Sustainability in the Built Environment EVDS 523 | ARST 423 H (3-0)

Dr. C. Hachem-Vermette Fall 2016

Graduate Teaching Assistants:

Introduction

Sustainable development has historically been defined (Brundtland, 1987) as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Since the publishing of "Our Common Future" several decades back, governments, corporations, organizations and citizens have been struggling to understand the implications of industrialization, population growth, resource depletion, information technology and other factors on our health, happiness and quality of life. Given the issues at play and the global scale of activity, the idea of sustainability has been allusive and complex, yet increasingly demanding and urgent.

The principle of sustainability recognizes people as temporary stewards of their environments, working toward a respect for natural systems and a higher quality of life. It is imperative to engage in informed examination of the built environment and to consider tools to achieve a more stable, balanced and regenerative ecosystem. This course, which encourages students to think creatively, critically and holistically, examines a spectrum of problems, principles, practices and opportunities pertaining to sustainability.

Objectives

- To gain exposure to theories, principles and practices focused on sustainability in the built environment
- To understand the underlying principles for planning healthy and sustainable neighbourhoods
- To discover new ways to integrate development with natural systems
- To provide straightforward and practical examples of how sustainability can be achieved
- To begin to formulate personal and professional positions concerning sustainability

Teaching Approach

Sustainability as a concept and practice proves complex, challenging and vital. This course is structured to present a wide array of viewpoints on key ideas concerning sustainability in the built environment. The course will be presented through lectures, workshops, international and Canadian case studies, guest lectures, and individual & group assignments /presentations aimed at gaining a wide & rich understanding of this at times complicated concept. Guest lectures will be delivered by academics and professionals versed and active in realms of sustainability. Students are expected to critically consider the range of approaches being discussed in our classes and to begin to formulate, delineate & articulate their own positions.

Content: Selected Topic Areas

- Overview of Sustainability {especially considering Architecture & Environmental Design}
- Climate change| Human effects| GHG emissions
- Sustainable development| Sustainable site planning and Analysis
- Energy | Resources
- Sustainable neighborhood design| Natural flow |Ecology | Landscapes
- Sustainable building initiatives (Green Buildings, PassiveHaus, NZEB)

- Refurbishment for sustainability
- Building materials & building construction and their environmental impact
- Sustainable building services| Smart technologies
- Measuring sustainability| Environmental Quality | Integration

Week 1	Sept 15th	L1- Introduction to Sustainability: Overview of Sustainability, Global climate change, human activities and their effects, GHG emissions, Kyoto protocol
Week 2	Sept 22th	L2- Three pillars of sustainability; Concepts of sustainable development urban development; Sustainable site planning (1)-introduction Introducing: Assign 1 and Assign 3
Week 3 IEA TAsk	Sept 29th	L3- Site planning (2), examples of site analysis, site analysis drawings- Guest speaker (site planning and drawings) – Basic site design
Week 4	Oct 6st	L4- **Site analysis 2- Improving sustainability of a site:** stormwater, reducing site disturbance, vegetation, Materials; Intro to Alternative Energy (Solar, wind, Hydro, biofuel, etc.)
Week 5-	Oct 13th (10- 14th)	Block week
Week 6	Oct 20	L5- Alternative energy-ctd Introduce Assign 2. Solar energy in Canada- Examples of renewable energy in different areas of Canada; Introduction to various sustainable buildings standards: green buildings vs sustainable buildings. (Assign 1 due date).
Week 7	Oct 27	L6- Passive House; NZEB, Living Building Challenge; Energy efficiency measures, renewable energy integration.
Week 8	Nov3rd	L7- integrated design, sustainable Building services, Building material, construction and their environmental impact
Week 9	Nov-10	Reading week
Week 10	Nov 17th	(Assign 2 due date) Students' presentations- Assig.2
Week 11	Nov 24th	Students' presentation- Assig.2
Week 12	Dec 1	L8- Energy use and CO2; Life Cycle Assessment (LCA), Environmental Management Systems (EMS)
Week13	Dec 8th	L9- Measuring sustainability; Critical comparison of sustainability frameworks Assign 3 Due date

Means of Evaluation

The course evaluation will be based on the following assignments completed during the term, which includes a journal, site project, sustainability initiative and paper. There will be no final examination.

Site Planning + Design Project& presentation	40%
Sustainability Initiative	30%
Sustainability Framework Paper	30%
Total	**100%**

Grading Scale

Grade	Grade Point Value	4-Point Range	Percent	Description
A+	4.00	4.00	95-100	Outstanding - evaluated by instructor
A	4.00	3.85-4.00	90-94.99	Excellent - superior performance showing

				comprehensive understanding of the subject matter
A-	3.70	3.50-3.84	85-89.99	Very good performance
B+	3.30	3.15-3.49	80-84.99	Good performance
B	3.00	2.85-3.14	75-79.99	Satisfactory performance
B-	2.70	2.50-2.84	70-74.99	Minimum pass for students in the Faculty of Graduate Studies
C+	2.30	2.15-2.49	65-69.99	All final grades below B- are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements.
C	2.00	1.85-2.14	60-64.99	
C-	1.70	1.50-1.84	55-59.99	
D+	1.30	1.15-1.49	50-54.99	
D	1.00	0.50-1.14	45-49.99	
F	0.00	0-0.49	0-44.99	

Notes:

- A student who receives a "C^+" or lower in any one course will be required to withdraw regardless of their grade point average (GPA) unless the program recommends otherwise. If the program permits the student to retake a failed course, the second grade will replace the initial grade in the calculation of the GPA, and both grades will appear on the transcript.

Readings

Barton, H., Grant, M., Guise, R. , Shaping Neighbourhoods: For Local Health and Global Sustainability, Routledge; 2 edition, 2010.
Alison Cotgrave; Mike Riley Total Sustainability in the Built Environment, Palgrave Macmillan, 2012.
Lynch, Kevin; Hack, Gary (1962). Site Planning. MIT Press. (2nd ed. 1971; 3rd ed. 1984)

In addition, list of readings related to each topic will be posted regularly on D2L.

Important Notes

1. Written work, term assignments and other course related work may only be submitted by e-mail if prior permission to do so has been obtained from the course instructor.
2. Academic Accommodations. Students who require an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to their Instructor or the designated contact person in EVDS, Jennifer Taillefer (jtaillef@ucalgary.ca). Students who require an accommodation unrelated to their coursework or the requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Vice-Provost (Student Experience). For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/
3. Plagiarism - Plagiarism involves submitting or presenting work in a course as if it were the student's own work done expressly for that particular course when, in fact, it is not. Most commonly plagiarism exists when:(a) the work submitted or presented was done, in whole or in

part, by an individual other than the one submitting or presenting the work (this includes having another impersonate the student or otherwise substituting the work of another for one's own in an examination or test),(b) parts of the work are taken from another source without reference to the original author,(c) the whole work (e.g., an essay) is copied from another source, and/or,(d) a student submits or presents work in one course which has also been submitted in another course(although it may be completely original with that student) without the knowledge of or prior agreement of the instructor involved. While it is recognized that scholarly work often involves reference to the ideas, data and conclusions of other scholars, intellectual honesty requires that such references be explicitly and clearly noted. Plagiarism is an extremely serious academic offence. It is recognized that clause (d) does not prevent a graduate student incorporating work previously done by him or her in a thesis. Any suspicion of plagiarism will be reported to the Dean, and dealt with as per the regulations in the University of Calgary Graduate Calendar.

4. Information regarding the Freedom of Information and Protection of Privacy Act (http://www.ucalgary.ca/secretariat/privacy) and how this impacts the receipt and delivery of course material
5. Emergency Evacuation/Assembly Points (http://www.ucalgary.ca/emergencyplan/assemblypoints)
6. Safewalk information (http://www.ucalgary.ca/security/safewalk)
7. Contact Info for: Student Union (https://www.su.ucalgary.ca/contact/); Graduate Student representative(http://www.ucalgary.ca/gsa/) and Student Ombudsman's Office (http:// www.ucalgary.ca/ombuds/).

Special Budgetary Requirements

Mandatory Fees | The University has approved supplemental fees for the following courses:

2012/2013 SUPPLEMENTARY COURSE FEES

ARST 484/EVDA 580/EVDS 603 - Studio I Design Thinking	$92.00
ARST 444/EVDA 582 - Studio II in Architecture	$92.00
EVDA 682.02 – Intermediate Studio	$92.00
EVDA 682.04 - Comprehensive Arch. Studio	$92.00
EVDA 782 - Senior Arch. Studio (all sections)	$92.00
EVDS 624 – Impact Assessment and Risk Management	$35.00
EVDS 626 – Landscape Planning and Ecological Design	$70.00

CACB Student Performance Criteria:

The following CACB Student Performance Criteria will be covered in this course at a primary level (other criteria will be covered at a secondary level): A1. Critical Thinking Skills; A6. Human Behaviour, B3. Site Design, B4. Sustainable Design, and, D2. Ethics & Professional Judgment. *(see CACB SPC matrix for further details)*

Contact & Office Information

Dr. C. Hachem-Vermette | PF Room # 3170 | caroline.hachem@ucalgary.ca

Please contact instructors and teaching assistants with any questions or concerns. Meetings by appointment.