

Individual professors advise each student directly for Fall 2020/Winter 2021.
Students are pre-approved in the Winter term prior to the Fall term start.

THE BASIC SURVIVAL GUIDE AND EXPECTATIONS OF 403A/B

Preamble: You made it to the 4th year thesis - Congratulations! The goal is for you to tackle a topic related to environment, resources and sustainability and turn it into a tractable research project that advances knowledge or leads to some form of novel action in trying to resolve an issue.

Choose your own adventure: By this stage, it is time to spread your wings and be creative. The course has no formal lectures but there are some required components as follows:

- 1) This course is taught via individual meets with your advisor.
- 2) You must meet with your advisor on a regular basis.
- 3) Your advisor *may* also have his or her own LEARN website that you should check regularly.
- 4) You and your advisor will decide on protocol for the thesis process, however, we suggest several benchmarks throughout the year, including:
 - a. Set up a meeting in early September to meet with your advisor to discuss your plan.
 - b. Submit an initial one-page proposal to your advisor in mid-October.
 - c. Submit a more robust proposal that can also serve as your ethics proposal in November.
 - d. **IF POSSIBLE IN MARCH 2021***: Prepare a poster to present and showcase your results to be displayed in the SERS hallways on Wednesday, March 24.
 - e. Submit your final thesis project to your advisor on the last day of classes: April 6, 2021.

<p>*IN THE EVENT OF ON-CAMPUS LEARNING for Winter 2021, the Poster Session date is: Wednesday, March 24, 10:30-12:30 time slot. You are required to be present for the entire duration of your Poster Session.</p>

Elements of 403A/B: This is a research project in the general sense but is really a senior undergraduate thesis project – as the researcher, you conceptualize a project, conduct a thorough examination of peer-reviewed (and other relevant) literature, determine a research question, design a methodology to answer the question, analyze results, draw conclusions, and produce a final Senior Honours Thesis.

Context and rationale: Mastery of the basic skills of problem definition, proposal preparation and project implementation are key to dealing with a wide range of 'real-life' situations, both on and off the career path. In the 403A/B, each student has an opportunity to develop these skills further by

designing and implementing a project of special personal interest.

What are the minimum standards for 403A/B?

- Originality - do not undertake work that already has been conducted.
- The project should be one that gives ample opportunity to acquire and/or demonstrate a reasonable mastery of relevant skills and subject matter, yet also be manageable within the time that can be devoted to it. Keep in mind that it is to be seen as equivalent to an academic course of two terms' duration, rather than a 'term paper' for a one-term course. If 403A and 403B are one of five courses you carry each term, 9 hours per week is not an unrealistic expectation of time to devote to all phases of your project. The scope of the project, results produced, and the final report will be judged accordingly.

Do not treat this course as the production of a simple, large term paper. You can write a thesis that uses only secondary literature and does not include field work. It must, however, be intensively researched. It would also reach the top of Bloom's Taxonomy which includes analysis, synthesis and evaluation (<https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching-tips/planning-courses-and-assignments/course-design/blooms-taxonomy>).

- The 403 project is to be treated as professional research and action experience. All work must contain some form of scholarship and must reflect critical thinking.
- You may advocate a position but the thesis must meet acceptable standards for academic integrity and quality.
- A 403 project may be primarily a research effort involving original data collection and analysis. Assignments which are developed as written research projects should be presented as research papers in a form suitable for publication in a scholarly journal. Follow the style of a journal related to your field to ensure conventional format and style for such papers— one you might wish to submit a paper for consideration.
- A 403 project may also combine active community or university involvement with an analytical, or other, written appraisal of the experience. It also may involve approaches that are less conventional. Examples in the past included organizing community advocacy groups (with the provisos above), a concert to promote environmental awareness, a musical workshop by ERS student Hingman Leung that included Juno® winning artist Sarah Harmer, an environmentally themed theatrical play by Crystal Bradford that was staged professionally, and an extensive treatment by Jonny Olsen for a children-focused environmental entertainment program that ultimately became a reality. If you want to do something off the beaten track, be creative and serious to the extent that it is a substantial piece of work.

Advisors: SERS professors will guide your graduating projects. Make sure you approach a potential advisor early in Winter term prior to the following Fall term project. Pre-approval during the Winter term prior is required in order to undertake the Fall/Winter thesis courses. ERS 402 is the alternative to the ERS 403 thesis project. You need to successfully complete one of these two, namely 402 plus ERS 3XX/4XX (1.0 unit) or by prior approval only, ERS 403A/B (1.0 unit).

THE FORMAL 403 PROCESS

- Meet regularly with your advisor (once every two weeks at a minimum) to discuss your 403 progress and, where required, submit a written draft of the elements of the proposal. Again, this will vary from advisor to advisor.
- **You are required to submit to your advisor a one-page single spaced summary** of the proposal in mid-October that includes the following information: research objectives and questions; specific examples of scholarly and comparative literature and journals; methodology or approach; clear outcomes regarding the scope and the short and long term applications of the project.
- Your proposal is to be submitted to your advisor for assessment and comments. You cannot proceed to the next stage until you have the go-ahead from your advisor, and ethics approval (if required).
- You will prepare a detailed project proposal in regular consultation with your advisor. The process for proposal writing will vary from advisor to advisor. This project proposal forms the basis of the deeper agreement between the student and the advisor. Generally, expect to include the following:
 - description of the proposed work, that is, a description of the general problem area; an outline of the specific questions/issues to be addressed; a preliminary list of expected sources of information (references, people, places); a summary of the results of your initial literature search. Be sure all of the above are included. 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.
 - discussion of the importance of the proposed work in terms of your chosen model, that is, its relevance to the proposed client, or to the general advocacy issue, or to the disciplinary or interdisciplinary research community, or to some other model you are using.
 - breakdown of 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.
 - methodology
 - description of the output: paper(s), presentations, other media if applicable.
 - proposed evaluation process: by advisor only or with involvement of external advisors or resource people, if any

- a work schedule, with 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
- a draft table of contents, where appropriate
- In your 403B term, you will continue to meet regularly with your advisor as you move forward with implementation of your proposal. You will submit to your advisor a preliminary draft of the final report or other product at least one month before the end of your 403B term (by March 1, 2021. Ordinarily, a 40-page maximum will be suggested, but your advisor will discuss this with you, as well as any different arrangements that need to be made because of the nature of your project.

GRADING STANDARDS AND GRADING PROCESS IN ERS 403

- 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).

Poster Session: All students will participate in the Poster Session, scheduled on Wednesday, March 24, 2021. All students must prepare a poster showcase their research results . The date for the Poster Session is: Wednesday, March 24, 2021 and runs from 10:30am – 12:30 in the SERS hallways. You must be present for this two-hour block on this date.

Your final 403A/B thesis project is due on the final day of lectures in winter term (Tuesday, April 6, 2021). 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.