

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.

Course Outcomes

By the end of this course students will be able:

- To demonstrate understanding of theories, principles and practices focused on sustainability in the built environment
- To provide straightforward and practical examples of how sustainability can be achieved
- To analyze site and neighborhood designs according to principles for planning sustainable and efficient neighborhoods
- To analyze sustainability measures in buildings including energy and resource efficiency .
- 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 14 th	L1- Introduction to Sustainability: Overview of Sustainability, Global climate change, human activities and their effects, GHG emissions, Universal efforts
Week 2	Sept 21 st	L2- Three pillars of sustainability; Concepts of sustainable development urban development; Sustainable site planning (1)-introduction; Introducing: Assign 1 and Assign 3.
Week 3	Sept 28 th	L3- Site planning (2), Principles of site analysis, Improving sustainability of a site (e.g. stormwater, reducing site disturbance, vegetation)
Week 4	Oct 5 th	L4- Site analysis (3)- Examples of site analysis. Introduction to alternative Energy (Solar, wind, Hydro, biofuel, etc.)
Week 5-	Oct 12 th	Block week
Week 6	Oct 19 th	Assign 1 due date. Students' presentations
Week 7	Oct 26 th	Assign 1 Students' presentations-ctd
Week 8	Nov 2 nd	L5- Alternative energy-ctd Introduce Assign 2. Solar energy in Canada- Examples of renewable energy in different areas of Canada; Introduction to sustainable buildings standards: green buildings vs sustainable buildings.
Week 9	Nov 9 th	L6- Energy efficiency and sustainability; Passive House; Net Zero Energy Buildings (NZEB), Examples of different types of NZEB
Week 10	Nov 16 th	L7- Building envelope effect and energy efficiency measures, renewable energy integration, sustainable building services.
Week 11	Nov 23 th	L8- Sustainable construction and materials; Integrated design; Energy use and CO ₂ . Assign 2 due date.
Week 12	Nov 30 th	L9- Environmental Management Systems (EMS); Life Cycle Assessment (LCA); Measuring sustainability; Critical comparison of sustainability frameworks
Week 13	Dec 7 th	Course recap Assign 3 Due date

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

Site Planning + Design Project & presentation (Group)	40%
Analysis of building scale sustainability (individual)	30%
Sustainability Framework Paper (Individual)	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

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. Submissions must come from an official University of Calgary (ucalgary) email account.
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/>).

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, and B4. Sustainable Design. (*see CACB SPC matrix for further details*)

Contact & Office Information

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