

## ARCH 570-002: Re-narrativizing Net Zero

Instructor: Juliette Cook, M.Arch | [juliette.cook@uwaterloo.ca](mailto:juliette.cook@uwaterloo.ca)

Class time: Weekly, Friday 2-5pm Eastern Standard Time (EST), E-Classroom

### TERRITORIAL ACKNOWLEDGEMENT

We acknowledge that the School of Architecture is located on the traditional territory of the Neutral, Anishinaabeg, and Haudenosaunee peoples. The University is situated on the Haldimand Tract, the land promised to the Six Nations that includes 10 kilometres on each side of the Grand River.

[See references here.](#)

### COVID-19 SPECIAL STATEMENT

Given the on-going situation around COVID-19, students are to refer to the University of Waterloo's [developing information resource page](#) for up-to-date information on academic updates, health services, important dates, co-op, accommodation rules and other university level responses to COVID-19.

Special note: *I understand that students may have various additional needs, commitments, or challenges during these times. Please always feel free to get in touch with me about any extra support you may need in addition to those outlined in this document.*

### COURSE DESCRIPTION

“There are no passengers on Spaceship Earth. We are all crew.”

-Marshall McLuhan

This course begins with an introduction to current climate-related goals, within Canada and the world, specifically looking at how these will impact the role of architects and designers in the coming years. Weaving together the theoretical concepts around embodied carbon with the practical knowledge of life-cycle assessments (LCAs), students will be equipped to perform embodied carbon analyses that follow current best practice, while also questioning these methodologies. They will learn how embodied carbon assessments fit into a project's timeline at different phases to guide the design process, and how these may complement energy use (operational carbon) modelling. Carbon-storing materials, and the calculations behind biosequestration, will be explored in greater detail.

Throughout the course, the discussion of embodied carbon will be framed within wider notions of heritage, waste, reuse, and circularity, among others. Studying issues of carbon at a variety of scales, from the extraction and processing of a single material, to the performance of a building, to worldwide flows of construction supply chains, will force us to question current definitions of net zero, and will shed light on the unique position a designer has to make an impact through informed material specification.

### COURSE GOALS & LEARNING OBJECTIVES

By the end of this course, students will be able to:

- Understand concepts & topics from the wider context around embodied carbon
- Perform embodied carbon analysis using available LCA tools
- See how embodied carbon accounting fits into architectural & landscape design

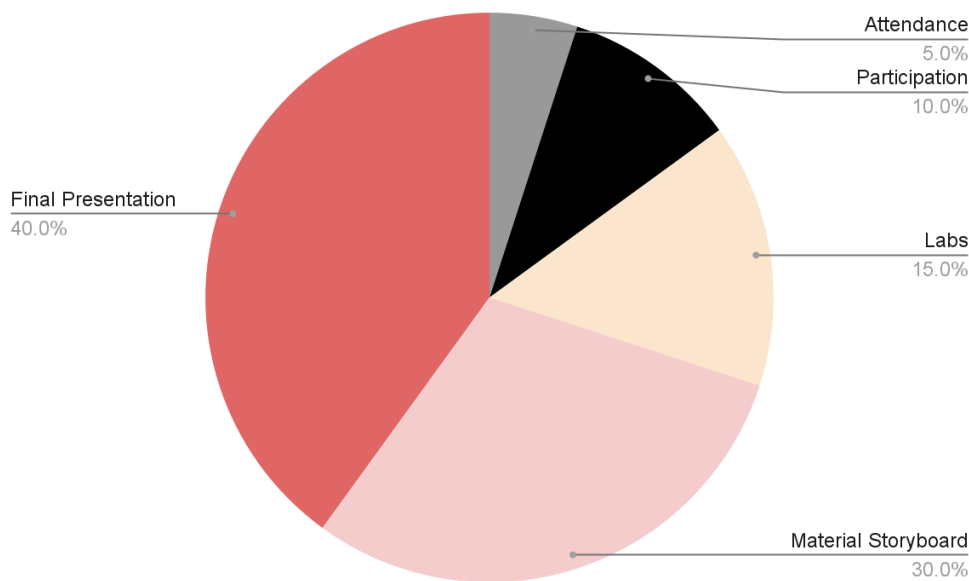
## COURSE STRUCTURE

This course's primary learning format is through **live lectures and labs**.

- **LIVE LECTURES:** The instructor will present on a specific topic on a weekly basis, with a guest lecturer coming in to supplement this first lecture during some weeks. A full list of topics can be seen on page 3 of this document.
- **LABS:** at the end of 3 specified weeks' classes, students will be assigned a lab that can be started during class time, then submitted **before class starts the following week** (i.e. latest 2pm the week after the lab is handed out).

Note: *The goal of the labs is to have students engage with both the conceptual and technical themes from the lectures. These will be started during class time, in order to allow students to work with each other and ask the instructor any questions that may arise.*

## COURSE REQUIREMENTS & EVALUATION



As shown above, the course evaluation is broken down into 5 components, which are covered below.

### ATTENDANCE & PARTICIPATION

**15%**

This portion of the grade is broken down into attendance (5%), which will be taken weekly via a roll call sheet, and participation (10%), which will be assessed by students' engagement with weekly readings, including **one** 300-500 word response to their choice of a single week's lecture topic and material.

### LABS

**15%**

Lab exercises will be assigned at the end of weeks 3, 7, and 9 (see course schedule). Lab exercises will be graded on a pass-fail basis, where a completed lab will contribute 5% to your final grade, and a missing lab will contribute 0%.

### PROJECT 1: MATERIAL STORYBOARD

**30%**

Students will work individually to complete a representation of a material supply chain along the life cycle of a material. A list of available materials will be provided, from which students will need to select a single material by the end of Week 3 (**September 23rd**).

### PROJECT 2: NET-ZERO, RE-NARRATIVIZED

**40%**

Students will work in groups of 2-3 to select a topic relevant to the course and discussed with and approved by the instructor by Week 6 (**October 7th**). The compiled research and findings will be presented to the entire class at the end of the semester. The presentation will also be submitted to LEARN after presentations take place.

Note: *Projects 1 and 2 will be fully introduced at the end of Week 2.*

**TOPICS & SCHEDULE**

This schedule of topics may be adjusted to reflect the in-class pace of learning.

W1	September 9	Welcome, introductions, syllabus, Q&A
W2	September 16	Lecture: Net Zero, Really?
		<b>Projects 1&amp;2 introduced</b>
W3	September 23*	Lecture: LCA Thinking
		<i>Project 1 material selection finalized</i>
		<b>Lab 1 handed out</b>
W4	September 30*	<b>Lab 1 due**</b>
		Lecture: The B-phase
W5	October 7*	Lecture: Lo-fab, Lo-carb
		<i>Project 2 groups &amp; topics finalized</i>
<b>READING WEEK</b>		
W6	October 21*	<b>Project 1 due**</b>
		Lecture: Whole Life Carbon Perspective
W7	October 28	No lecture: Juliette is presenting at CCBST 2022
		<b>Lab 2 handed out</b> [ <i>free class time as working session</i> ]
W8	November 4*	<b>Lab 2 due**</b>
		Lecture: Heritage, Waste, Care
W9	November 11*	Lecture: Beyond the Building
		<b>Lab 3 handed out</b>
W10	November 18*	<b>Lab 3 due**</b>
		Guest lecture: Ryan Bruer, BDP Quadrangle
		Check-in session for Project 2
W11	November 25*	Lecture: Net Zero, Re-narrativized
W12	December 2	<b>Project 2 due**</b> [In-class presentations]
W15	December 23	Deadline to submit any Late Pass work

\*Weeks where guest lecturers may come in to supplement the instructor's lecture.

\*\*Labs and projects are to be uploaded before class starts.

## **COURSE DELIVERY & COMMUNICATIONS**

Outside of our weekly in-person sessions, we will use the following platforms to organize materials & communications:

- MS TEAMS: supplementary discussions outside of in-person lecture time; students will be added in the first week of class
- LEARN: official communication, posting of weekly readings, work submission, grade recording and release
- MIRO [tbd]: digital whiteboard used for in-progress research for projects & check-ins with me; we will discuss use of this platform during Class 1

## **FAIR CONTINGENCIES FOR EMERGENCY REMOTE TEACHING**

To provide contingency for unforeseen circumstances, the instructor reserves the right to modify course topics and/or assessments and/or weight and/or deadlines with due and fair notice to students. In the event of such challenges, the instructor will work with the Department/Faculty to find reasonable and fair solutions that respect rights and workloads of students, staff, and faculty.

## **LATE WORK**

Assignments that are handed in late will receive an initial penalty of 5% on the first calendar day late and a 5% penalty per calendar day thereafter. After 5 calendar days, the assignment will receive a 0%.

Only in the case of a justified medical or personal reason will these penalties be waived, and only if these have been officially submitted to the Undergraduate Student Services Coordinator and accepted by the Undergraduate Office.

Students seeking accommodations due to COVID-19, are to follow Covid-19-related accommodations as outlined by the university [at the link here](#).

## **LATE PASS**

Students are allocated one late pass for the term. This allows students to make one submission up to 72 hours after the stated deadline without penalty and without any request for accommodation. The Late Pass is only available on submissions for project 1 (Material Storyboard) and the 3 labs. A Late Pass cannot be used on the final presentation. Students are required to communicate with your instructor their intention to use a late pass before the relevant deadline.

## **PASSING GRADE**

The standard minimum passing grade in each ARCH course is 50% with the following exceptions: the minimum passing grade is 60% for all studio courses (ARCH 192, ARCH 193, ARCH 292, ARCH 293, ARCH 392, ARCH 393, ARCH 492, and ARCH 493). Grades below the specified passing grade result in a course failure.

## **CACB STUDENT PERFORMANCE CRITERIA**

The BAS/MArch program enables students to achieve the accreditation standards set by the Canadian Architectural Certification Board as described [here](#). This course addresses the CACB criteria and standards that are noted on the [Accreditation page](#) of the School of Architecture website.

## **MENTAL HEALTH SUPPORT**

All of us need a support system. We encourage you to seek out mental health support when needed. Please reach out to [Campus Wellness](https://uwaterloo.ca/campus-wellness/) (<https://uwaterloo.ca/campus-wellness/>) and [Counselling Services](#).

We understand that these circumstances can be troubling, and you may need to speak with someone for emotional support. [Good2Talk](#) is a post-secondary student helpline based in Ontario, Canada that is available to all students.

## EQUITY, DIVERSITY, AND INCLUSION COMMITMENT

The School of Architecture is committed to foster and support equity, diversity and inclusion. If you experience discrimination, micro-aggression, or other forms of racism, sexism, discrimination against 2SLGBTQ+, or disability, there are several pathways available for addressing this:

A) If you feel comfortable bringing this up directly with the faculty, staff or student who has said or done something offensive, we invite you, or a friend, to speak directly with this person. People make mistakes and dealing with them directly in the present may be the most effective means of addressing the issue.

B) you can reach out to either the Undergraduate office, Graduate office, or Director (Anne Bordeleau). If you contact any of these people in confidence, they are bound to preserve your anonymity and follow up on your report.

C) You can choose to report centrally to the Equity Office. The Equity Office can be reached by emailing [equity@uwaterloo.ca](mailto:equity@uwaterloo.ca). More information on the functions and services of the equity office can be found here: <https://uwaterloo.ca/human-rights-equity-inclusion/about/equity-office>.

D) [Racial Advocacy for Inclusion, Solidarity and Equity \(RAISE\)](#) is a student-led Waterloo Undergraduate Student Association (WUSA) service launching in the Winter 2019 term. RAISE serves to address racism and xenophobia on the University of Waterloo campus with initiatives reflective of RAISE's three pillars of Education and Advocacy, Peer-to-Peer Support, and Community Building. The initiatives include but are not limited to: formal means to report and confront racism, accessible and considerate peer-support, and organization of social events to cultivate both an uplifting and united community. You can report an incident using their [online form](#).

## ACADEMIC INTEGRITY, GRIEVANCE, DISCIPLINE, APPEALS, AND NOTE FOR STUDENTS WITH DISABILITIES

**Academic integrity:** In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. Check [the Office of Academic Integrity](#) for more information.

**Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read [Policy 70, Student Petitions and Grievances, Section 4](#). When in doubt, please be certain to contact the department's administrative assistant who will provide further assistance.

**Discipline:** A student is expected to know what constitutes academic integrity to avoid committing an academic offence, and to take responsibility for his/her actions. Check [the Office of Academic Integrity](#) for more information. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate associate dean. For information on categories of offences and types of penalties, students should refer to [Policy 71, Student Discipline](#). For typical penalties, check [Guidelines for the Assessment of Penalties](#).

**Appeals:** A decision made or penalty imposed under [Policy 70, Student Petitions and Grievances](#) (other than a petition) or [Policy 71, Student Discipline](#) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to [Policy 72, Student Appeals](#).

**Note for students with disabilities:** [AccessAbility Services](#), located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with [AccessAbility Services](#) at the beginning of each academic term.

**Turnitin.com:** Text matching software (Turnitin®) may be used to screen assignments in this course. Turnitin® is used to verify that all materials and sources in assignments are documented. Students'

submissions are stored on a U.S. server, therefore students must be given an alternative (e.g., scaffolded assignment or annotated bibliography), if they are concerned about their privacy and/or security. Students will be given due notice, in the first week of the term and/or at the time assignment details are provided, about arrangements and alternatives for the use of Turnitin in this course.

It is the responsibility of the student to notify the instructor if they, in the first week of term or at the time assignment details are provided, wish to submit the alternate assignment.

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