

**DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY**

**SCHOOL OF MEDICINE AND DENTISTRY**

**UNIVERSITY OF ROCHESTER**

**M.S. GRADUATE STUDENT HANDBOOK**

**2020-2021**

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This handbook is to be used to supplement but **not** replace the Official Bulletin of Graduate Studies, which should be reviewed by all students.

**DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY**

**GRADUATE STUDENT HANDBOOK**

**Master of Science Program in Microbiology**

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## **I. Master of Science Program**

**A. General Information** - A successful applicant for the M.S. 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 which s/he will receive, and the expected matriculation date.

During the summer, incoming students will be contacted by the program director and departmental administrator with information for a general, welcome session. 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.

Incoming students will also 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. Orientation is generally held one or two days before classes begin. At the orientation, University procedures are reviewed and detailed information is presented on the University Health Service, Miner Library, Graduate Student Society, *etc.* Information is also provided for course registration. The director of the M.S. Program attends the welcome session and orientation meeting, and is available by appointment for individual consultation regarding course selection.

All students should contact the program director and the program administrator to review the proposed course of study prior to registration.

**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.

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

## M.S. Program in Microbiology: Track specific curriculum structures

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)
<b>TOTAL: 12.0</b>	<b>TOTAL: 12.0</b>	<b>TOTAL: 12.0</b>

Spring – First Year (second semester)

Microbiology	Immunology	Virology
Foundations II 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)	Virol. 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)
<b>TOTAL: 12.0</b>	<b>TOTAL: 12.0</b>	<b>TOTAL: 12.0</b>

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>
<b>TOTAL: 6.0</b>	<b>TOTAL: 6.0</b>	<b>TOTAL: 6.0</b>

**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 (MBI 899)*- Advisor will need to sign off attesting full time effort towards MS degree.

### C. Laboratory Research Masters (Plan A)

- Under **Plan A**, the student registers for a total of 24 credit hours the first year. M.S. 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 graduate student coordinator.
- A minimum of 6 credits must be earned for M.S. Research (MBI 495), however, no more than 12 credits may be earned for M.S. Research.
- The student must choose a faculty advisor (see E. Choice of Research Advisor, below) and associated laboratory by October 15<sup>th</sup> 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 given 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. When arrangements have been completed, the information **must be given to the Graduate Student Coordinator**, who will then notify the Dean of Graduate Studies in writing, who will in turn appoint a committee chair from within the existing committee, and send the required paperwork.

#### **D. 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 graduate student coordinator.
- 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 E. Choice of Research Advisor, below) and associated laboratory by October 15<sup>th</sup> 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.

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 only with advisor approval.

The essay should include:

- an introduction with a general review of pertinent literature
- a statement of the problem or question to be addressed
- a section in which specific information from the literature is used to attempt to solve the problem or answer the question
- a discussion section indicating additional information that may be needed for a more complete solution or answer and the overall value of the essay in providing new answers, insights or procedures
- a final, brief summary
- a bibliography of pertinent literature

The decision to 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. When done, the information **must be given to the Graduate Student Coordinator**, who will then notify the Dean of Graduate Studies in writing, who will in turn appoint a committee chair from outside the department, and send the required paperwork.

**E. 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 by October 15<sup>th</sup> of the first year.

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 M.S. Program.

**YOU MUST INFORM THE DEPARTMENT OFFICE AS SOON AS YOU HAVE CHOSEN AN ADVISOR.**

#### **F. Thesis and Defense Committee Composition**

- With consultation and agreement of the advisor, the student will select an advisory committee. 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, and 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 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 Senior Associate Dean for Graduate Studies.
- **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.**

### **G. Thesis Defense (Plans A and B)**

**Four weeks before the M.S. oral exam**, please give the Graduate Student Coordinator the following information:

- Date
- Time
- Place
- Committee
- Copy of Abstract and Title Page
- Program of Study\*

The Graduate Student Coordinator will prepare your program of study. It is the student's responsibility to have his/her advisor approve and sign the program of study, and return to the coordinator.

#### **For Plan A only: 15 days before the M.S. oral exam:**

- all paperwork for the M.S. oral exam must be submitted to the Office for Graduate Education and Postdoctoral Affairs and,
- the written thesis must be submitted to the M.S. oral exam thesis committee members.

## H. M.S. Thesis Format:

The format presents the thesis work in the context of the current literature with the following organization:

- 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.
- 2 Materials and Methods.** This section should include a description of the methods used in the research that is complete enough as it is presented for 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.** This 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.

**I 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 for graduate studies. This section is adapted from the University of Rochester graduate studies Bulletin 2010-2012 (<http://www.rochester.edu/GradBulletin/PDFbulletin/Regulations10-12.pdf>).

A common form of academic dishonesty is plagiarism. 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 that you could not or did not arrive at on your own. Sources must be given regardless of whether the material is quoted directly or paraphrased. Another form of plagiarism is the 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.

A second example of academic dishonesty relates to misuse of library materials. Any act that maliciously hinders the use of or access to library materials is academically dishonest and falls under the terms of this policy. The removal of pages from books or journals disadvantages others in the academic community. Similarly, the removal of books from the libraries without formally checking out the items, the intentional hiding of materials, or the refusal to return reserve readings to the library is dishonest and harmful to the community.

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 knowingly falsify data or data analysis results or assist someone else in an act of academic dishonesty.

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 or the degree is granted. This rule applies to students who are no longer matriculated at the University of Rochester, including those who have graduated.

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

**Judicial Process for Academic Misconduct** - Charges of academic misconduct are referred to the student's department by the associate dean. In a school or college without departments, the school or college will handle these matters. Each department, interdisciplinary program, or college will have a written policy on file with the associate dean to deal with these matters and a designated group called the Department Hearing Panel to hear the charge. The department may utilize one of several mechanisms for hearing charges of academic misconduct. These may include a panel that consists of (1) the usual faculty group that deals with graduate student business, (2) the entire faculty of the department, or (3) a committee appointed by the department chair specifically for the purpose of hearing the academic misconduct charge. A department's written policy may also call for graduate student representation on the panel.

The Department Hearing Panel, in consultation with the associate dean and in accordance with the standards set forth in the section Fundamental Fairness above (to the extent appropriate to the circumstances—with the associate dean functioning as the “judicial officer” and the Department Hearing Panel as the “hearing team”) conducts a hearing, makes findings, and presents a recommendation to the appropriate dean or director. The dean or director then reviews the findings and recommendation, and submits them along with his or her recommendation to the University dean of graduate studies, which issues the final decision and sanction. An appeal may be made to the provost within seven days of the decision and will follow, to the extent feasible, the procedures set forth in the section Appeals above.

If either the department chair or the associate dean believes that the alleged misconduct in any way involves sponsored research (including federal training grants), threatens the integrity of the scientific method, or compromises the creation of new knowledge (including original art, scholarship, and research), the matter will be referred to and will follow the procedures outlined in the Policy on Misconduct in Scholarship and Research in the Faculty Handbook.