Immunology
UNIVERSITY OF TORONTO

Course & Instructor Information

Course Coordinator
Dr. Arthur Mortha, PhD arthur.mortha@utoronto.ca
Office Hours: *Please email for appointment*

Course Overview (180P)

An opportunity for specialized research in Immunology under the supervision of a member of the Faculty. Dedicated to Immunology Specialist students in their third year. RASI (Research Application Support Initiative) students are welcome to apply. Not eligible for CR/NCR option. Graduate students are not eligible for this course.

IMM385Y 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: to

(1) discover if she/he has an interest in and a capability for a career in research

(2) discover the depth of research projects being undertaken in a specific laboratory through active participation

Moreover, it allows for faculty appraisal of the potential of the student for graduate research education and continued research opportunities in fourth year undergraduate research opportunities.

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. 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 a number of techniques used in cellular or molecular biology.

Course Prerequisites: IMM250H1
Course Corequisites: IMM340H1/IMM341H1

Previous lab experience will likely be of advantage but is not a mandatory requirement for the application. Applications by Immunology Specialist students and Immunology Major students will be given greater consideration in the application process.

Application

Students interested in applying to IMM385Y1 must contact Professors within the Department of Immunology or Professors associated with the Immunology program, to inquire about open positions and available projects. This can be done prior or after submitting the ballot.

An e-mail to Dr. Mortha, cc'ing the supervisor and stating her/his role as supervisor is mandatory for enrollment.

Helpful tips students should consider when contacting potential supervisors:

1. Draft a respectful and thought-out e-mail tailored to address the potential supervisor.
2. State which aspect of the laboratory's research focus you are most interested in and why.
3. Give a summary of your research interest and possible wet-lab experience.
4. Attach a complete Curriculum Vitae (CV) to your e-mail.
5. Attach an unofficial transcript of your academic history to the e-mail.
6. PI's are very busy and get a ton of e-mails – don't hesitate to resend your e-mail when you do not get a reply within a week.

This course must be balloted (see ballot below) and approved by Dr. Mortha.

A copy of your University transcript and a paragraph (200 words maximum) outlining your reasons for taking the course are also required. Details are found on the ballot form.

Applications are due by 5pm on Friday August 31st, 2023.

Ballot for IMM385Y: Research Project in Immunology (2022-23)

Surname: _____
Given Name: _____
Student Number: _____
UofT Email:_____

Other courses to be taken in 2023-24:

Required:
1. A short statement of interest (~200 words) describing why you want to take this course and what you expect to learn from it.
2. Complete UofT academic history from SWS (printout or screenshot)

Ballots are submitted as one PDF document to arthur.mortha@utoronto.ca
NB: This course requires a minimum of 7 hours per week of supervised work in the laboratory. The final grade will be based on the 1-page summary (4%), the supervisor's assessment (66% mid-term and final evaluation), a 10 minute presentation (10%) and a written report of your work (20%).

Further information can be obtained from Prof. Mortha.

Evaluation Scheme & Course Assessments

Assessment	% of Grade	Due Date
1-Page Research Summary	4%	November 1, 2023 (5:00 pm ET)
Final Research Report	20%	March 31, 2024 (5:00 pm ET)
Research Talk	10%	Tentative April 9, 2024 (10:00 am ET)
Supervisor Evaluations	33% 33%	December 20, 2023. April 8, 2024.

Due to the research-intensive nature of this course, all assessments (as outlined above) must be completed in order to pass the course.

1. 1-Page Research Summary (4%) & Final Research Report (20%)

Your 1-page summary will describe your project plans including clear descriptions of your project plans & background information, proposed aims, experimental design/methodology (and justification for its use).

Quercus submission deadline: **November 1st , 2023 at 5:00 pm ET**

Your **final report** to the course coordinator containing the purpose, rationale, results, discussion and conclusions of the project (maximum of 10 pages including figures and references).

Quercus submission deadline: **March 31st , 2024 at 5:00 pm ET**

Refer to the "Missed Assessment Policy" section below for information on how to request accommodation for a missed assignment and what accommodations may be possible.

Evaluation of the 1-page summary and final report will include but not be limited to:

- the adherence to the given **formatting** guidelines for the required documents *(see below)*
- the quality of the provided **background information** on the project
- the quality of the **rationale** including the **interpretation of preliminary results** and the **implication** of these findings on inspiring the IMM385Y project
- a clearly formulated **research hypothesis**
- a clear description of the **proposed aims**, the **experimental design** (experimental set up and all experimental groups)
- a detailed description of the used **methodology** and a justification for why it's the most suitable approach
- a crisp and clear description of the **observed data**, including an interpretation of the result-a **discussion** of the obtained results in light the current literature including the use of primary research articles as references (avoid the use of review articles!)
- the use of appropriate **references** throughout the report
- the concise use of abbreviations and scientific terminology (incl. the introduction of abbreviations, the correct use of gene and protein terminology, correct terminology of transgenic animal strains etc.)

- the quality of the displayed results (incl. but limited to the completeness of the presented data, the inclusion of appropriate controls, the description of the experiment in the figure legend, the use of appropriate statistical methods, the resolution of displayed images)

These assignments should be formatted as described below:

IMM385Y-Summary page (Student#:_ _ _ _ _ _ _ _)

Project title: Arial 14pt bold

Supervisor: Arial 12pt bold

Summary – 1page, Arial 12pt, 1.5 spaced, 1 inch margins

Briefly state the scientific background of your project, the rational, the hypothesis and the experimental system(s)/method(s) you will be using.

IMM385Y-final report (Student#:_ _ _ _ _ _ _ _)

Project title: Arial 12pt bold

Supervisor: Arial 11pt bold

Final report – 10pages, Arial 11pt, 1.5 spaced, 1 inch margins

Break the report down into the following sections:

1. *Introduction and Background*
2. *Rational and Hypothesis*
3. *Methods and Experimental Approach*
4. *Results (including Figures and Figure legends, which count towards the 10 pages, legends should be Arial 10pt, 1 spaced, 1 inch margins)*
5. *Discussion*
6. *References (also count towards the 10 pages and should be formatted as Arial 10pt, 1 spaced, 1 inch margins)*

Dr. Mortha will hold a 2hr meeting with the trainees in the form of a Q&A session to address questions regarding the report.

2. Research Talk (10%)

An **oral presentation** of about 8 minutes followed by a 2 minutes period for questions, will be given by the student to the other students in the course and their supervisors (supervisor attendance not mandatory) on April 9th, 2024 (exact time and location will be communicated via Quercus). Invitations to upload the final presentation slides as pptx file will be communicated through Quercus too.

Evaluation of the research talk will include but not be limited to:

- adherence to given **formatting** guidelines
- adherence to **time**
- **layout** of slides and the presentation of the data
- use of **references** on slides
- **presentation style** incl. gesture, vocal tone and the use of supportive material
- **response to questions** during the discussion

Refer to the "Missed Assessment Policy" section below for information on how to request accommodation for a missed research talk and what accommodations may be possible.

3. Supervisor Evaluations (66%)

The supervisor evaluation in IMM385Y will be based on (but not be limited to) the following criteria:

- preparedness of the student and understanding of the appropriate methodology
- adherence to timelines and deadlines
- communication with the supervisor and the mentoring lab staff
- excitement and curiosity of the trainee
- engagement and drive for reproducibility and independence
- capability of independent performance, analysis and interpretation of experiments and data
- ability to troubleshoot
- participation in lab routine (incl. lab meetings and journal clubs)
- ability to engage into scientific discussions
- integration into the supervisors team

Missed Assessment Policy

- This course follows the University of Toronto's Policies on missed tests and assignments, and requires students to complete an Absence Declaration on ACORN for illness-related circumstances.
- Other reasons for missing course assessments will require <u>prior</u> approval by the course coordinator. If approval is not granted <u>in advance</u> for non-medical reasons, then 0% will be recorded for the missed assessment.
- Note: If you submit an assessment, it will be assumed that you deemed yourself fit enough to do so and your grade will stand as calculated. No accommodations will be made based on claims of medical, physical or emotional distress **after** the fact.
- ***1-page Research Summary*** – Following the deadline, there will be a daily 10% reduction of the raw grade.

- ***Final Research Report*** - Following the deadline, there will be a daily 20% reduction of the raw grade.
- ***Research Talk*** – There are <u>no make-ups</u> for missed Research Talks, given the nature of the assessment (live presentation).

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 http://www.artsci.utoronto.ca/osai and http://academicintegrity.utoronto.ca.

Note: Upon submission on Quercus, student term papers will be automatically submitted to Turnitin.com for 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 Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com website.

Accessibility Needs

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible: disability.services@utoronto.ca or http://studentlife.utoronto.ca/accessibility.

Leaving the Course

The last day to drop IMM385Y1 from the academic record and GPA is Feb 18, 2024!!