

Math 4301/5301 – Honours/Graduate Seminar (Individual Project)

Coordinators:

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Working under the guidance of an approved faculty advisor, students will independently study an area of mathematics. Students will write a paper (approximately 20-25 pages) and will give a presentation (20 minutes long) describing the research conducted.

Class time: Unlike most of your classes, most of your work will be done outside of the regular class time. All presentations will take place during this time slot. You will also arrange to meet with your faculty advisor on a regular basis.

Faculty advisor: Each student will work with a faculty member of the Department of Mathematical Sciences. Students are asked to contact faculty members individually to determine if the faculty member would be willing to act as a supervisor. Your grade in the course will be decided by your faculty advisor and the course coordinators. In the case that this is the same person, another faculty member will be assigned as a "second reader".

Topic: As part of the Honours Seminar, you will pick an area of mathematics that interests you. We are not expecting you to produce original mathematics. Instead, we would like you to learn how to pick a new topic in mathematics and identify some of the key problems and results in a particular area. Your topic for independent study will be based upon a variety of sources (e.g., textbooks, journal articles). The only restriction on your choice of topic is that you pick an area of mathematics not directly covered in any course that you took at Lakehead University.

We have examples of projects from previous years. If you would like to see a copy, please contact the course coordinator or your advisor.

Marking Scheme: Students' grades will be based upon the following rubric. A description of each item is found below.

| Task | Points |
|-----------------------|------------|
| Topic proposal | 5 |
| Draft outline | 5 |
| Submit draft | 5 |
| Submit second draft | 5 |
| Practice presentation | 5 |
| Final report | 45 |
| Final presentation | 30 |
| Totals | 100 |

Here are some further details on the above list.

1. Topic proposal. Each student will write a one-page paper that contains the following information: 1) name, 2) faculty advisor, 3) title of project, 4) article(s)/book(s) to be used in the project, and 5) a one-to-two paragraph summary of what you want to learn and why. The topic of your proposal should be an area of mathematics not directly covered in any course you took at Lakehead University and needs to be approved by your advisor. The proposal will be submitted to both the coordinators and the advisor.

2. Draft outline. You will provide your advisor and the coordinators with an outline of your project. It should include a bibliography.

3. Submit first draft. You will provide your advisor and the coordinators with the first draft of your project. This should include about 60% of the material for the final version. This will be due at the end of the first semester. The coordinators and advisor will provide timely feedback.

4. Submit second draft. You will provide your advisor and the coordinators with a second version of your project. This version will incorporate the feedback from the advisor and the coordinators. This version will be a close approximation of the final version.

5. Practice presentation. You will give a practice version of your talk for the coordinators, and your advisor.

6. Final project. Using all feedback accumulated, the student will provide the coordinators and the advisor with a copy of their final project.

7. Final presentation. The students will give a 20-minute presentation on their project.

Tentative Schedule: We will use the following schedule, which is subject to change. Changes to this schedule will be announced in class or via email. Items in **BOLD** are requirements of the project:

Sept. 5, 2023, First semester begins

Oct. 3, 2023, **Proposal of topic due**

Oct. 31, 2023, **Draft outlines due**

Dec. 4, 2023, **First draft due**

Feb. 15, 2024, **Second draft due**

March 11-15, 2024, **Practice presentation**

April 1-5, 2024, **Final presentations** (schedule to be determined)

April 9, 2024, **Final project due** (Second semester ends)