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## Fall 2023

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<b>Course Number</b>	ARCH 672	<b>Classroom</b>	CBDL
<b>Course Name</b>	<b>Climate in Mind, Design Tools for Energy Modelling:</b>		
<b>Pre/Co-Requisites</b>			
<b>Instructor</b>	Rahman Ismail	<b>Office Hours/Location</b>	
	<b>Email:</b> rismail88@gmail.com	<b>Phone:</b>	
<b>Class Dates</b>	Nov 6 - 10, 9:00am - 1:00pm		
<b>Instructor Email Policy</b>	I will respond within 24 hours to emails		
<b>Name and Email of Teaching Assistant(s)</b>	n/a		

### Course Description:

**Climate in Mind, Design Tools for Energy Modelling:** is a block-week course that begins with introducing the basics of energy modelling and analyzing climate impacts on design. Why is it important to understand the effects of climate on design? As we face the challenges of climate change, it is crucial to consider the impact of our built environment on the natural world.

One answer is that the practice of energy modelling and climate impact analysis has been overlooked. The never-ending hunger for profit has narrowed our focus on short-term gains, ignoring the long-term consequences of their actions. Too often, building costs only include materials and labour. Builders need to justify their projects with a vision of a sustainable future.

Another answer is that designers, engineers and clients alike never developed tools to consider climate and the natural world in their projects.

In this course, students will learn how to use energy modelling techniques and analyze the impact of climate on design. By utilizing software tools and other design methods, students will be able to influence their site in a contextualized manner. The cohort will complete assignments that teach fundamental and advanced skills throughout the week. Tutorials will help develop skills and abilities, while group reviews will nurture strategies, graphics and narrative discussion. The final products of this

course will be 3D models, diagrams and analyses that challenge traditional ideas about design and its relationship with the environment. Together, we will work to reintegrate energy modelling and climate impact analysis into our creative processes.

**Students must have experience with Rhino / Grasshopper software for this course. The course assumes that students are comfortable with the basics of the software suite and have a capable computer. Required course software includes Rhino 3D, Adobe Software Suite, and Grasshopper plugins such as Ladybug.**

**Course Hours:** Nov 6-10, Monday-Friday, 9:00am - 1:00pm

### **Course Learning Outcomes:**

Upon completion of this course, students will:

- Develop and demonstrate an understanding of the basics of energy modelling
- Develop and demonstrate the ability to conduct energy modelling diagrams
- Develop and demonstrate critical thinking and relationship to design decisions

### **Technology requirements:**

*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*
- *Software:*
  - *Rhino / Grasshopper (+ assignment specific plugins)*
    - **Ladybug Plugin**
  - *Adobe Suite (Illustrator, Photoshop, inDesign, etc.)*

### **Workshop Safety Training Requirement**

If a course requires the use of the SAPL workshop, students must complete all online University of Calgary safety courses, the online Trajectory safety training course, as well as in-person workshop training and a grade of pass on the final evaluation project, to be granted access to the SAPL workshop. This training is offered once a year, around the start of the Fall term and has a completion deadline.

## 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:

Detailed class schedules, topics and assignment weighting will be provided at the start of each assignment. (Subject to change)

Assignment One      Nov 6-8      (50%)

#### **BASE BUILDING DESIGN AND CONTEXT**

Assignment Two      Nov 8-10      (50%)

#### **PRESENTATION OF DESIGN OUTCOMES AND ENERGY IMPACTS**

## Assessment and Evaluation Information

Final grades will be reported as letter grades, with the final grade calculated according to the 4-point range." All project phases will be evaluated by percentage grades, with their letter grade equivalents as shown.

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

### 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

The School of Architecture, Planning and Landscape will not permit the Flexible Grade Option (CG Grade) for any course offered by the School.

<https://www.ucalgary.ca/pubs/calendar/current/f-1-3.html>

### CACB Student Performance Criteria (for Architecture courses only)

The following CACB Student Performance Criteria will be covered in this course at a primary level:

#### A3. Design Tools

The student must demonstrate an ability to use the broad range of design tools available to the architectural discipline, including a range of techniques for two-dimensional and three-dimensional representation, computational design, modelling, simulation, and fabrication.

The following CACB Student Performance Criteria will be covered in this course at a secondary level:

#### A2. Design Skills

The student must demonstrate an ability to apply design theories, methods and precedents to the conception, configurations, and design of buildings, spaces, building elements, and tectonic components.

#### B1. Critical Thinking and Communication

The student must demonstrate an ability to reach clear and precise questions; record, assess and comparatively evaluate information; synthesize research findings and test potential alternative outcomes against relevant criteria and standards; reach well-supported conclusions related to a specific project or assignment; and write, speak, and use visual media effectively to appropriately communicate on subject matter related to the architectural discipline with the profession and general public.

## Topic Areas & Detailed Class Schedule

Course Schedule Date	Topic	Assignments/Due Dates
Monday Nov 6	Introduction to Energy Modelling	
Tuesday Nov 7	Opportunity for Intervention	Assignment One due (50%)
Wednesday Nov 8	Grasshopper Tutorial	
Thursday Nov 9	Tutorial / Workshop	
Friday Nov 10	Design Presentations	Assignment Two due (50%)

## University of Calgary Policies and Supports

### ACADEMIC ACCOMMODATION

It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The student accommodation policy can be found at: <https://www.ucalgary.ca/legal-services/university-policies-procedures/student-accommodation-policy>

Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf>. Students needing 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 (contact information on first page above).

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/](http://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://www.ucalgary.ca/legal-services/university-policies-procedures/student-academic-misconduct-policy>

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 (<https://www.ucalgary.ca/legal-services/university-policies-procedures/acceptable-use-material-protected-copyright-policy>) 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 AND GENDER-BASED 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/legal-services/university-policies-procedures/sexual-and-gender-based-violence-policy> .

### **UNIVERSITY STUDENT APPEALS OFFICE**

If a student has a concern about a grade that they have received, they should refer to Section I of the Undergraduate Calendar (<https://www.ucalgary.ca/pubs/calendar/current/i-3.html>) which describes how to have a grade reappraised. In addition, the student should refer to the SAPL's Procedure for reappraisal of grades

### **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