

**Faculty of Science Course Syllabus**  
**Department of Earth and Environmental Sciences**

*ENVS/SUST 3502*

*Environmental problem solving II: the campus as a living laboratory*

*Winter 2020*

**Instructor(s):** *Dr. Heather Cray*                      *hcray@dal.ca*                      *LSC room 810*

**Lectures:**            *M and W 2:35-3:55pm*                      *Studley KENNETH C ROWE MANAG 1020*

**Office Hours:**    *Th 2-3:30pm or by appointment*

**TA Mentors:**      *Erin Dann*                                      *erin.dann@dal.ca*  
                          *Gillian Curren*                                  *gillian.curren@dal.ca*  
                          *Anastasia Papadopoulos*                *anastasia.sp@dal.ca*

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### **Course Description**

*In this course the campus serves as a living laboratory for identifying, evaluating and assessing indicators of progress toward greater campus sustainability. Working in groups, students apply problem-solving models to case studies using qualitative and quantitative research methods and make recommendations for improvements on campus based on their analyses.*

### **Course Prerequisites**

*ENVS 1100.06 or ENVS 1200.03 (with a grade of B- or higher) or SUST 1000.06 or SUST 1001.06 (with a grade of B- or higher). Must be a 3rd year student OR have permission of instructor. Cross-Listing: SUST 3502.03 | Exclusions: MGMT 3701.03*

### **Course Objectives/Learning Outcomes**

*This course is your opportunity to advance your knowledge and skills in environmental and sustainability research and apply these to a contemporary problem on the university campus. You'll work with your peers and environment and sustainability scholars from Dalhousie University to develop skills in research, organization and project management.*

#### **Learning Outcomes:**

- Develop effective research questions and strategies for approaching research
- Define and identify key elements of environment and sustainability issues supported by national and international policies on University campuses
- Demonstrate understanding of typology of research objectives, familiarity with Wallace's Wheel, qualitative, quantitative, and mixed methods approaches
- Demonstrate knowledge of probabilistic and non-probabilistic sampling methods
- Demonstrate understanding of methods to maintain rigour in scholarly research using terms such as reliability, validity, and trustworthiness

- Demonstrate understanding of major interactive methods (e.g., surveys, interviews, focus groups, observation)
- Demonstrate ability to develop effective questions for surveys, interviews and focus groups
- Develop understanding, and demonstrate skills in qualitative data analysis techniques
- Develop understanding, and demonstrate skills in quantitative data analysis techniques
- Communicate your project knowledge with accuracy and credibility to a target audience

### Course Materials

The required text for ENV5/SUST 3502 is “Research Decisions: Quantitative, Qualitative, and Mixed Methods Approaches” by Ted Palys and Chris Atchison (5<sup>th</sup> Edition). This text is available at the University Bookstore or can be purchased through Amazon.ca (paperback and Kindle versions available). In the timeline readings, the text is referred to as RD.

In addition, you will need to access articles online. To access the online articles you will need to be logged into Dalhousie’s internal server. You can accomplish this by either logging into any computer located on campus or using Dal’s Virtual Private Network for off-campus access. For information see: <http://its.dal.ca/services/internet/vpn>

Finally, students **must** register with ASSHE (Association for the Advancement of Sustainability in Higher Education) online to access resources for class. Dalhousie has a free membership but you must register. Go to [www.aashe.org](http://www.aashe.org), click on New Account and enter your Dalhousie information.

We will be using Brightspace for all course communication and materials. You are expected to check the site regularly.

### Course Assessment

Item	Weight	Date
Lab Assignment 1	8%	Jan 12 @ end of day
Lab Assignment 2	8%	Jan 26 @ end of day
Lab Assignment 3	8%	Feb 9 @ end of day
Group Research Proposal	10%	Feb 14 @ end of day
Quizzes x 2	20%	In-Class, dates tba
Group Pecha Kucha	15%	Slides: March 28 @ end of day
		Presentations: Mar 30 & Apr 1 in class
Group Final Reports	25%	Wed Apr 8 @ end of day
In-Class Group Worksheets	6%	In class, throughout term

## Assessment details

### Individual Assignments

- *Lab Assignments | 24%*  
Lab exercises will be introduced in class throughout the semester and are designed to give you practice with various components of the research process. While some exercises are based upon group discussions and interests, this work is completed individually.
- *Quizzes | 20%*  
Two short quizzes will take place in class and will be based on the readings and lecture materials covered over the semester.

### Group Assignments

- *In-class Group Worksheets | 6%*  
Your group will be expected to fill out weekly forms and remit them to your Mentor. Each member that is present at the weekly meeting is expected to sign the form. If a student is not present for the class, she/he will not receive credit for that week's form.
- *Preliminary Project Proposal | 10%*  
This must be approved before you may proceed to the final project. Your group will prepare an 8-page (approximately) document including: Background and Rationale; Research Question; Proposed Research Methods; and Schedule.
- *Pecha Kucha Project Presentation | 15%*  
Your group will be responsible for a presentation at the class Pecha Kucha night. Pecha Kucha Night was devised in Tokyo in 2003 as an event for young people to show their work in public. It has turned into a massive celebration, with events happening in hundreds of cities around the world. Drawing its name from the Japanese term for the sound of "chit chat", it rests on a presentation format that is based on a simple idea: 20 images x 20 seconds. It's a format that makes presentations concise, and keeps things moving at a rapid pace. Group presentations are expected to be of professional quality, incorporating visual aids and providing a polished presentation of information within the time frame provided. Presentation slides are due in advance of the presentation.
- *Final Project Report | 25%*  
A final project report will be submitted after the presentations via BrightSpace. All group members are expected to contribute to the paper and to make themselves reasonably available for group meetings. As with all assessments, final reports are subject a 20% per day penalty past the submission deadline. All final reports will eventually be posted on the course website.

#### Peer Assessment (2%)

Students will be asked to complete a confidential peer evaluation of your group's performance. The peer assessment is used in conjunction with the mentor's and Instructor's evaluations. If warranted, marks may be adjusted for the group components of the project. This is due at the same time as the final report. Failure to submit the peer evaluation will result in a 2% deduction from the final report grade.

**NOTE: Research and data collection for projects CANNOT begin until you have received feedback on your proposal. Plan for a small project that can be completed within a 3-4 week period!**

- Meetings with Mentors

Your project groups will be working in class with one of our teaching mentors. Your mentor will help your group clarify expectations for the project, and will provide feedback on your research proposal and process. Part of the mark for your final report will be for your group's stewardship of the research process (including the attending of meetings, handing drafts in on time, incorporating feedback into reports, etc.). Failure to meet regularly and prepare with your mentor will result in a decreased final mark.

**Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale**

A+ (90-100)	B+ (77-79)	C+ (65-69)	D	(50-54)
A (85-89)	B (73-76)	C (60-64)	F	(<50)
A- (80-84)	B- (70-72)	C- (55-59)		

**Course Policies**

In order to receive timely notifications, please sign-up to receive immediate text or email notifications from Brightspace when new course announcements appear. You can do so by clicking on your name in the top right corner of Brightspace > select Notifications > under Instant Notifications check "Announcements – new announcement available"

The class schedule is tentative and may change slightly depending on class interests and time available. The syllabus will be updated accordingly and posted on Brightspace.

Class culture: We aim to cultivate a culture of mutual respect and collective curiosity. Students should arrive to class on time and not engage with materials that are outside of the course during class time. Be courteous of your neighbours by not distracting them.

Missed classes: All of the information related to the logistical and administrative components of this course will be communicated in the lectures. If you miss any part of a lecture, it is your responsibility to make contact with a fellow student and catch up on what you missed, regardless of whether the absence was justified or not.

Student Declaration of Absence: The new Student Declaration of Absence (SDA) Form will be used in this course and will replace sick notes for absences of three days or fewer that result in missed or late academic requirements. The form can be accessed through Brightspace. Submission does not provide automatic exemption from any academic requirements that were missed or late during an absence. Any alternate coursework arrangements for missed or late academic requirements are at the discretion of the course instructor. No more than ONE(1) accommodation will be provided for missed quizzes and no more than ONE(1) extension will be provided for late assignments except in extenuating circumstances.

Late Penalties: Due to the need to maximize time for research projects, meeting deadlines is critical for keeping on schedule. Assignments are submitted via BRIGHTSPACE on the due date. Late assignments which are not accompanied by an email or SDA prior to the deadline will have 20% deducted for each day late. Extensions are given only to students with a legitimate illness or emergency.

*Class Attendance:* Attendance is an expectation of this course and your presence in class is very important to ensure projects are progressing satisfactorily and that you understand the readings. Make sure that you keep up with your readings so that you can apply them to your project and discuss them in class. In lectures, we will assume that all students have read and understood relevant sections of the text.

*Student Groups:* During the second week of the course, the instructors will assign each student a project group and a project mentor from the teaching team. Each group will include 4-6 students. Your group will decide together what campus sustainability research project you wish to design.

*Group Work Participation:* Each group will be given a mark for the Preliminary Proposal, Project Report, and Presentation. Individual marks will then be adjusted according to the peer evaluation form completed as part of the group assessment. BEFORE peer evaluations are submitted, ensure you are communicating in a timely manner with your group, and contributing equally to the group effort. If you have done so, and you still have concerns with your group, speak with the instructor and/or your TA mentor as soon as possible.

*Ground Rules:* We view teaching as a collaboration between Instructors, TAs and students. Our collective goal is for each of us to increase our knowledge base and hone our research, analytical and writing skills within the intersections of environment, sustainability and society. Each of us has responsibilities to ensure the success of this relationship.

As Instructors and TAs, we commit to:

- Ensuring that course materials are instructive and engaging
- Communicating expectations clearly to students
- Responding to and integrating student feedback into the course
- Provoking questions, curiosity and constructive feedback from students
- Providing grades that are transparent and consistent among all students

In joining this class, students commit to:

- Attending and engaging in all course components
- Respecting alternative viewpoints that might not coincide with their own
- Completing and reflecting on all of the weekly readings
- Arriving on time to all elements of the course
- Remaining curious about and critical of the material covered

## **Course Content**



Date		Class Activity	Readings   Deadlines
Jan	6	M Course Welcome & Intro to Sustainability	✓ <i>Course Syllabus</i>
	8	W Overview of Past Projects <b>LEED Buildings Activity</b> (outdoors)	<b>Lab 1 DUE: Jan 12 @ end of day</b>
	13	M Research Models and Methods	✓ RD: Chapter 1
	15	W Guest Speaker: Rochelle Owens, Executive Director, Office of Sustainability Lab 2 Overview	✓ <a href="#">Office of Sustainability Website</a> (Home, About Us, Campus Programs) ✓ <a href="#">Dalhousie Publications &amp; Plans*</a>
	20	M First Group Meeting with Mentors DSUSO Introduction (Green Grants) <b>Worksheet 1 - Brainstorming</b>	✓ RD: Chapter 2 ✓ Worksheet 1 DUE @ end of class
	22	W Developing Researchable Questions	<b>Lab 2 DUE: Jan 26 @ end of day</b>
	27	M Research Methods   Sampling & Interactive Approaches Lab 3 Overview	✓ RD: Chapter 3
	29	W Meeting with Group and Mentors <b>Worksheet 2 – Topic Selection</b>	Worksheet 2 DUE: @ end of class
	Feb	3	M Research Ethics
5		W Data Analysis: Qualitative Approaches <b>Worksheet 3 – Methods Development</b>	✓ RD: Chapter 11 Worksheet 3 DUE: @ end of class <b>Lab 3 DUE: Feb 9 @ end of day</b>
10		M <b>QUIZ 1 (25min)</b> Data Analysis : Quantitative & Mixed	✓ RD: Chapter 12
12		W Deconstructing the Research Proposal <b>Worksheet 4 – Analysis &amp; Proposal Plan</b>	✓ RD: Chapter 5 Worksheet 4 DUE: @ end of class
17		M Winter Study Break	<b>Proposals DUE: Feb 14 @ end of day</b>
19		W Winter Study Break	
24		M Developing effective questions	
Mar	26	W Proposal feedback and project approvals <b>Worksheet 5</b>	Worksheet 5 DUE: @ end of class
	2	M <b>QUIZ 2 (25min)</b> Coding Qualitative Data	
	4	W Meeting with Group and Mentors <b>Worksheet 6</b>	Worksheet 6 DUE: @ end of class
	9	M Significance testing	
	11	W Work Session   Mentor-Instructor support <b>Worksheet 7</b>	✓ RD: Chapter 13 Worksheet 7 DUE: @ end of class
	16	M Expectations for Final Report	
	20	W Work Session   Mentor-Instructor support <b>Worksheet 8</b>	Worksheet 8 DUE: @ end of day
	23	M Creating Pecha Kucha Presentations	
	25	W Open Work Session   Mentor-Instructor supported research & analysis time <b>Worksheet 9</b>	Worksheet 9 DUE @ end of class <b>Presentations Slides DUE: March 28 @ end of day</b>
	30	M Group Pecha Kucha Presentations I	
Apr	1	W Group Pecha Kucha Presentations II	
	6	M No Class (Reserved for Courses with Friday classes) Exam period (No final exam for this course)	<b>Final Reports DUE: Wed April 8 @ end of day</b> <b>Peer Assessment DUE: Wed April 8 @ end of day</b>

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ENVS SUST 3502**

**University Policies and Statements**

**This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate**

**Academic Integrity**

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity.

**Information:** [https://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](https://www.dal.ca/dept/university_secretariat/academic-integrity.html)

**Accessibility**

The Advising and Access Services Centre is Dalhousie's centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).

**Information:** [https://www.dal.ca/campus\\_life/academic-support/accessibility.html](https://www.dal.ca/campus_life/academic-support/accessibility.html)

**Student Code of Conduct**

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner—perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution.

**Code:** [https://www.dal.ca/dept/university\\_secretariat/policies/student-life/code-of-student-conduct.html](https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html)

**Diversity and Inclusion – Culture of Respect**

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness

**Statement:** <http://www.dal.ca/cultureofrespect.html>

**Recognition of Mi'kmaq Territory**

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel and support. Visit or e-mail the Indigenous Student Centre (1321 Edward St) ([elders@dal.ca](mailto:elders@dal.ca)).

**Information:** [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

**Important Dates in the Academic Year (including add/drop dates)**

[https://www.dal.ca/academics/important\\_dates.html](https://www.dal.ca/academics/important_dates.html)

**University Grading Practices**

[https://www.dal.ca/dept/university\\_secretariat/policies/academic/grading-practices-policy.html](https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html)

**Missed or Late Academic Requirements due to Student Absence (policy)**

[https://www.dal.ca/dept/university\\_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html](https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html)

## Student Resources and Support

### Advising

**General Advising** [https://www.dal.ca/campus\\_life/academic-support/advising.html](https://www.dal.ca/campus_life/academic-support/advising.html)

**Science Program Advisors:** <https://www.dal.ca/faculty/science/current-students/academic-advising.html>

**Indigenous Student Centre:** [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

**Black Students Advising Centre:** [https://www.dal.ca/campus\\_life/communities/black-student-advising.html](https://www.dal.ca/campus_life/communities/black-student-advising.html)

**International Centre:** [https://www.dal.ca/campus\\_life/international-centre/current-students.html](https://www.dal.ca/campus_life/international-centre/current-students.html)

### Academic supports

**Library:** <https://libraries.dal.ca/>

**Writing Centre:** [https://www.dal.ca/campus\\_life/academic-support/writing-and-study-skills.html](https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html)

**Studying for Success:** [https://www.dal.ca/campus\\_life/academic-support/study-skills-and-tutoring.html](https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html)

**Copyright Office:** <https://libraries.dal.ca/services/copyright-office.html>

**Fair Dealing Guidelines** <https://libraries.dal.ca/services/copyright-office/fair-dealing.html>

### Other supports and services

**Student Health & Wellness Centre:** [https://www.dal.ca/campus\\_life/health-and-wellness/services-support/student-health-and-wellness.html](https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html)

**Student Advocacy:** <https://dsu.ca/dsas>

**Ombudsperson:** [https://www.dal.ca/campus\\_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html](https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html)

### Safety

**Biosafety:** <https://www.dal.ca/dept/safety/programs-services/biosafety.html>

**Chemical Safety:** <https://www.dal.ca/dept/safety/programs-services/chemical-safety.html>

**Radiation Safety:** <https://www.dal.ca/dept/safety/programs-services/radiation-safety.html>

**Scent-Free Program:** <https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>