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Office Hours: Thurs 3-5

Fall, 2014
CCTP- 619
Thursdays 5:00-7:30pm
ICC 221A

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Sustainability: Theory and Practice

Description: Although often thought of as a purely environmental issue, sustainability has become one of the most important interdisciplinary topics of our time. Economics, bio-physics and chemistry, history, architecture, engineering, and sociology, along with most other disciplines, have a role to play in solving this important and complex crisis. In 'Sustainability: Theory and Practice,' we will explore the foundational issues involved in sustainability to understand how we arrived at the situation we are in. We will then review and critique various sustainable solutions from a systems perspective to identify practical approaches to addressing large and complex problems. Taking a project-based approach in collaboration with Georgetown's Sustainability Office, students will leverage the campus as a living laboratory in which to conceptualize, develop, and initiate real-world sustainability solutions. By the end of the semester, students will gain a refined understanding of sustainability theory as well as first-hand, applied experience devising and testing solutions.

Credits: 3

Prerequisites: None

TEXTS

The texts for this class will be:

The Limits to Growth: the 30-year update
Donella H. Meadows, Jørgen Randers, Dennis L. Meadows
Chelsea Green Pub., 2004

Brown, Lester R. 2009. Plan B 4.0. Earth Policy Institute, Washington DC.
(available online: http://www.earth-policy.org/images/uploads/book_files/pb4book.pdf)

Herman Daly (Chapters / excerpts from Beyond Growth and Ecological Economics)

https://en.wikipedia.org/wiki/List_of_waste_management_concepts

COURSE REQUIREMENTS

Participation – Everyone is expected to attend class weekly. If you need to miss a class you must notify the instructors in advance, in writing. Unexcused absences will affect your grade. We will likely go on field trips, when possible these will be during class time. If we have a field trip at some other time, you are not required to attend, but we expect you to make every attempt to do so. You will be provided with summary content of these trips and should be familiar with it. 20%

Leading Discussion – Once during the first part of the semester you will be responsible for leading a class discussion. We will assign you to work in pairs to produce 7-10 discussion questions based on that week's reading, and the class will use these as a starting point for our discussion during the class period. I written copy of these questions must be submitted to the instructor before class. 20%

Final Project – the final component of your grade will be collaborative project (groups to be determined) in which your team investigates the case for making some aspect of campus life more sustainable. Each project will consist of a life-cycle assessment, a cost/benefit analysis and business plan, and a communications and media plan (to include a final presentation to stakeholders). 60% (20% each component)

<u>WEEK 1</u> (8/28/14)	ICEBREAKER Theories and Definitions Summary of Campus Sustainability Syllabus Overview
<u>WEEK 2</u> - (9/4/14)	Readings to Discuss: Limits to Growth, Preface & Chapters 1-3. pp. 1-127
<u>WEEK 3</u> - (9/11/14)	Readings to Discuss: Plan B, Chapters 3-5. pp. 55-135 Exercise: Take & Discuss Ecological Footprint Assessment
<u>WEEK 4</u> - (9/18/14)	Readings to Discuss: Do the Math (Dinner Conversation with an Economist) http://physics.ucsd.edu/do-the-math/2012/04/economist-meets-physicist/ Ecological Economics (Daly) Introduction, ch1 & ch2 (supplied) Enough is Enough Video https://www.youtube.com/watch?v=xQ-LYEIvtEU
<u>WEEK 5</u> - (9/25/14)	Readings to Discuss: Plan B: Chapter 1 (Food) pp 4-13 Chapter 7 pp 168-188 Chapter 9 pp 216-236
<u>WEEK 6</u> - (10/2/14)	Readings to Discuss: Plan B, Chapter 6. Designing Cities for People, pp. 143 - 162 Jane Jacobs Excerpt City Sustainability Plans: TBD
<u>WEEK 7</u> - (10/9/14)	DC WATER meets Georgetown Students Intro to Rainworks Challenge presentation & Discussion Finalize pick up for next week field trip
<u>WEEK 8</u> - (10/16/14)	Field Trip on Monday, Oct 13 -- NO CLASS

<p><u>Week 9</u> - (10/23/14)**</p> <p>Meet in CCT Studio</p>	<p>Out of Class: Field Investigation 2 with DC Water</p> <p>In Class: Workshop with RW team: Finalize project criteria, advance site ranking (to top 3), and develop pre-concept schematics</p> <p>Finalize criteria: Such as performance, cost, education/outreach opportunities, location/visibility, access and maintenance, single technology vs. multiple technologies (i.e. treatment train), other uses/users of the space, aesthetics, regulatory considerations, etc.</p> <p>Determine top 3 sites: Rank based on feasibility/constraints, and meeting project criteria, opportunities and goals</p> <p>Develop example pre-concept schematic for one site</p> <ul style="list-style-type: none"> o Bubble diagram showing approximate locations, identifying CDAs, proposed technologies and reflecting analysis and project criteria RW team to develop two additional pre-concept schematics
<p><u>Week 10</u> - (10/30/14)</p>	<p>Readings:</p> <p>LCA 101 Introduction to Life-cycle analysis</p> <p>Business Plan Reading</p> <p>RWChallenge - Solicit approval from GU Facilities as needed.</p>
<p><u>Week 11</u> - (11/6/14)</p>	<p>In-class Workshop with RW team: Concept development kickoff/discussion of drivers/guiding factors...</p> <p>Discuss submission narrative outline and board (2) layouts/outlines</p> <p>Discuss/review examples</p> <p>Finalize selection of site for concept development</p> <p>Finalize CDA, sizing and technology locations</p> <p>Discuss design details, specifications, and misc. images for</p>

	inclusion Review project schedule
<u>Week 12</u> - (11/13/14)	Preliminary Project Presentation to Class, receive feedback from Audrey, Evan & DCW
<u>Week 13</u> - (11/20/14)	Preliminary Project Presentation to Class, receive feedback from GU Facilities
<u>THANKSGIVING</u> - (11/27/14)	No Class - Thanksgiving
<u>Week 14</u> - (12/4/14)	Due: ALL DELIVERABLES in Draft Form Includes final presentation to GU Facilities, DCW & other stakeholder as appropriate

FINAL EXAMS 12/10 - 12/18: ANY REQUESTED CHANGES; Submit final packet to EPA by December 12

Suggested readings on Green Infrastructure / Low impact Development:

> Campus Stormwater Management Plans:

Yale Sustainable Stormwater Plan:

<http://www.facilities.yale.edu/publications/MN045850.Stormwater.WEB.lmr.pdf>

UPenn Stormwater Master Plan:

http://www.facilities.upenn.edu/sites/default/files/Stormwater%20Master%20Plan%20of%20the%20%20University%20of%20Pennsylvania_March%202013_web.pdf

Stormwater Management Features at Georgetown

<http://sustainability.georgetown.edu/page/1242714444331.html>

> Stormwater and landscape chapters of urban and campus sustainability plans:

Can be accessed from this folder in Google Drive:

<https://drive.google.com/folderview?id=0B5r5Rfpiee1rXzR1TFdoc1hnLVE&usp=sharing>

> Sustainable Sites section from the USGBC LEED framework / reference guide:

LEED O+M (Existing Buildings) - Reference Guide

<https://drive.google.com/file/d/0B5r5Rfpiee1rWXozWHRIa0ZjV3M/view?usp=sharing>

> **Background readings on DC Stormwater issues**

DC Clean Rivers Project: <http://www.dewater.com/cleanrivers>

Project Components:

Project narrative including business case and LCA
10 pages incl graphics
cover page
abstract

Design Boards
2 - 24x36"
site plan
cross sections
conceptual drawings or graphics