

DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

SCHOOL OF MEDICINE AND DENTISTRY

UNIVERSITY OF ROCHESTER

MS GRADUATE STUDENT HANDBOOK

August 2023

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This handbook is to be used to supplement but **not** replace the Trainee Handbook and Official Graduate Studies Bulletin, which can be found at the links below and should be reviewed by all students. Please pay special attention to the tab accessing ‘Policies and Benefits’.

<https://www.urmc.rochester.edu/education/graduate/trainee-handbook.aspx>
<https://www.rochester.edu/graduate-education/academic-resources/>

DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

GRADUATE STUDENT HANDBOOK

Master of Science Program in Microbiology

	Page
I. The Master of Science Program_____	
A. General Information_____	4
B. Programs of Study and Registration_____	5
C. Grading Policies and Academic Standing_____	7
D. Laboratory Research Masters (Plan A)_____	8
E. Library Research Masters (Plan B)_____	9
F. Choice of Research Advisor_____	10
G. Thesis and Defense Committee Composition and Meetings_____	11
H. Thesis Defense_____	12
I. MS Thesis Format_____	13
J. Academic Honesty Policy_____	14

I. Master of Science Program

A. General Information

A successful applicant for the MS Program in Microbiology receives an official letter of acceptance from the Office of Graduate Studies of the School of Medicine and Dentistry. The letter indicates the degree program to which the student has been admitted, the amount and type of financial support or scholarship offered, and the expected matriculation date.

During the summer, incoming students will be contacted by the MS Program Director and Program Administrator with information for a general, welcome session conducted by video conferencing. At the welcome meeting, students will have a chance to hear a programmatic overview and ask questions, meet their fellow students, and meet the faculty and staff involved in the M.S. Program. Most communications will occur by email. Once you are issued a URMC email address, it is important to check regularly for messages about the program.

Incoming students will be contacted by the Senior Associate Dean for Graduate Studies in the School of Medicine and Dentistry, with the date, time and place for an official fall orientation meeting, conducted in person. Orientation is generally held in late August, one or two days before classes begin. At the orientation, University procedures are reviewed and detailed information is presented on student services, including the University Health Service, Miner Library, Graduate Student Society, *etc.*

Incoming students will also meet with the Program Director for a program overview, followed by course registration with the assistance of the Program Director. All students should contact the Program Director and the Program Administrator to review the proposed course of study prior to registration. Meetings can occur by video conferencing or in person.

If possible, students are encouraged to stop by the department shortly after they arrive in Rochester, prior to orientation. At that time, we aim to coordinate the visit with a “Peer Partner”, typically a second year MS student in our program. Together with the Program Director, Program Administrator, and Department Staff, we will welcome you to Rochester, answer any immediate questions, and arrange a visit to the University ID office so that your student identification card can be issued.

B. Course Programs for M.S. Students

Students must earn 30 credits to be eligible for the M.S. Degree. Full time students must register for at least 12 credits in each of the first two semesters and at least 6 credits in the third semester. Students then typically register for Dissertation Status (MBI 899, 0 credits) in the final, fourth semester, which requires filing the appropriate form signed by their advisor (see details below).

Depending on interests, coursework may be structured to follow one of three course tracks.

M.S. Program in Microbiology:

Track specific curriculum structures and registration requirements

Fall – First Year (first semester)

Microbiology	Immunology	Virology
Foundations I 5.0 (IND 431)	Foundations I 5.0 (IND 431)	Foundations I 5.0 (IND 431)
Ethics 1.0 (IND 501)	Ethics 1.0 (IND 501)	Ethics 1.0 (IND 501)
Pathogenesis 4.0 (MBI 414)	Immunology 4.0 (MBI 473)	
Path. Sem. 1.0 (MBI 514)	Immunology Sem. 1.0 (MBI 573)	
Student Seminar 1.0 (MBI 501)	Student Seminar 1.0 (MBI 501)	Student Seminar 1.0 (MBI 501)
		MS Research 5.0 (MBI 495)
TOTAL: 12.0	TOTAL: 12.0	TOTAL: 12.0

Spring – First Year (second semester)

Microbiology	Immunology	Virology
Foundations I 5.0 (IND 431)	Foundations II 5.0 (IND 431)	Foundations II 5.0 (IND 431)
		Virology 4.0 (MBI 456)
Adv. Top. Micro. 1.0 (MBI 570)	Adv. Topics Imm. 2.0 (MBI540)	Viol. Res. Sem 1.0 (MBI 588)
Student Seminar 1.0 (MBI 501)	Student Seminar 1.0 (MBI 501)	Student Seminar 1.0 (MBI 501)
MS Research 5.0 (MBI 495)	MS Research 4.0 (MBI 495)	MS Research 1.0 (MBI 495)
TOTAL: 12.0	TOTAL: 12.0	TOTAL: 12.0

Summer – First Year

Register for Summer in Residence (MBI 890) – 0 credits

Fall – Second Year (third semester)

Microbiology	Immunology	Virology
Student Seminar 1.0 (MBI 501)	Student Seminar 1.0 (MBI 501)	Student Seminar 1.0 (MBI 501)
Adv. Top. Micro. 1.0 (MBI 570)	Imm. Res. Prog. 1.0 (MBI 580)	Adv. Topics Virol. 1.0 (MBI 589)
MS Research 4.0 (MBI 495)	MS Research 4.0 (MBI 495)	MS Research 4.0 (MBI 495)
<i>MS Dissertation* (MBI 899)</i>	<i>MS Dissertation* (MBI 899)</i>	<i>MS Dissertation* (MBI 899)</i>
TOTAL: 6.0	TOTAL: 6.0	TOTAL: 6.0

30.0 Requirement for MS Degree met

Spring – Second Year (fourth semester)

Microbiology	Immunology	Virology
<i>MS Dissertation* (MBI 899)</i>	<i>MS Dissertation* (MBI 899)</i>	<i>MS Dissertation* (MBI 899)</i>

* *MS Dissertation Status (MBI 899):*

To maintain full time status in the program, students must complete and sign the MBI 899 form, together with their advisor, in Fall and Spring semesters of the second year.

MBI 899 Form Information

Registration for MBI 899 indicates that the student is working at full-time effort with the advisor on the dissertation proposal, the dissertation research, or the completion of the written dissertation. Each semester, the following steps must be taken:

- 1) At the beginning of the semester, the advisor and student should agree on goals to be accomplished during the semester, proportionate to full-time enrollment. Goals should be briefly outlined on MBI 899 Form Page 1. Students should then send a completed, signed (by both advisor and student) MBI 899 Form Page 1 to the MS Program Administrator, MS Program Director, and to the registrar (registrar@rochester.edu). A copy should be kept by the student and advisor for reference.
- 2) Advisor and student should be in contact on a regular basis (at least once per month). An advisor may submit an academic warning if there is no contact or no progress at mid-semester.
- 3) At the end of the semester, the student is responsible for documenting progress toward the goals on Page 2 of the MBI 899 Form and submitting both parts of the form to the advisor for review, discussion, and signature. It is understood that research directions may change, obstacles may emerge, and not all goals may be met as planned. Such issues should be briefly summarized in the progress report. Please submit the fully completed form to the MS Program Director, Program Administrator and Registrar at the end of the semester.

Note that at the end of the semester, the advisor must submit a grade of Satisfactory (S) or Unsatisfactory (U). To earn a grade of Satisfactory, the student must have made measurable and appropriate progress toward goals. A grade of E should be entered for the semester if progress is unacceptable.

C. Grading Policies and Academic Standing

MS Research (MBI 495), Student Seminar (MBI 501), and MBI 899 (Dissertation status) are graded using S/U options. Other classes use the letter grading system approved by the University. Please note that a grade of C or lower results in a formal notice of academic probation. At that time, we ask students to meet with the Program Director to discuss options for remediation and to identify issues requiring additional support or intervention. The advisor is also folded into the discussion.

Two grades of C or lower result in a formal meeting with Graduate Education, the Program Director, and the advisor. At that time, student performance, goals, and expectations are reviewed. Methods to remediate gaps and work through challenges will be discussed and implemented as agreed upon by all parties.

It is important to note that failing grades where no credit is earned translate to lack of credit/requirements for program completion. In the event of a failing grade, the student must meet with the Program Director and advisor (and Graduate Education if required) to discuss options for continuing in the program, typically under an extended timeline.

Incomplete status options for a course will be discussed on a case-by-case basis when students are unable to complete course requirements within a semester.

D. Laboratory Research Masters (Plan A)

- Under **Plan A**, the student registers for a total of 24 credit hours the first year. MS Research credit (MBI495) will vary each semester, depending on the required courses dictated by the track of study.
- The second year consists of 6 credit hours of coursework in the Fall semester, after which the required 30 credit hours will be met. The Spring semester is then devoted fully to research and writing. The student will register for “Dissertation Status”, filing the required form obtained from the Program Administrator.
- A minimum of 6 credits must be earned for MS Research (MBI 495), however, no more than 12 credits may be earned for MS Research.
- The student must choose a faculty advisor (see F. Choice of Research Advisor, below) and associated laboratory by October 15th of the first year.
- The student and advisor must meet with the advisory committee (see F. Choice of Research Advisor, below) before the end of the second semester to discuss the proposed research plan, and at least one additional time prior to the defense.

The dissertation must show independent work based in part upon original material. It must present evidence that the candidate possesses the ability to plan study over a prolonged period and to present the results of the study in a logical, clear, and orderly manner. The dissertation should include evidence that the student is thoroughly acquainted with the literature in the related field. “The Preparation of Doctoral Thesis: A Manual for Graduate Studies” is also used to prepare master’s dissertations. Copies of the booklet are available from the Departmental office or from the Office of the Associate Dean for Graduate Studies.

Additional information is provided in Section H.

The decision to write and defend the thesis is collectively made by the advisor, student, and committee. It is the student's responsibility to choose a date and time for the defense that is mutually agreeable to all members of the committee. It is also the student's responsibility to schedule a room for the final exam. The student must notify the Program Administrator **at least one month** in advance of the thesis defense date in order to file the appropriate forms for degree completion. The Program Director will appoint a committee chair for the thesis defense from within the existing committee.

E. Library Research Masters (Plan B)

- Under **Plan B**, the student registers for a total of 24 credit hours the first year. The student registers for a maximum of 4 credit hours of MBI 493 (Master's Essay).
- The second year consists of 6 credit hours of coursework in the Fall semester, after which the required 30 credit hours will be met. The Spring semester is then devoted fully to writing. The student will register for "Dissertation Status", filing the required form obtained from the Program Administrator.
- Typically, research credit (MBI 495) is not part of a Plan B master's program. However, with the approval of the Associate Dean for graduate studies, up to 6 hours of research credit may be granted.
- Total credit for research (MBI 495) and essay (MBI 493) may not exceed 6 hours.
- The student must choose a faculty advisor (see F. Choice of Research Advisor, below) and associated laboratory by October 15th of the first year.
- The student and advisor must meet with the advisory committee (see F. Choice of Research Advisor, below) before the end of the second semester to discuss the proposed course of study and thesis research and at least one additional time prior to the defense.
- Students originally matriculated under Plan A may change to Plan B but must do so BEFORE the start of the Fall semester in their second year.

The Library Research Essay should be oriented to a specific problem or question. It is written in thesis format (see Section H.), but with data and information obtained mainly from the literature. Limited amounts of laboratory research may be performed, and only with advisor and Program Director approval.

The essay should include the following elements that distinguish it from a Laboratory Research Thesis:

- a section in which specific details from primary literature are used as the predominate source of information to propose approaches for solving the problem(s) posed or answering the experimental question(s)
- a discussion section describing additional information that may be needed for a more complete solution or answer
- the overall value of the essay in providing new answers, insights or procedures

As for Plan A, the decision to write and defend the thesis is collectively made by the advisor, student, and committee. It is the student's responsibility to choose a date and time for the defense that is mutually agreeable to all members of the committee, and to schedule a room for the final exam. The student must notify the Program Administrator **at least one month** in advance of the thesis defense date in order to file the appropriate forms for degree completion. The Program Director will appoint a committee chair for the thesis defense from within the existing committee.

F. Choice of Research Advisor

In conjunction with the decision to pursue one of the three available curriculum tracks, each student should choose a faculty advisor to serve as their thesis mentor. The choice of a thesis mentor should occur by October 15th of the first year. Advisors must be chosen from among the full-time, tenure track faculty with primary or secondary appointments within the Department of Microbiology and Immunology.

A faculty member may decide not to accept a student on grounds that are not a reflection on the student. Examples are: limitation of laboratory space or facilities, limitation of funds to support research, pressing time commitments which preclude the faculty member devoting sufficient time to the student's training and education, plans for a sabbatical leave, *etc.*

Each student, before making a choice, should become acquainted with a range of individuals and research activities in the Department. Students are encouraged to contact faculty members directly, as early as possible after acceptance into the program. Students may also choose to speak with the Graduate Program Director.

Students may subsequently change advisors without prejudice after consulting with the Director of the MS Program.

Please inform both the Program Administrator and Program Director as soon as you have chosen a thesis lab.

G. Thesis and Committee Composition and Meetings

With consultation and agreement of the advisor, the student will select an advisory committee. All members must be full time, tenure track faculty. Requests for exceptions will be reviewed on a case-by-case basis, and must be approved by the Graduate Education Office. The full committee consists of a total of four members, including the thesis advisor. The three additional members must meet the following requirements:

- one faculty member from within the Department
- one faculty member from outside the Department (who may have a secondary/joint appointment in the Department)
- the third additional faculty member does not have any restricted affiliations

The student and advisor must meet with the advisory committee before the end of the second semester to discuss the proposed research plan and course of study. The meeting can be a simple “meet and greet” to encourage interactions and introduce the student to scientific discussions.

The student and advisor must meet with the advisory committee at least one additional time (for a total of two meetings) before the student defends the thesis. The second committee meeting is typically scheduled for no later than the beginning of the fourth semester (Spring semester - second year).

The advisory committee is also the examining committee for the thesis defense. The chair of the defense is chosen from among existing committee members by the Program Director.

Committee Meeting Forms

In consultation with the advisor, the student must file a Committee Meeting Form following each committee meeting. Information requested is provided on the form, and includes a brief summary of the student’s project, progress, and experimental results. Students are encouraged to submit the summary to their committee prior to the meeting.

- Following each meeting, the advisor must summarize the results of the meeting and any recommendations. The completed, signed form must be submitted to the Program Director and Program Administrator.

Permission to Write Form and Application for Graduation Form

In conjunction with their advisor, students should determine when they anticipate beginning to formally write the thesis. The decision must be agreed upon by the committee, typically in the beginning of the Spring semester of the second year. A “Permission to Write” form must be signed by the advisor and all committee members, and submitted to the Program Director and Program Administrator. The decision can occur concurrently with a committee meeting.

A form declaring intent to complete the program and graduate must also be filed online and in accordance with the deadline established by the university for that semester:

<https://airtable.com/appTO8NLXJG7DTIAR/pagqoWVZuZaSweCxO/form>

H. Thesis Defense (Plans A and B)

Four weeks before the MS oral exam, please give the MS Program Administrator the following information:

- Date
- Time
- Place
- Committee Member Names
- Copy of Abstract and Title Page
- Program of Study*
- Completed Diploma Form (obtained from Program Administrator)

* The MS Program Administrator will prepare your program of study, and submit it to the Program Director for approval and signature.

For both Plan A and Plan B, the following must occur 15 days before the MS oral exam:

- All paperwork for the MS oral exam must be submitted to the Office for Graduate Education and Postdoctoral Affairs
- The written thesis must be submitted to the MS oral exam thesis committee members. Committee members should be polled ahead of time as to their preference for a hard copy or electronic version of the thesis document.

Students are required to give a presentation prior to the oral defense. The presentation may be private or for select, invited individuals, but we encourage students to consider a public seminar open to the department and scientific community.

The oral defense is always a closed door session restricted to committee members.

The chair of the thesis committee bears the responsibility for ensuring that the defense is carried out according to university guidelines and policies, and for ensuring that the results of the final examination are conveyed to the Program Director, Program Administrator, and Graduate Education Office as soon after the defense as possible.

Degrees are awarded according to completion dates set by the University. Although it is expected that all MS students enter the program with the goal of May conferral after two academic years, degrees can also be awarded the following August or December. Students anticipating an August or December completion, rather than May, must meet with the Program Administrator and Program Director in the beginning of the Spring semester of their second year to discuss the timeline.

Students must complete the defense and any requested modifications to their thesis, and submit a final copy of their thesis to the Department Administrator before university established deadlines in order to be eligible for degree conferral.

I. MS Thesis Format:

The format presents the thesis work in the context of the current literature with a standard organization and formatting, as described in the dissertation manual for PhD theses found here:

<https://www.rochester.edu/graduate-education/academic-resources/dissertation-manual/>

- 1. Introduction.** This is a scholarly critical review of the literature that presents the current state of knowledge in the thesis area. Although no specific page requirements are set, it should be considerably more comprehensive in scope than is typical for the introduction to a research paper in a journal. The section should therefore also include a statement of the research problem or question addressed by the work, presented within the framework of the current state of knowledge.
- 2. Materials and Methods.** The description of the methods used in the research should be sufficiently detailed and complete enough to allow another researcher to duplicate the experiments. Any modifications of standard procedures should be described in full. The source of the materials used in the study should be indicated as necessary.
- 3. Results.** The results section contains the presentation of experimental results, documented by figures and/or tables. It should include the rationale or design of the experiments as well as the results, but the student should reserve extensive interpretation of the results for the discussion section. It is recommended that the student include subject titles to delineate the various portions of the results section.
- 4. Discussion.** The discussion should provide an interpretation of the results in relation to previously published work. This should be a scholarly treatment analyzing the experiments performed, reservations in the interpretation of the results, and the significance of the work relative to the research field.
- 5. Perspectives.** The thesis document should include a final assessment of the studies, conclusions, interpretations, and relevance within the field. Speculation about how future studies might be conducted or conflicting results resolved, and a review of findings in relation to the larger field or body of literature are appropriate.
- 6. Literature Cited.** A comprehensive listing of references must be included in a standard format.
- 7. Figure and Tables.** Figures and Tables may be embedded within the document or included together at the end of the document.

Examples of past MS theses can be found in the departmental office.
Please see the Program Administrator to review a copy.

J. Academic Honesty Policy

The following is an excerpt from the University of Rochester Regulations and University Policies Concerning Graduate Studies (August 2023) section on Jurisdiction and Responsibility for Academic and Nonacademic Misconduct , found here:

https://www.rochester.edu/graduate-education/wp-content/uploads/2023/08/4278_Regulations_August_2023_FINAL.pdf

Academic Honesty Policy

“The University of Rochester considers academic honesty to be a central responsibility of all students. Suspected infractions of University policies will be treated with the utmost seriousness. Suspected graduate academic misconduct will be reported to the department chair and associate dean of graduate education or to a designee specified by the school’s policy.

Plagiarism is a pervasive form of academic dishonesty. This is the use, whether deliberate or unintentional, of an idea or phrase from another source without proper acknowledgment of that source. The risk of plagiarism can be avoided in written work by clearly indicating, either in footnotes or in the paper itself, the source of any other major or unique idea which the student could not or did not arrive at on his or her own. Sources must be given regardless of whether the material is quoted directly or paraphrased. Another form of plagiarism is copying or obtaining information from another student. Submission of written work, such as laboratory reports, computer programs, or papers, which has been copied from the work of other students, with or without their knowledge and consent, is also plagiarism. In brief, any act that represents someone else’s work as one’s own is an academically dishonest act.

There are several other forms of academic dishonesty including, for example, obtaining an examination prior to its administration or using unauthorized aids during an examination. It is also academically dishonest to assist someone else in an act of academic dishonesty. Fraud, misrepresentation, forgery, falsifying documents, records, or identification cards, and fabricating or altering research data are other forms of academic misconduct.

A student remains responsible for the academic honesty of work submitted to the University as part of the requirements for the completion of a degree (or any other coursework taken at the University) even after the work is accepted, the degree is granted, or the student is no longer matriculated at the University of Rochester.

Ignorance of these standards is not considered a valid excuse or defense.”

The *Judicial Process for Academic Misconduct* can also be found within the document, and should be reviewed by all students.