

**ERS 403 Senior Honours Project (FALL 2021 – WINTER 2022)**  
**University of Waterloo**  
**School of Environment, Resources and Sustainability**

**Instructor:**

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**Class Time:** Wednesdays 10:30 - 11:50 AM (DWE 3522)

Class Time: Fall and Winter Semesters: **Wednesday 10:30 – 11:50 AM in DWE 3522**. The class will also be live streamed (also recorded and posted later) for those who will not be on campus. We will be using the LEARN virtual classroom.

As we continue to deal with COVID-19 there might be times when it is necessary to change/modify our course schedule (what we do, when we do it and where we do it) – so please refer to LEARN regularly. Some class times will be open/optional. Please be aware that your supervisor might require you to complete other work with different deadlines/timelines during the term.

**Office Hours:** Wednesdays 9:00 – 10:00AM & 1:00 – 2:00PM

*\*Please email prior to attending office hours. This is important in order to control the flow and number of students due to COVID safety restrictions. You will be required to wear a mask and wait outside the Instructor's office. Due to COVID restriction, most questions can be answered via email or during class time. Please limit in-person office visits to those questions requiring more involved discussion with the Instructor. Please note when it comes to questions regarding your thesis topic, methodology and analysis, your supervisor is often the best person to ask.*

**COURSE OBJECTIVES**

This is a course is only open to those fourth year SERS undergraduate thesis students. This course will run for two terms (Fall 2021 & Winter 2022) and is designed to support senior undergraduate students on the completion of a successful thesis project and to develop a student's capacity for research and foster career skills. We will be meeting frequently during our scheduled class time throughout the two terms, however much of your time will be dedicated to independent reading, writing, data collection and analysis, as determined by your supervisor. This course is designed to complement work given by your supervisor, it does not replace it and ultimately a student's primary responsibility is to their supervisor. However, all students in ERS 403 are expected to participate in meaningfully manner in this course and the final grade for 403A & 403B, will reflect that of both course work and grades given by your supervisor. Please note: this is the first time this thesis course is being offered – it is a fluid work, meaning it might change and evolve as the year goes on to better serve you.

By the end of this course you will be able to:

- Demonstrate the ability to undertake a literature review to gather and analyze critical literature and determine any knowledge gaps
- Demonstrate the ability to develop a novel research question based on a critical analysis of key literature
- Understand and develop a research proposal
- Establish strong oral communication skills by delivering oral presentations, and communicating results in an efficient and effective manner during the SERS poster session
- Design and undertake a methodology to answer your research question(s)
- Analyze results and draw conclusions
- Present information and data in a clear and effective manner to allow research to be understood by a wider audience

The context and rationale here is that mastery of the basic skills of problem definition, proposal preparation and project implementation are keys to dealing with a wide range of 'real-life' situations, both on and off the career path. In ERS 403A/B, each student has the opportunity to develop these skills further by designing and implementing a project of special personal interest.

### **IMPORTANT: Alternative Arrangements Due to COVID**

In the event that the instructor has to self-isolate due to COVID guidelines – class will ideally be covered by another instructor. This might be done in person or a virtually depending on the situation. If any student at any time feels unwell or needs to self-isolate, there is an online streaming option for the course, which runs at the same time as the regular in-person lecture. Please email the instructor to discuss. You can safely stay home and not miss out on any course content.

### **THE 403 A/B COURSE PLAN**

\*Dates and topics are subject to change due to the changing COVID landscape please refer to LEARN for updates

<b>Class Dates</b>	<b>What's Happening that Week</b>
Sept. 8 <sup>th</sup>	Introduction Class – Asynchronously held
Sept. 15 <sup>th</sup>	Course Introduction, Q and A, Ice breakers - Course Expectations. What do you need/want?
Sept. 22 <sup>th</sup>	Topic: Ethics and Health and Safety Training – Why you need it, what exactly do you need and how do you do it?  *Information Session by the Office of Research Ethics (TBD)
Sept 29 <sup>th</sup>	Topic: The Literature - defining and positioning your research in the literature and making an original contribution. What is “the literature”? Where do you look based on your research idea? Using key words. What are the parameters/limits of your research (avoiding the rabbit hole)?  *Workshop #1 by the University of Waterloo Library – How to undertake an academic literature review (TBD)
Oct. 6 <sup>th</sup>	Topic: Designing your research proposal (developing and connecting your question, objectives and methods); what data do you need? Finding your data; thinking through ethics requirements  *Workshop by the University of Waterloo Writing and Communication Centre – Writing a research proposal (TBD)
<b>FALL READING WEEK (October 11<sup>th</sup> - 15<sup>th</sup>, 2021)</b>	
Oct 20 <sup>th</sup>	Topic: Collecting and analyzing your data *Information Session by the Faculty of Environment Ecology Lab (TBD) * Workshop #2 by the University of Waterloo Library – How to undertake an academic literature review (TBD)* Q&A Session by the Office of Research Ethics (TBD)
Oct 27 <sup>th</sup>	Topic: How to Deliver an Effective Oral Research Proposal Presentation
Nov 3 <sup>rd</sup>	<i>Due Nov. 3<sup>rd</sup> 2021</i> : One-Page Research Proposal Oral Presentation of Research Proposal (Session 1)
Nov 10 <sup>th</sup>	Oral Presentation of Research Proposal (Session 2)
Nov 17 <sup>th</sup>	Oral Presentation of Research Proposal (Session 3)
Nov 24 <sup>th</sup>	No Class – <i>Due November 24<sup>th</sup> 2021</i> : Draft Five-Page Research Proposal
Dec 1 <sup>st</sup>	No Class – <i>Due December 1<sup>st</sup> 2021</i> : Peer Review of Five-Page Research Proposal
Dec 7 <sup>th</sup> (Note: This is the Last Day of Classes)	No Class – <i>Due December 7<sup>th</sup> 2021</i> : Final Five-Page Research Proposal
<b>HOLIDAY BREAK</b>	

Jan 5 <sup>th</sup>	Topic: Grad School and Career Options *Panel Discussion from Alumni in Graduate School and in Environmental Careers
Jan 12 <sup>th</sup>	Topic: Addressing Problems that Arise While Conducting Research
Jan 19 <sup>th</sup>	Topic: Developing and Writing Your Thesis Document
Jan 26 <sup>th</sup>	No Class
Feb 2 <sup>nd</sup>	Topic: Creating a Research Poster and Delivering a Thesis Presentation
Feb 9 <sup>th</sup>	Open Class Session
<b>READING WEEK (February 19<sup>th</sup> - 22<sup>nd</sup>, 2022)</b>	
Feb 23 <sup>rd</sup>	Oral Thesis Presentations (Session 1)
Mar 2 <sup>nd</sup>	Oral Thesis Presentations (Session 2)
Mar 9 <sup>th</sup>	Oral Thesis Presentations (Session 3)
Mar 16 <sup>th</sup>	No Class
~ Mar 23 <sup>rd</sup>	Poster Session (Exact Date and Time TBD)
Mar 30 <sup>th</sup>	Final Class – Thesis Writing Support Session and Course Wrap-up

## EVALUATION

Grade at Fall term's end is "IP" (i.e. in progress) for ERS 403A. The final grade after the thesis is finished will be applied to both your two term courses (ERS 403A and ERS 403B). Your final grade will be a combination of evaluation from this course and a separate evaluation as agreed upon by your supervisor. Please note, there might be some unique circumstances where your evaluation and course requirements for 403A and 403B could be modified, after consultation and agreement between the instructor, supervisor and student.

<i>Course Component (Graded by)</i>	<i>Percentage</i>	<i>Due Date</i>
One-Page Research Proposal (Supervisor)	<b>5%</b>	November 3 <sup>rd</sup>
Research Proposal Presentation (Instructor)	<b>5%</b>	Starting Nov. 3 <sup>rd</sup>
Peer-Review of Research Proposal (Instructor)	<b>5%</b>	December 1 <sup>st</sup>
Five-Page Research Proposal (Supervisor)	<b>10%</b>	Draft: November 24 <sup>th</sup> Final: December 7 <sup>th</sup>
Oral Thesis Presentation (Both Instructor and Supervisor)	<b>10%</b>	February 23 <sup>rd</sup>
Poster Presentation (Instructor)	<b>Pass/Fail</b>	TBD
Participation (Instructor)	<b>10%</b>	NA
Final Thesis Document (Supervisor)	<b>55%</b>	April 5 <sup>th</sup>

Numeric grades on a scale from 0-100 are used in grading all assignments at the University of Waterloo. The following list will give you an idea of the basis upon which numeric grades are assigned:

- >90%** Work that shows a high level of initiative and is clearly above and beyond what is expected. Referencing, style, grammar/spelling, content and the development of ideas are all superior. (similar to A and A+ in the previous system)
- 80-89%** Work that shows good initiative and is above what is expected. Referencing, style, grammar/spelling, content and the development of ideas are all good. (Similar to B+ and A- in the previous system)
- 70-79%** Work that shows initiative and is about what is expected, but one or more problems are evident in referencing, style, grammar/spelling, content and/or the development of ideas. (Similar to B- and B in the previous system)
- 60-69%** Work that does not demonstrate initiative, has a series of problems in referencing, style, grammar/spelling, content and/or the ideas, and overall, does not fully convince the reader that the topic has been well considered (Similar to C-, C and C+ in the previous system)

- 50-59%** Work that is substandard/sloppy in places, has many problems in referencing, style, grammar/spelling, content and/or the development of ideas, and overall, raises more questions in a reader's mind than the work answers. (Similar to D-, D and D+ in the previous system)
- 40-49%** Work that is of consistently poor quality, demonstrates gaps in comprehension of the assigned material, and/or indicates that not enough time was taken to properly address the assignment. (Similar to F and F+ in the previous system)
- <40** Work that is clearly of poor quality, demonstrates a lack of comprehension of the assigned material, shows little attempts at a personal development of ideas or efforts to back up arguments with suitable evidence, and/or indicates that the work was completed 'at the last minute'

## **REQUIREMENTS, MARKING, HANDING IN ASSIGNMENTS AND SPECIAL CONSIDERATIONS:**

### **Required Benchmarks**

#### ***University-required ethics tutorial and quiz***

It can take some time a) to complete the tutorial and b) to gain access after registering. The Office of Research suggests that students ensure that they use their uwaterloo email address when signing up. Those students who have completed the tutorial can log in and print off a copy of their completion certificate for their ethics application.

***One-page research proposal (5% of final grade):*** You are required to email/hardcopy (to your supervisor) a one-page single spaced proposal that includes:

- Research question and objectives;
- Specific examples of scholarly and comparative literature and journals;
- Methodology and initial ideas about the scope and implications of your project.

#### ***5-page Proposal and Presentation (Presentation = 5%, Peer Review = 5%, Written Document = 10%)***

This five-page, single-spaced proposal and 7-10 minute presentation forms the basis of the deeper agreement between the student and the advisor. Generally, expect to include the following:

- Research area: a description of the general problem area;
- Rationale: discussion of the importance of the proposed work (i.e., why is it important? And to whom?)
- Research question: an outline of the specific questions/issues to be addressed; a preliminary list of expected sources of information; a summary of the results of your initial literature search. Some advisors may wish to have you do a more extensive literature review at this juncture so be sure that you are clear about your advisor's expectations.
- Methodology and work plan: the steps to be taken to complete the project, described in terms of the specific tasks involved, for example, collect data from this source, complete literature search on this question, carry out analysis of this debate. What type(s) of data will you collect and, most critically, how will you assess this data to generate findings. Please include dates, showing how this work is to be divided into stages, what product is to be expected at the end of each stage, and deadlines.
- Description of the output: paper(s), presentations, other media if applicable.
- Draft table of contents, where appropriate

***Poster Session to 2021/22 cohort and SERS Faculty (pass/fail):*** All students will participate in the poster session scheduled for the second last Wednesday in winter term. If you have a scheduled class in conflict with the poster session, it will be your duty to make arrangements and be present during this time. Students must be present for the entire two-hour time slot.

***Final Thesis Project: Your final 403A/B thesis project is due on the final day of lectures in winter term (Tuesday, April 5, 2022).*** A copy must be sent to the advisor for evaluation (advisors can require e-copies and/or paper copies). The advisor grades the thesis basing the mark on the entire eight months of work and expectations agreed upon by advisor and student. The thesis must include a written component (and for most theses this will be the only product). For those doing projects that involve media in addition to a form of scholarly written work, the criteria can be adjusted at the discretion of the advisor. These discussions must be concluded by the first Monday of October in fall term.

### ***Participation***

Students are expected to actively participate in all class work, and attend each class having completed all identified tasks. All students will be expected to actively and meaningfully participate in both individual, peer-to-peer and group activities. Those students that approach their class time prepared to learn, discuss and participate in a thoughtful, meaningful and inclusive way will receive full marks for participation.

### ***Communication***

Students' UW email accounts will be used for all communication. Students are responsible to check their UW email and LEARN accounts regularly. All course announcements will be posted to LEARN. An effort will be made by the instructor to deal with email requests, within two business days of receipt (48 hours). The instructor does not respond to emails outside of regular working hours (M-F ~8:30 AM- 5:00 PM) or during holidays. All emails and communications with your instructor must be respectful and professional. Any unprofessional and disrespectful emails will be reported.

### ***IMPORTANT: Technical Support***

\*Please note it is your responsibility to ensure that your computer is up to date and compatible. If you are unable to access Waterloo LEARN or submit an assignment to a dropbox you must contact Technical Support at [learnhelp@uwaterloo.ca](mailto:learnhelp@uwaterloo.ca). **Include your full name, WatIAM user ID, student number, and the course name and number.** Technical support is available during regular business hours, Monday to Friday, 8:30 to 4:30 PM (Eastern Time). Further, trouble shooting for LEARN can be found here: <https://uwaterloo.ca/learn-help/students>. Often, if you log out of LEARN and exit your web browser and then log back in, you can access LEARN again.

*\*\*Ultimately, if LEARN access issues are not due to any University of Waterloo changes/updates, it is your responsibility to fix the problem, so please do not leave submissions until the last minute.*

## **COURSE AND UNIVERSITY POLICIES**

### ***Missed Assignments and Presentations:***

This course is designed in a scaffolded manner – meaning that each assignment builds into the next. It is vital that you submit all your assignments on time. If you miss an assignment you must provide reasonable documentation (a university verification of illness form) explaining the reason for your absence, degree of incapacitation, dates covered by the note to be considered for an alternative arrangement. According to university policy, your VIF must be provided within 48hrs of the missed assignment due date or presentation date. Please make a copy of this note and give the copy to your Instructor by hand or scanned and sent by email (email to [cbarbeau@uwaterloo.ca](mailto:cbarbeau@uwaterloo.ca)). Since the timing of the presentations are tight, if you miss your presentation slot, presentations cannot be re-scheduled.

### ***Requests for Extensions:***

All assignments and presentations are due on the date given by the Instructor. If given prior permission to have an extension due to various circumstances late assignment will be penalized 5% off the final grade of the course assignment per day (including weekends). After five days late, a grade of zero on that assignment will be given. Again, presentations cannot be rescheduled.

\*Note, that all dropboxes close at 11:55 PM EST and to be fair to all students, anything submitted after that time (according to the LEARN clock) will be considered late, even if it is only a minute (please be aware of time zones for everyone off campus).

If you are registered with Accessibility Services and require an accommodation (see below) you must contact them first, prior to the deadline and the Professor will work with your coordinator to accommodate your request. Simply missing a deadline or test, and stating that you are registered with accessibility services is not adequate.

### ***Note for Students with Disabilities:***

AccessAbility Services located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students without compromising the academic integrity of the curriculum. If you require academic accommodations, please register with accessibility services at the beginning of each academic term. If you are unable to meet course deadlines and are registered for accommodations with AccessAbility Services you must first contact your coordinator to arrange for an accommodation.

### ***Religious Observances:***

Student needs to inform the instructor at the beginning of term if special accommodation needs to be made for religious observances that are not otherwise accounted for in the scheduling of classes and assignments.

### ***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. See ([www.uwaterloo.ca/academicintegrity](http://www.uwaterloo.ca/academicintegrity)).

Students who are unsure what constitutes an academic offence are requested to visit the on-line tutorial at: <http://www.lib.uwaterloo.ca/ait/>.

### ***Discipline:***

A student is expected to know what constitutes academic integrity, to avoid committing academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, 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, <http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>. For typical penalties, check Guidelines for Assessment of Penalties, <http://www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm>

### ***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, <http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>. When in doubt please contact your Undergraduate Advisor for details.

### ***Appeals:***

A decision made under Policy 70 - Student Petitions and Grievances (other than regarding 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 defer to Policy 72 (Student Appeals) <http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>

### ***Consequences of Academic Offences:***

Students are strongly encouraged to review the material provided by the university’s Academic Integrity office. See (<http://www.adm.uwaterloo.ca/infoacad/Students/index.html>) .

### ***University Policies: Plagiarism***

Please familiarize yourself with the University of Waterloo’s policy dealing with plagiarism. Be especially careful when using materials from the internet, and be aware that software available to instructors can be used to check student submissions for plagiarism (e.g. [www.Turnitin.com](http://www.turnitin.com)). Plagiarism offences are normally treated quite seriously by the University and can result in significant penalties being assessed (e.g. failing grade on an assignment, repeating a course, suspension or expulsion).

***Definition of Plagiarism:*** “The act of presenting the ideas, words or other intellectual property of another as one’s own.”-  
Source: University of Waterloo, Policy 71.

### ***To Avoid Plagiarism***

The use of other people’s work *must* be properly acknowledged and referenced in all written material such as take-home examinations, essays, research papers, laboratory reports, work-term reports, design projects, statistical data, computer programs and research results. The properly acknowledged use of sources is an accepted and important part of scholarship. Use of such material without complete and unambiguous acknowledgement, however, is an offence under Policy 71.

***Quoting, paraphrasing, and summarizing*** (source: <http://owl.english.purdue.edu/owl/resource/563/1/>)

These three ways of incorporating other writers’ work into your own writing differ according to the closeness of your writing to the source writing.

- **Quotations** must be identical to the original, using a narrow segment of the source. They must match the source document word for word and must be attributed to the original author with page number.

- **Paraphrasing** involves putting a passage from source material into your own words. A paraphrase must also be attributed to the original source. Paraphrased material is usually shorter than the original passage, taking a somewhat broader segment of the source and condensing it slightly.
- **Summarizing** involves putting the main idea(s) into your own words, including only the main point(s). Once again, it is necessary to attribute summarized ideas to the original source. Summaries are significantly shorter than the original and take a broad overview of the source material.

***Turnitin:***

Plagiarism detection software (Turnitin) will be used to screen assignments in this course. Turnitin is primarily a plagiarism detection tool, but can also be used to help students understand academic integrity in written assignments. Turnitin generates ‘originality reports’ on student submissions, which can provide instructors with information about plagiarized sources, but the reports can also be used to help students understand the proper use of quotation marks, how to cite sources properly, and how to paraphrase.

Students will be given an option if they do not want to have their assignment screened by Turnitin. In the first week of the term, details will be provided about arrangements and alternatives for the use of Turnitin in this course. NOTE: any student not wishing to submit materials for Turnitin detection must contact the instructor within the first week of the term (Turnitin alternate declaration due September 14<sup>th</sup> @ 11:55 pm), to arrange for an alternate format for assignment – including an annotated bibliography for each assignment.