PLAN 510  Environmental and Sustainability Concepts in Planning Practice

2 Credits
Term 1 – Fall 2017
Tuesday & Thursday 8:30-10:00 am
September 12th to November 2nd
1933 West Mall Rm. 150

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Course Description and Overview
This is an introductory course to environmental and sustainability planning. In only eight weeks, we will rapidly review the essential concepts that planners should know about environmental and sustainability planning. Topics include: an introduction to ecology; ecological restoration; landscape ecology; spatial analysis and planning; the ecological footprint; ecological economics; waste management; energy planning; climate change; environmental governance; water planning and stormwater management. Each of these topics will be studied within a planning context, and with the goal of preparing you to address these issues in professional practice.

As a survey course, our focus will be on major themes and core principles, rather than detailed or technical analysis that might be offered in a more specialized course. However the advantage of reviewing multiple environmental topics is that we will be able to consider the connections across sustainability problems.

Course Format
We will meet twice a week for one hour and a half. Classes will be a mixture of lectures and case-based discussions. The lectures will provide us with the substantive knowledge, core principles, or planning tools used to address sustainability challenges. The cases will allow us to apply this knowledge to a specific scenario. In most cases, there will be no obvious solution or answer to the planning problem studied. However in most instances, a firm understanding of sustainability principles may suggest alternative courses of action.

Learning Objectives
Our goal is to become proficient in the fundamental principles and themes of sustainability planning. By the end of the course, students should be able to:

- Describe core principles in ecology and their application to planning practice
- Propose site designs that meet ecological objectives
- Perform basic manipulations and calculations with spatial data
- Identify planning tools used to address sustainability challenges
- Understand your personal knowledge gaps with regard to sustainability planning

Attendance
Students are expected to attend all class sessions and actively participate in discussion.

**Requirements and Grading**

There will be three assignments, quizzes and a final exam. The assignments are meant to be relatively short and will be graded as Excellent, Pass, or Not Pass. Given the large size of the class, feedback on the assignments will be limited in scope.

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<td>Assignment 1. Designing Ecological Plans</td>
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**Class Participation & Learning with the Case Method**

Engaging in class discussion is an important part of this course and a considerable amount of time is needed to prepare for the case-based discussions. During the case discussions, we will seek to apply the sustainability principles discussed in lecture to a real-world planning problem. Cases are organized around a problem or decision that needs to be made, and students will be expected to present a recommendation and defend their position.

Suggestions and guidance on how to prepare for case based learning will be provided. The aim of the cases is to train you to think like a decision maker. The cases will require you to select a course of action based on sound reasoning. What would you do and why? You should come to class prepared to defend your recommendation. Strong recommendations about choice of action should involve some clarity about objectives, alternatives, and consequences.

**Quizzes**

Short and unannounced quizzes will be sprinkled throughout the semester. They will be three to five questions on the assigned readings. The quizzes are meant to reward students that have prepared for class but be less likely to participate in discussion.

**Assignment 1. Designing Ecological Plans**

You will be asked to complete the two exercises on designing ecological plans in the Perlman and Milder book to prepare for our class discussion on September 29th. For this assignment only, you may work with a colleague or on your own. We will discuss your assignments in class on the day it is due.

**Assignment 2. Spatial Data and GIS**

As planners you should be familiar with spatial data. This assignment is designed to introduce you to geographic information systems (GIS) and show you basic manipulations and transformations. You will be provided with the assignment and the data needed to complete the assignment on September 29th and it will be due in class on October 11th.

**Assignment 3. Negotiation Debrief**

On October 20th we will have a negotiation exercise that will introduce you to how environmental policy is crafted on the international stage and allow you to practice your
negotiation skills. After the negotiation exercise, you will be asked to write a one-page essay that debriefs your experience. This assignment is due on Tuesday, October 25th.

Final Exam
An exam is scheduled for Thursday October 27th. The exam will cover the material in the readings, lectures and case discussions. The format of the exam will be multiple-choice.

Course Materials
The readings for the course have been printed by the Course Materials Office and will be available at the UBC bookstore. Students should bring the assigned readings with them to class for use in discussion. The bookstore will also have the two assigned books for this course:


Office Hours
My office hours are Tuesday 3:00-4:00. You may schedule an appointment on a sign up sheet posted on my door. Come and tell me how you think the course can be improved.

Academic Integrity
The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply if the matter is referred to the President’s Advisory Committee on Student Discipline. Careful records are kept in order to monitor and prevent recurrences.

A more detailed description of academic integrity, including the University’s policies and procedures, may be found in the Academic Calendar at http://calendar.ubc.ca/vancouver/index.cfm?tree=3,54,111,0.
Week 1. Course Overview

Course Overview, Sustainability & Planet Earth September 13

Washington DC.
Introduction, pgs 2-4
Chapter 1. Human Plans pgs 7-20.

Chapter 1. What is Sustainability?
Chapter 2. A Brief History of Sustainability


Case: Minto-Brown Island Park September 15


Minto-Brown Island Park: A Case Study of Farming the Urban-Agricultural Interface. The Electronic Hallway. The Evans School of Public Affairs, University of Washington.

Chapter 9. Pollution

Week 2. Ecological Planning: Basic Principles

Ecological Principles, Populations, Communities and Resilience September 20

Washington DC.
Chapter 2. An Introduction to Ecology and Biodiversity
Chapter 3. When Humans and Nature Collides
Chapter 4. Change through Time
Chapter 5. Populations and Communities


Chapter 3. The Biosphere (Skim)

Case: Savanna Restoration in Illinois September 22


**Week 3. Spatial Environmental Planning**

Landscape Ecology


Chapter 6. The Ecology of Landscapes


Chapter 1. Foundations pgs 3-22;

Chapter 13. Land planning and management pgs 435-456

Designing Ecological Plans **Assignment 1 Due** September 29


Chapter 10. Ecologically Based Planning and Design Techniques

Chapter 11. Principles in Practice

Part 1. Residential Development at the Site Scale

Part 2. Planning for Growth by Listening to Ecology

**Week 4. Ecology in Cities and Ecology of Cities**

Urban Ecology and Solid Waste October 4


Chapter 12. Livable Cities

Chapter 15. Waste and Recycling


Case: The Ecological Footprint October 6


**Week 5. Ecological Economics and Ecosystem Services**

Economics and Ecosystem Services **Assignment 2 Due** October 11


Chapter 4. The Human Sphere


Case: Saving the Tuolumnne October 13
Week 6. Climate Change and Environmental Governance

Case: Saving The Tuolumne Harvard Kennedy School. C15-86-701

Week 6. Climate Change and Environmental Governance
Case: Climate Change and Iceland’s Energy Policy October 18
Chapter 6. Climate (Skim)
Chapter 10. Energy (Skim)

Negotiation Exercise: The Mercury Game October 20
The Mercury Game. MIT. General Instructions + Confidential Instructions + Pre-negotiation survey.

Week 7. Water Resource Planning

Week 7. Water Resource Planning Assignment 3 Due October 25
Chapter 7. Water

Final Exam October 27

Week 8. Course Wrap Up

Week 8. Course Wrap Up Course Wrap Up November 1
Discussion Questions

Week 1. Course Overview

September 13 Course Overview, Sustainability & Planet Earth
- What parts of Robertson’s description of the origins of sustainability were new to you?
- In what ways do the environmental movement and sustainability movement differ?
- What knowledge and skills do planners need to integrate sustainability into their practice?
- We hear about sustainability all the time. Has it already been integrated into the mainstream policy circles?
- What does a sustainable city look like?

September 15 Case: Minto-Brown Island Park
- Who are the major stakeholders in the case?
- Why do we care about maintaining agricultural lands?
- Which pesticides do you recommend banning from the park and what evidence in the case do you use to support this recommendation?
- How do you make decisions under conditions of uncertainty?
- What course of action do you recommend for Andersen-Wyckoff?

Week 2. Ecological Planning: Basic Principles

September 20 Ecological Principles, Populations, Communities and Resilience

September 22 Case: Savanna Restoration in Illinois
- Do you agree with the decision of Cook County Board President to abruptly halt all restoration activities in the Forest Preserve District?
- Is the Savanna ecosystem desirable? Should public resources be spent to recover the Oak Savanna ecosystem?
- What is the origin of the movement to restore the Oak Savanna?
- Did Packard and his group follow a clear scientific method?
- What is Medeleson’s argument?
- Was this restoration process based on sound science?
- Should the Oak Savanna ecosystem be restored?

Week 3. Spatial Environmental Planning

September 27 Landscape Ecology
- What does Forman mean when he refers to “optimal spatial arrangements”?
- What frameworks or tools does Forman propose to read the landscape?
- What is the “Aggregate with Outliers Principle”?
September 29 Designing Ecological Plans
- Resist the temptation to look at the answers provided by Perlman and Milder. Complete the exercises in Chapter 11 and bring your results to class and be prepared to discuss.

Week 4. Ecology in Cities and Ecology of Cities

October 4 Urban Ecology and Solid Waste
- Do any of the revelations in the article by Abedini and colleagues change your opinion about solid waste management or recycling?
- Agree or Disagree: The fight for sustainability will be won or lost in the city?

October 6 Case: The Ecological Footprint
- What are the implications of the ecological footprint analysis for planners?

Week 5. Ecological Economics and Ecosystem Services

October 11 Economics
- Why study environmental and ecological economics?
- What is the difference between environmental economics and ecological economics?
- Does environmental economics provide planners with useful tools? If so, which ones?
- For those unfamiliar with ecological and environmental economics, bring your questions about the subject to class.
- Are you comfortable with the anthropocentric framing of ecosystem services?
- Should we aim to protect ecosystems with economic arguments?

October 13 Case: Saving the Tuolumne
- What are the sources of the Tuolumne River’s value? Which of these values can be quantified and which cannot?
- What are the costs and benefits of the Clavey-Wards Project?
- What methods were used to determine costs and benefits?
- Is the economic valuation study of high quality? Is it a valuable input for decision-makers?
- Should we put dollar values on environmental goods and services?
- If so, how? If not, why not? what are the alternatives?
- Are there any values that should not be quantified as a matter of public policy? If so, what are the alternative methods to including those values in decision-making?

Week 6. Climate Change and International Environmental Governance

Case: Iceland’s Energy Policy
- Was Iceland’s development policy (by means of subsidizing energy prices) effective? Was it cost-effective?
What is your assessment of the Master Planning process for determining the location of future geothermal and hydroelectric costs? Will this plan be an asset or liability in the future?

Should Iceland intervene to provide power to the proposed Helgavik aluminum smelter?

Should Landsvirkjun be allowed to implement a strategy which would nearly double power production by building 15-20 new facilities?

Should Iceland move forward with the building of the submarine cable?

The Mercury Game
- Use the entire class period for the negotiation exercise.
- After class, complete a one page negotiation debrief.

Week 7. Water Resource Planning

- Does Renzetti make a convincing case that water prices should go up?
- What are the problems with urban rivers identified by Walsh and colleagues?
- What are the urban stormwater problems confronting the City of Vancouver? How are they addressing these problems in the Integrated Rainwater Management Plan?

Week 8. Course Wrap up

- What have we learned?
- What surprised you most?
- What will you remember?
- What subjects do you need to learn more about?