



Course Number	ARCH 500	Classroom	PF 2160
Course Name	Sustainability in the Built Environment		
Pre/Co-Requisites			
Instructor	Dr. Caroline Hachem-Vermette	Office Hours/Location	by appointment
	Email: caroline.hachem@ucalgary.ca		Phone:
Class Dates	Thursdays, Sept 8 – December 8, 6:30-9:30 PM; Mandatory real-time Zoom classes,		
Instructor Email Policy	Please note that all course communications must occur through your @ucalgary email, and I will respond to emails sent via student's @ucalgary emails within 48 hours (of weekdays- not including weekends).		
Name and Email of Teaching Assistant(s)	TBD.		

Course Description

<https://www.ucalgary.ca/pubs/calendar/current/architectural-studies.html#38564>)

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.” 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

Course Hours: 3 units;

Online Delivery

This course will take place **online** via Desire2Learn (D2L) and Zoom. Students are required to participate in synchronous Zoom sessions, and in discussion threads on D2L. D2L learning environment will be employed to post presentations and assignments. If unable to participate live due to unforeseen circumstances, inform the instructor in advance to work out an alternative participation activity.

Course Learning Outcomes

Upon completion of this course students will be able:

1. To demonstrate understanding of theories, principles and practices focused on sustainability in the built environment
2. To provide straightforward and practical examples of how sustainability can be achieved
3. To analyze site and neighborhood designs according to principles for planning sustainable and efficient neighborhoods
4. To analyze sustainability measures in buildings including energy and resource efficiency .
5. To formulate personal and professional positions concerning sustainability

Learning Resources

Required readings, textbooks and learning materials:

Kazimee Bashir, Sustainable Urban Forms : Theory, Design and Application, First edition, Cognella Academic Publishing, 2018.

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 selected topics will be posted regularly on D2L

Technology requirements (D2L etc.): In order to successfully engage in their learning experiences at the University of Calgary, students taking online, remote and blended courses are required to have reliable access to the following technology:

- A computer with a supported operating system, as well as the latest security, and malware updates;
- A current and updated web browser;
- Webcam (built-in or external);
- Microphone and speaker (built-in or external), or headset with microphone;

- Current antivirus and/or firewall software enabled;
- Broadband internet connection

Most current laptops will have a built-in webcam, speaker and microphone.

Additional Classroom Conduct and Related Information

Guidelines for Zoom Sessions in Online Classes

Students are expected to participate actively in all Zoom sessions and to turn on their webcam. Please join our class in a quiet space that will allow you to be fully present and engaged in the Zoom sessions. Students must behave in a professional manner during the session. Students, employees, and academic staff are also expected to demonstrate behaviour in class that promotes and maintains a positive and productive learning environment.

Assessment Components

Assessment Method	Description	Weight	Aligned Course Learning Outcome
<i>Project</i>	<p><i>Resilient community designs, (Group + individual component):</i></p> <p><i>The term project is a group project with individual component (15% of the grade). The project consists of an exercise of application of sustainable design (details will be provided), to sites and buildings. The project aligns with the course outcomes 1-5, and will be formed of 3 parts:</i></p> <ol style="list-style-type: none"> 1. Project preparation including initial concepts and directives (with brief midterm presentation and report) 2. A final project presenting all the analysis, with submitted report (on D2)) and full presentation by groups. 3. An individual part discussing the part done by each individual from the group, and the perspective of this individual on the designed attained, and lessons learned from this (details will be provided in the project. 	40%	1-5
<i>Project presentation</i>	<i>Group presentation of the project</i>	15%	
Sustainability Framework Paper (Individual)	<p><i>The paper is an individual assignment. It covers all outcomes identified above. Students are required to discuss and analyze a specific sustainability issue. Details will be provided early in the term.</i></p>	30%	1-5

Student participation	<i>Participation in this class, including class discussions, giving written feedback on presentations of other students (peer review for projects), group work in class, And Thread discussions will form 15% of the total student grade. This participation proved to be very important in this class, as it contribute significantly to enrich the experience of all students</i>	15%	
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Assessment and Evaluation Information

Attendance and Participation Expectations:

Guidelines for Submitting Assignments: SEE Topic Areas & Detailed Class Schedule

Final Examinations :N/A

Expectations for Writing (<https://www.ucalgary.ca/pubs/calendar/current/e-2.html>):

Late Assignments:

-2% for every 24hours of delay

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	

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.

(for Architecture courses only) 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)

Topic Areas & Detailed Class Schedule

Include information relevant to the class schedule, such as weekly topics, readings, and assignment due dates. For online, remote or blended courses include whether course activities are synchronous (i.e., real-time/Zoom) and asynchronous (i.e., students complete on their own time such as discussion boards, watching videos, etc.). It is recommended that important dates including the first day of classes, holidays, term breaks and last day of classes also be included.

Course Schedule Date	Topic	Assignments/Due Dates
September 8	L1- Introduction to sustainability: overview of sustainability, global climate change, human activities and their effects, GHG emissions, universal efforts to increase sustainability- introducing term project	
September 15 th	L2- Three pillars of sustainability; Concepts of sustainable development and sustainable urbanism; Sustainable site planning (1)-introduction. Project discussion. Doug L	
September 22 nd	No class- IEA Task Meeting	
Sept 29 th	L3- Site planning (2), Principles of site analysis, Improving sustainability of a site (e.g. stormwater, reducing site disturbance, vegetation)	
Oct 6 th	No classes / SAPL Block Week	

October 13 th	L4- Sustainable Site (ctd) (3) - Examples of sustainable sites and case studies.	
October 20 th	Introduction to alternative Energy (Solar, wind, Hydro, biofuel, etc.); Introduction to sustainable buildings standards: green buildings vs sustainable buildings.	Project part 1 submission (on D2L),
October 27 th	L5- Energy efficiency and sustainability; Passive House; Net Zero Energy Buildings (NZEB), Examples of different types of NZEB	
Nov 3 rd	L6- Building envelope effect and energy efficiency measures, renewable energy integration, sustainable building services, construction and materials, integrated design.	
November 10 th	No classes – term break	
November 17 th	L7- Energy use and GHG emissions,-Life Cycle Assessment (LCA); Measuring sustainability; Critical comparison of sustainability frameworks	
November 24 th	Term Project- Students' presentations	Term Project and presentation submission(on D2L)
Dec 1 st	Term Project- Students' presentations-ctd	
December 8 th	Course recap	
December 11 th		Paper submission, 11:59pm
<p>Indicate the following dates:</p> <ul style="list-style-type: none"> • If applicable, dates, times and locations of all approved class activities scheduled outside of regular course hours 		

Guidelines for Zoom Sessions

Zoom is a video conferencing program that will allow us to meet at specific times for a “live” video conference, so that we can have the opportunity to meet each other virtually and discuss relevant course topics as a learning community.

To help ensure Zoom sessions are private, do not share the Zoom link or password with others, or on any social media platforms. Zoom links and passwords are only intended for

students registered in the course. Zoom recordings and materials presented in Zoom, including any teaching materials, must not be shared, distributed or published without the instructor's permission.

The use of video conferencing programs relies on participants to act ethically, honestly and with integrity; and in accordance with the principles of fairness, good faith, and respect (as per the [Code of Conduct](#)). When entering Zoom or other video conferencing sessions (such as MS Teams), you play a role in helping create an effective, safe and respectful learning environment. Please be mindful of how your behaviour in these sessions may affect others. Participants are required to use names officially associated with their UCID (legal or preferred names listed in the Student Centre) when engaging in these activities.

Instructors/moderators can remove those whose names do not appear on class rosters. Non-compliance may be investigated under relevant University of Calgary conduct policies (e.g [Student Non-Academic Misconduct Policy](#)). If participants have difficulties complying with this requirement, they should email the instructor of the class explaining why, so the instructor may consider whether to grant an exception, and on what terms. For more information on how to get the most out of your zoom sessions visit:

<https://elearn.ucalgary.ca/guidelines-for-zoom/>

If you are unable to attend a Zoom session, please contact your instructor in advance to arrange an alternative activity for the missed session (e.g., to review the recorded session). Please be prepared, as best as you are able, to join class in a quiet space that will allow you to be fully present and engaged in Zoom sessions. Students will be advised by their instructor when they are expected to turn on their webcam (for group work, presentations, etc.).

The instructor may record online Zoom class sessions for the purposes of supporting student learning in this class – such as making the recording available for review of the session or for students who miss a session. Students will be advised before the instructor initiates a recording of a Zoom session. These recordings will be used to support student learning only and will not be shared or used for any other purpose.

Special Budgetary Requirements

Special budgetary requirements are limited to the optional purchase of course readings and, in specific courses, mandatory supplementary fees to cover certain expenditures, such as field trips. Mandatory supplementary fees must be approved by the University prior to implementation. Instructors are required to list and describe approved optional and mandatory supplementary fees for courses. This can include possible costs incurred for special materials, equipment, services, or travel.

Optional:

For certain courses students may be given the option of purchasing course readings. In these cases the cost of the reading package should be stated in the course outline. When course readings are available for purchase, a minimum of two copies of the readings must be made available at the SAPL Reception or online.

University of Calgary Policies and Supports

COVID-19 PROCEDURE FOR SICK STUDENTS: <https://ucalgary.ca/risk/sites/default/files/Covid-19%20Folder/COVID-19-Procedure-for-Sick-Students.pdf>

ACADEMIC ACCOMMODATION

It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The Student Accommodations policy is available at <https://ucalgary.ca/student-services/access/prospective-students/academic-accommodations>.

Students needing an accommodation based on disability or medical concerns should contact Student Accessibility Services (SAS) in accordance with the Procedure for Accommodations for Students with Disabilities (<https://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities.pdf>). Students who require an accommodation in relation to their coursework based on a protected ground other than Disability should communicate this need in writing to their Instructor.

SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/ .

ACADEMIC MISCONDUCT

Academic Misconduct refers to student behavior which compromises proper assessment of a student's academic activities and includes: cheating; fabrication; falsification; plagiarism; unauthorized assistance; failure to comply with an instructor's expectations regarding conduct required of students completing academic assessments in their courses; and failure to comply with exam regulations applied by the Registrar.

For information on the Student Academic Misconduct Policy and Procedure please visit: <https://ucalgary.ca/policies/files/policies/student-academic-misconduct-policy.pdf>
<https://ucalgary.ca/policies/files/policies/student-academic-misconduct-procedure.pdf>

Additional information is available on the Academic Integrity Website at <https://ucalgary.ca/student-services/student-success/learning/academic-integrity>.

COPYRIGHT LEGISLATION:

All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright.pdf) and requirements of the copyright act (<https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html>) to ensure they are aware of the consequences of unauthorised sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy (<https://www.ucalgary.ca/pubs/calendar/current/k.html>).

INSTRUCTOR INTELLECTUAL PROPERTY

Course materials created by instructors (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the instructor. These materials may NOT be reproduced, redistributed or copied without the explicit consent of the instructor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.

FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY

Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary.

SEXUAL VIOLENCE POLICY

The University recognizes that all members of the University Community should be able to learn, work, teach and live in an environment where they are free from harassment, discrimination, and violence. The University of Calgary's sexual violence policy guides us in how we respond to incidents of sexual violence, including supports available to those who have experienced or witnessed sexual violence, or those who are alleged to have committed sexual violence. It provides clear response procedures and timelines, defines complex concepts, and addresses incidents that occur off-campus in certain circumstances. Please see the policy available at <https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>

UNIVERSITY STUDENT APPEALS OFFICE: If a student has a concern about the course, academic matter, or a grade that they have been assigned, they must first communicate this concern with the instructor. If the concern cannot be resolved with the instructor, the student can proceed with an academic appeal, which normally begins with the Faculty. <https://www.ucalgary.ca/secretariat/student-appeals>

OTHER IMPORTANT INFORMATION

Please visit the Registrar's website at: <https://www.ucalgary.ca/registrar/registration/course-outlines> for additional important information on the following:

- Wellness and Mental Health Resources
- Student Success
- Student Ombuds Office
- Student Union (SU) Information
- Graduate Students' Association (GSA) Information
- Emergency Evacuation/Assembly Points
- Safewalk