be required to complete weekly reading journals. Reading journals will summarize and critically engage with the course readings. Each reading journal should answer the following questions for EACH reading assigned during the respective weeks:

1. What are the main points or arguments made by the authors?
2. Which points or arguments are clear? Which require further justification? And why?
3. How can the ideas, concepts or methods be applied to planning?

Reading journals should be submitted via dropbox on the course Learn site by **10:30 am on each Monday** (unless no reading journal is due in a particular week, see Sequence of Course Topics above).

In-depth case study

For the term project, students will work in small groups to apply the concepts and tools learned in the course. Each group will identify and choose a case study to focus on, which embodies one or more of the themes/tools covered in class. Students must find adequate secondary data or literature to support their case studies. Students will analyze the data, conduct background literature reviews, and write about the case study.

The assignment is broken into four parts. The first part involves preparing a Case Study Proposal (due October 22 by 5 pm), which details why the case was chosen, which issues will be explored,
the data or literature used, and the methods or tools demonstrated or applied to the case. Students will hand in an electronic version of their proposal via dropbox on the course Learn site (1-2 pages; 500 to 1,000 words), but also present a Speed Talk and lead a discussion in the class on October 22 regarding their proposal (10 minutes in total; 5 minutes for Speed Talk and 5 minutes for discussion). More details on how these will be evaluated will be provided in class.

The third part involves preparing a Final Case Study Paper (due November 26 by 5 pm) (10-12 pages; 5,000 to 6,000 words exclusive of figures and charts). The final papers should be submitted via dropbox on the course Learn site. Generally, the paper should answer the following questions regarding the case study:

1. An introduction – why is this case study important?
2. Background and history – what relevant context informs the current analysis?
3. Methods – how were the methods discussed in class applied to the case?
4. Results – what were the findings?
5. Implications – how do the findings inform planning and policy?

The fourth part involves delivering a Final Case Study Presentation (20 minutes) to the class on November 26 or December 3. The presentations should cover the same information as the final paper. More details on how these will be evaluated will be provided in class.

Requirements, Grade Penalties and Special Considerations:

Readability and Clarity: Students are expected to present well organized, and properly written work. Penalties of up to 25% may be applied in cases where readability and/or clarity are inadequate.

Computer Use: Assignments must be completed by using a computer. Assignments may not be accepted or penalties assessed if a computer is not used.

Lateness penalty: all assignments are due on the date set by the professor. The first day an assignment is late brings a 5% penalty. An additional 5% penalty is assessed for each additional late day. A student's assignment more than 4 days business days late will not be accepted and a grade of zero will be recorded for that assignment.

Requests for exemptions or compassionate considerations are to be discussed with the professor in advance or as soon as possible.

Course Readings

All readings are available for free electronically from the University of Waterloo’s library.

Required readings


Faculty of Environment Course Statements

♦ Intellectual Property:
Students should be aware that this course contains the intellectual property of their instructor, TA, and/or the University of Waterloo. Intellectual property includes items such as:

- Lecture content, spoken and written (and any audio/video recording thereof);
- Lecture handouts, presentations, and other materials prepared for the course (e.g., PowerPoint slides);
- Questions or solution sets from various types of assessments (e.g., assignments, quizzes, tests, final exams); and
- Work protected by copyright (e.g., any work authored by the instructor or TA or used by the instructor or TA with permission of the copyright owner).

Course materials and the intellectual property contained therein, are used to enhance a student’s educational experience. However, sharing this intellectual property without the intellectual property owner’s permission is a violation of intellectual property rights. For this reason, it is necessary to ask the instructor, TA and/or the University of Waterloo for permission before uploading and sharing the intellectual property of others online (e.g., to an online repository).

Permission from an instructor, TA or the University is also necessary before sharing the intellectual property of others from completed courses with students taking the same/similar courses in subsequent terms/years. In many cases, instructors might be happy to allow distribution of certain materials. However, doing so without expressed permission is considered a violation of intellectual property rights.

Please alert the instructor if you become aware of intellectual property belonging to others (past or present) circulating, either through the student body or online. The intellectual property rights owner deserves to know (and may have already given their consent).

♦ Unclaimed assignments:
Assignments which are not picked up by students must be retained for one year after last use (i.e., after the end of the term in which the work was submitted or after the resolution of any grade revision request or appeal), unless students are notified that they will be retained for a shorter period of time. Instructors who do not wish to retain unclaimed assignments for one year may dispose of them sooner provided they include notification of this practice on the course outline.

♦ Research Ethics: Please also note that the ‘University of Waterloo requires all research conducted by its students, staff, and faculty which involves humans as participants to undergo prior ethics review and clearance through the Director, Office of Human Research and Animal Care (Office). The ethics review and clearance processes are intended to ensure that projects comply with the Office’s Guidelines for Research with Human Participants (Guidelines) as well as those of provincial and federal agencies, and that the safety, rights and welfare of participants are adequately protected. The Guidelines inform researchers about ethical issues and procedures which are of concern when conducting research with humans (e.g. confidentiality, risks and benefits, informed consent process, etc.). If the development of your research proposal consists of research that involves humans as participants, the please contact the course instructor for guidance and see https://uwaterloo.ca/research/office-research-ethics
♦ Academic Integrity:
To provide appropriate guidance to students, all course outlines in the Faculty of Environment must address academic integrity and reference the web documents for Policy #71. The statement below is recommended for inclusion in the Course Outline. In addition, instructors are encouraged to discuss academic integrity during course meetings.

Consequences of Academic Offences:
In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. The University’s guiding principles on academic integrity can be found here: http://uwaterloo.ca/academicintegrity/
ENV students are strongly encouraged to review the material provided by the university’s Academic Integrity office specifically for students: http://uwaterloo.ca/academicintegrity/Students/index.html
Students are also expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for their actions. Student who are unsure whether an action constitutes an offense, or who need help in learning how to avoid offenses (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. Students may also visit this webpage: https://uwaterloo.ca/library/get-assignment-and-research-help/academic-integrity/academic-integrity-tutorial
When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline, https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-71
Students who believe that they have been wrongfully or unjustly penalized have the right to grieve; refer to Policy #70, Student Grievance: https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-70

♦ Note for students with disabilities: AccessAbility Services, located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

♦ Mental Health: The University of Waterloo, the Faculty of Environment and our Departments consider students' well-being to be extremely important. We recognize that throughout the term students may face health challenges - physical and / or emotional. Please note that help is available. Mental health is a serious issue for everyone and can affect your ability to do your best work. Counselling Services http://www.uwaterloo.ca/counselling-services is an inclusive, non-judgmental, and confidential space for anyone to seek support. They offer confidential counselling for a variety of areas including anxiety, stress management, depression, grief, substance use, sexuality, relationship issues, and much more.
♦ Religious Observances: Student needs to inform the instructor at the beginning of term if special accommodation needs to be made for religious observances that are not otherwise accounted for in the scheduling of classes and assignments.

♦ Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4, www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please contact your Undergraduate Advisor for details.

♦ Appeals: A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 – (Student Discipline) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals) www.adm.uwaterloo.ca/infosec/Policies/policy72.htm

♦ Turnitin: Text matching software (Turnitin®) will be used to screen assignments in this course. This is being done to verify that use of all materials and sources in assignments is documented. Students will be given an option if they do not want to have their assignment screened by Turnitin®. In the first week of the term, details will be provided about arrangements and alternatives for the use of Turnitin® in this course. Note: students must be given a reasonable option if they do not want to have their assignment screened by Turnitin®. See: https://uwaterloo.ca/academic-integrity/guidelines-instructors for more information.

♦ For further information on UW’s Turnitin guidelines, see: http://uwaterloo.ca/academic-integrity/home/guidelines-instructors

♦ LEARN: Users can login to LEARN via:
http://learn.uwaterloo.ca/
use your WatIAM/Quest username and password

Relevant University Policies:
Policy 71 – Student Discipline
Policy 73 – Intellectual Property Rights