

IMM450Y - Research Project in Immunology

IMM450Y is a full credit course in which the student takes part in an original research project in the laboratory of a faculty member associated with the Immunology Specialist program. The program is designed to provide an opportunity for the student: (1) to discover if they have an interest in and a capability for a career in research; (2) to discover in detail, through active participation, the research projects being undertaken in a specific laboratory. Moreover, it allows for faculty appraisal of the potential of the student for graduate research education.

The student is expected to devote a minimum of seven hours per week (normally one full day or two half days) to the course from the week the fall term lectures begin to the last week of the spring term in which lectures are given. This time is to be spent in the laboratory carrying out experiments. The student is not only expected to carry out experiments under the guidance of an experienced lab member, but also to understand the scientific background and rationale for the study, as well as the implications of the results. Data evaluation, literature reading, report and oral presentation preparation are to be done outside of the laboratory time. The time available should be sufficient for the student to complete a project and to become familiar with some experimental approaches used in Immunology research.

Grade Breakdown

Lab work/participation (for 1st term)	-20%
Lab work/participation (for both terms)	-50%
Final Report	-20%
Final Presentation/Participation	-10%

Lab work/participation (20 + 50 marks)

The professor in charge of supervising the student will provide you with 20 marks by **January 9th, 2026** that marks your work and participation in the laboratory. The remaining 50 marks will be provided at the end of the course which will grade your overall work throughout the academic year.

Written report (20 marks)

The main objective of this report is to give students an opportunity to learn how to write a manuscript. The students are encouraged to seek help from their supervisors to write (and re-write) the report before submission to the course coordinator. The focus is on the learning process, not necessarily on the amount of data that you have generated. Thus, it is recommended that the students start drafting the reports a month ahead of the deadline. Additional results acquired after finishing the report may be presented in the oral presentations. Students are required to submit their reports to a plagiarism detection tool. See below

Due: Thursday April 2, 2026 at 3:00 p.m. Reports should be uploaded to Quercus by the deadline. Reports received after this deadline will be penalized - 2 marks (10%) will be deducted per day.

Format: Typed, 12-point font, double-spaced; should not exceed 8 pages (excluding title page, references, tables and figures). Reports that do not conform to this format will be penalized (2 marks will be deducted). 'Mini manuscript': Check papers in the Journal of Immunology as examples.

Title: Use a title that captures the essence of the project. A separate title page is optional- it doesn't count toward page count, provided it only has title, name, student # and PI name.

Abstract: Not more than 200 words. A summary of your objective and key accomplishments.

Introduction: Background of your project and the objective(s). Any hypothesis?

Methods: Use sub-headings to describe the different techniques used in your project.

Results: Use sub-headings to describe your findings. If possible, organize your data in Tables, and show your results in good quality figures. Assemble all the figures at the end of the report. All Figures must be accompanied by clear and concise legends.

Discussion: Organize the points that you would like to make (subtitles are not normally used in discussion section of scientific manuscripts, but are allowed here if it helps you organize your thoughts).

1. The interpretation of your results;
2. How your results might have advanced the current knowledge in your area of interest;
3. Can you build a model based on the results that you've got (optional)?
4. Discuss the limitations of the approach and future directions

Acknowledgements: Who helped you with the work

References: use an accepted bibliographic style with authors and titles, such as the Journal of Immunology style.

Final Presentation (10 Marks)

All presentations will be held on Tuesday April 7 between 10 and 12 and 1-4 with a break for lunch. Students must present their work in this time slot. A link to upload your presentations will be provided closer to the date. Failure to show up will result in 0 marks for oral presentations/participation. Only in significantly extenuating circumstances will alternate arrangements be allowed in consultation with the course coordinator. Students **MUST** attend **all the presentations**.

Presentation (8 marks): evaluation will be based on organization and clarity of the talk; and the ability to handle questions. 8-minute presentation; 2 minutes for questions.

Participation during the question period (2 marks): Up to 2 marks will be awarded for the level of participation (i.e. asking questions) during the student presentations. No marks will be given to students who did not ask any questions.

Statement on Academic Integrity

All students, faculty and staff are expected to follow the University's guidelines and policies on academic integrity. For students, this means following the standards of academic honesty when writing assignments, collaborating with fellow students, and writing tests and exams. Ensure that the work you submit for grading represents your own honest efforts. Plagiarism—representing someone else's work as your own or submitting work that you have previously submitted for marks in another class or program—is a serious offence that can result in sanctions.

Speak to your course instructor for advice on anything that you find unclear. To learn more about how to cite and use source material appropriately and for other writing support, see the U of T writing support website at <http://www.writing.utoronto.ca>. Consult the Code of Behaviour on Academic Matters for a complete outline of the University's policy and expectations. For more information, please see <https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity>.

Students will be required to submit their course assignments to the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their assignments to be included as source documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of this tool are described on the Centre for Teaching Support & Innovation web site <https://teaching.utoronto.ca/resources/plagiarism-detection/>.

Can I use Generative AI Tools in IMM450Y?

The work you submit for this course must be your own and may not include any content from generative artificial intelligence (AI) tools, either verbatim or with edits. You may, however, use generative AI to support your work on assignments in this course in the following ways:

- To answer general questions about high-level concepts in Immunology
- To summarize information and generate assignment outlines

Please note that any uses of generative AI beyond the ones listed above are not permitted, and will be considered use of an unauthorized aid, which is an academic offense. Submissions will be assessed at the discretion of the course coordinator, and students will be asked to show evidence of their work if a case of Academic Integrity and the inappropriate use of Generative AI tools is suspected.

Intellectual Property Statement – Important Notice

The research being conducted by you, the undergraduate student, is part of an overall research program of the principal investigator and undergraduate projects are frequently connected with data produced by other lab members and collaborators. Hence, results and methodologies of your research project is the property of the principal investigator. If you wish to present your work in any manner to the general public or to your peers (e.g. at meetings, posting it on the internet), you must first get permission from the principal investigator to do so.

If there are any questions, please email Dr. Tania Watts (tania.watts@utoronto.ca).