

**DEPARTMENT OF
MICROBIOLOGY AND IMMUNOLOGY**

**SCHOOL OF
MEDICINE AND DENTISTRY**

UNIVERSITY OF ROCHESTER

**Ph.D. GRADUATE
STUDENT HANDBOOK**

2011-2012

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

Table of Contents

	Page
Course Requirements for Ph.D. Students	3-4
Lab Rotations	5
MD/PhD Combined Degree	6
Choice of Research Advisor	6
Advisory Committee	7
Teaching Requirement	7
Qualifying Examination	7-12
Student Evaluations	13
Fellowships and Research Support	13
Final Year	13
• Seminar	13
• Thesis Formats	13-16
• Registration of Thesis	17-18
Miscellaneous	18
• Melville A Hare Award	
• Housing	
• Graduate Student Society (GSS)	
Procedure for Hearing Charges of Academic Misconduct by a Graduate Student	19

This handbook is intended to summarize the major features and policies of the program leading to the Ph.D. in Microbiology and Immunology. Students and advisors are advised to consult both this Handbook and the “Regulations and University Policies Concerning Graduate Studies” (<http://www.rochester.edu/GradBulletin/PDFbulletin/Regulations10-12.pdf>)

Course Requirements for Ph.D. Students - Depending on a student's interests, he/she may follow one of three course tracks: Microbiology, Immunology or Virology. Below are the course requirements for each track.

CORE REQUIREMENTS COMMON TO ALL THREE TRACKS

IND 501 Ethics in Research
IND 408 Advanced Biochemistry
MBI 501 Microbiology & Immunology Student Seminar
MBI 507 Laboratory Rotations

MICROBIOLOGY TRACK

Track requirements

Three 400-level courses plus co-seminars chosen from the following offerings

*MBI 414 Mechanisms of Microbial Pathogenesis + Co-Seminar (MBI514)
*MBI 421 Microbial Genetics + Co-Seminar (MBI 521)
*MBI 431 Microbial Physiology + Co-Seminar (MBI 531)
MBI 473 Immunology + Co-Seminar (MBI 573; optional for Microbiology track)
MBI 570 Molecular Biology Seminar – Taken each year
* Given every other year

Electives

At least **two**, chosen after consultation with the research advisor and Ph. D. committee, to best serve the needs of the student's program, background, and interests. Electives taken by students have included:

IND 409 Cell Biology
IND 410 Molecular Biology & Genetics
*MBI 456 General Virology
*MBI 581 Oral Microbiology
* Given every other year

IMMUNOLOGY TRACK

Track requirements

MBI 473	Immunology + Co-Seminar (MBI 573)
IND 409	Cell Biology
IND 410	Molecular Biology & Genetics
MBI 540	Advanced Topics in Immunology - taken in 2nd semester of 2nd year plus an additional two seminars during the rest of the Ph.D. program
MBI 580	Journal Club and Immunology Research-in-Progress Seminar (taken for a total of 4 years)

Electives

At least two, chosen after consultation with the research advisor and Ph.D. committee, to best serve the needs of the student's program, background, and interests. Electives taken by students have included:

MBI 515	Advanced Immunology
IND 447	Signal Transduction: Cellular & Molecular Mechanisms
*MBI 414	Mechanisms of Microbial Pathogenesis + Co-Seminar (MBI 514)
*MBI 456	General Virology
BST 463	Introduction to Biostatistics
* Given every other year	

VIROLOGY TRACK

Track requirements

IND 409	Cell Biology
IND 410	Molecular Biology & Genetics
*MBI 456	General Virology
MBI 588	Virology Research Seminar Series - taken each year starting in 2nd year
MBI 589	Advanced Topics in Virology - taken for 2 years starting in second year
*Given every other year	

Electives

At least two, chosen after consultation with the research advisor and Ph.D. committee, to best serve the needs of the student's program, background, and interests. Electives taken by students have included:

IND 447	Signal Transduction: Cellular & Molecular Mechanisms
MBI 473	Immunology + Co-Seminar (MBI 573; optional for Virology track)
*MBI 421	Microbial Genetics + Co-Seminar (MBI 521)
*MBI 414	Mechanisms of Microbial Pathogenesis + Co-Seminar (MBI 514)
*Given every other year	

Laboratory Rotations - The first rotation is during the fall semester, while the second and third rotations are during the spring semester. In some cases a student may wish to do a rotation in the summer preceding the fall semester (July 1-August 31). Planning such a summer rotation should be coordinated with the IMV Program Director. A student also may do a fourth rotation during the summer following the spring semester of the first year. The IMV Program Director may waive one rotation for students with substantive prior research experience.

The rotation schedule is as follows:

Summer Rotation: July 1- August 31
Fall Rotation: October 1 – December 15
Spring Rotations: January 1 – March 15
March 16 – May 31

The schedule of work involved during the individual rotations must be flexible to accommodate the very different kinds of research procedures that may be involved. These projects are nominally of eight to ten weeks duration. However, flexibility can be arranged for a variety of purposes, including holidays, conflicting obligations, and variations in experimental schedules. With this amount of flexibility built in, it should be possible to complete each project entirely within the allotted period, so that the student can move on to the next rotation, and give it the attention it deserves. No faculty member should expect a student to continue the project beyond the allotted time, and each student should expect to devote the appropriate amount of time and effort to each of his or her rotations during the block of time scheduled for it. Written evaluations of the rotation from both the student and the faculty mentor must be completed at the end of each rotation and given to the Graduate Student Coordinator. The forms can be found at the following website:

<http://www.urmc.rochester.edu/education/graduate/home/forms.cfm>

Nothing said here precludes a student from participating in additional experiments in any laboratory, on an informal, entirely voluntary basis, but a scheduled rotation is a formal part of each student's graduate training, and the student is responsible to the faculty member and to the Department for each assigned project.

At the conclusion of each rotation, you will be expected to write a lab rotation report and submit it to the Program Director.

M.D./Ph.D. Combined degree program:

Departmental requirements for the M.D./Ph.D. degrees reflect the fact that most students enter the Ph.D. program after completion of two years of the Medical Curriculum. Students must earn 24 credit hours of course work and 6 credit hours of Ph.D. Research after consultation with his/her advisor for fulfilling the Qualifying Exam requirements. An additional 66 credits must be earned after the Qualifying Examination to fulfill the Ph.D. requirements. **M.D./Ph.D. students will not be allowed to enter the clinical years until their thesis has been written and registered.**

Choice of Research Advisor

During the first year each student chooses a faculty research advisor. 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 have a chance to become acquainted with a range of individuals and research activities in the Department. To this end, the faculty have adopted the date of March 1 as the earliest date on which any faculty member is free to give any student assurance (overt or implied) that the student will be accepted into the faculty member's laboratory. It is recognized that some exceptions may be necessary (for example, a student comes to the University of Rochester specifically to work with a given faculty member). Any student desiring such an exception should discuss the case with the IMV Program Director.

Each student is encouraged to explore the research interests of several faculty members, not limited to those faculty with whom the student has had laboratory rotations, and to do this over a period of several weeks before seeking acceptance into any laboratory. The purpose of setting a specific date before which no commitments can be made is to ensure that each student has ample time for this kind of exploration without "losing out" to a student who might be more prompt or forceful in seeking an early assurance of acceptance.

Students may subsequently change advisors without prejudice after consulting with the Chairman of the Graduate Committee.

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

Advisory Committee

As soon as is practical after choice of a thesis advisor, the student and advisor should agree on the composition of an Advisory Committee. The student should contact all members to obtain their agreement to serve. It is the advisory committee that sets the program of courses for each student.

The committee consists of the student's faculty advisor, at least two primary tenure track members of the departmental faculty and at least one tenure track member of a department other than Microbiology and Immunology. This committee **must** meet at least once a year to review the progress of the student. An Annual Evaluation must be completed and submitted electronically. The Annual Evaluation form can be found at the following website: <http://www.urmc.rochester.edu/education/graduate/home/forms.cfm>

Before the start of the second year the student MUST hold a Thesis Committee meeting to determine the proposed Program of Study. The completed program of study form must be returned to the Departmental Office. Program of Study forms can be found at: <http://www.urmc.rochester.edu/education/graduate/home/forms.cfm>

Seminars

There is an extensive program of seminars at the University to supplement classroom and laboratory teaching. The Microbiology/Immunology seminar program is most pertinent, and it is expected that all students will attend all general departmental seminars unless there is a conflict with formal classes. In addition, very useful information can be gained from seminars held in other departments.

THE SECOND YEAR

Teaching Requirement - As part of their graduate training, all Ph.D. and M.D./Ph.D. students are expected to have some teaching experience. This usually does not start until the second year, except for advanced students or students with previous teaching experience. In general, students are involved in the teaching of Microbiology 221 or assisting in one of the departmental courses and/or seminars. A second teaching assignment may be required.

Qualifying Examination - The Department of Microbiology and Immunology **requires** that the Qualifying Exam be completed before the end of the Fall Semester of the third year (5th semester). The purpose of the Qualifying Examination is to evaluate whether a student is qualified and competent to continue studies toward a Ph.D. in Microbiology and Immunology. This determination involves evaluation of the potential of a student for independent thought, his or her approach to investigating a significant scientific problem in a sound manner, and his or her general knowledge of microbiology and immunology. The examination is not intended to be a specific evaluation of the proposed research problem or of the supporting experimental data.

For combined degree students, the deadline will usually be the end of the first semester of the second year of full-time Ph.D. studies. Any variance from this schedule must be approved in advance by the Graduate Committee.

The qualifying examination cannot be taken until the student has completed 30 credit hours of courses/seminars/research, which normally occurs after the third semester of full-time graduate studies. The examination should not be taken until after completion of the core requirements for the particular Ph.D. track the student is following. Since some core requirement courses are only taught in alternate years, the qualifying examination will normally be held after the spring semester of the second year. The exam **MUST** be completed before the spring semester of the third year.

Qualifying Examination proposal: The examining procedure involves the preparation of a proposal based on the student's expected Ph.D. thesis problem and an oral examination based on this proposal by an Examining Committee.

The proposal is to be written in 12 point type, on standard double-spaced pages with 1 inch margins on all sides. The proposal is to be a maximum of 20 pages, not including the abstract, reference, and appendix sections. If the proposal exceeds 20 pages, it will be returned to the student for revision and will be reconsidered only when it meets the page requirements.

The proposal must be written in the following format:

- (1) **Abstract:** State the proposal's broad long-term objectives and specific aims, and describe concisely the experimental design and methods for achieving these goals. The abstract should be a succinct description of the proposed research, even when separated from the proposal. This section cannot exceed 1 page, and is **not** included in the 20 page proposal limit.
- (2) **Specific Aims:** State concisely and realistically what the research described in the proposal is intended to accomplish and/or any hypotheses to be tested. This section cannot exceed 1 page.
- (3) **Significance:** Briefly, sketch the background for the proposed research and critically evaluate the literature in the area. State concisely the importance of the research described in the proposal by relating the specific aims to broad, longer term objectives. This section cannot exceed 5 pages.
- (4) **Preliminary Studies:** This section should summarize the work already done by the student, or unpublished work of others, to indicate that the proposed studies are feasible and significant. Students are not expected to have a large amount of data accumulated at the time of the Qualifying Examination. In general, details of experimental and statistical methods should not be included in this section: if necessary, they can be included in an Appendix. Graphs, data, and tables that are critical to this section of the proposal should be included: if necessary, other graphs, data, and tables can be included in an Appendix. This section should not exceed 5 pages.

- (5) **Experimental Design and Methods:** Discuss in detail the experimental design and the procedures to be used to accomplish the specific aims of the proposal. The emphasis should be on the rationale and experimental design of the experiments, including necessary controls, rather than the experimental details--for example, do not include reagent concentrations and volumes unless this information is critical to the experimental design and interpretation. Describe protocols to be used and provide a tentative timetable for the project. Include a discussion of the means by which data will be analyzed and interpreted. Describe new methodology and its advantage over existing methodology. Discuss the potential difficulties and limitations of the proposed experiments, and alternative approaches to achieve the project aims. If applicable, include information about numbers and species of animals to be used, including justifications for these choices. Graphs, data, and tables that are critical to this section of the proposal should be included: if necessary, other graphs, data, and tables can be included in an Appendix. There is no page limit for this section. However, the entire proposal cannot exceed 20 pages.
- (6) **References:** Use the ASM journal format. There is no page limit for this section and this section is **not** included in the 20 page proposal limit.
- (7) **Appendix:** This section should include graphs, diagrams, tables, and other supporting data necessary for reviewing the proposal. There is no page limit for this section and this section is **not** included in the 20 page proposal limit.

The student may consult with others (for example, his or her advisor, other faculty members, postdoctoral fellows, other students, and investigators outside the University) in preparing the written proposal. It is recognized that there will be some (even substantial) input by the student's advisor, since the thesis generally reflects research activities in the advisor's laboratory. **However, the actual written proposal is to be the intellectual output of the student, and plagiarism from publications or grant applications written by the advisor or others is not allowed.** When the student has completed the written proposal, it must be reviewed by the advisor before the oral examination is scheduled. While the advisor may suggest modifications in the written proposal, all revisions are to be done by the student.

Scheduling the Examination

4 weeks before Qualifying Exam: Let your Graduate Coordinator know the date, time, place, committee members (including chair) and give him/her abstract and title page

2 weeks before Qualifying Exam:

1. The advisor needs to approve the document, and the proposal can then be distributed to the committee and exam chair (**Student**)
2. Qualifying Exam *Advisor Approval* form has to be turned in to your Graduate Coordinator (**Student**)
3. Paperwork to Graduate Education Office (at least 10 working days prior) (**Graduate Coordinator**)

1 week before Qualifying Exam: The Qualifying Exam *Committee Approval* Form has to be handed in to Brenda (**Student**)

*In the event both the primary and alternate committee members of the student's thesis committee are on this Qualifying Examination Committee, the chair of the Graduate Committee will designate a faculty member in the Department to serve as an *ad hoc* member of the standing committee for the Qualifying Exam.

Two weeks before the examination, the student must give each member of the examination committee a copy of the written proposal

Examining Committee: The Examining Committee will consist of five members: the four members of the student's Thesis Committee (the advisor, two other members of the Department of Microbiology and Immunology, and one member of another department) and one member from the Department Qualifying Examination Committee. The member of the Qualifying Examination Committee (described below) will be chosen from the program track in which the student is pursuing his or her degree, and this member will chair the Qualifying Examination.

The Standing Committee will be appointed for each academic year by the Department Chair, and will consist of one faculty member (and an alternate) from each of the Department's three major program tracks: Immunology, Virology/Cell Biology, and Bacteriology/Molecular Biology. In the event both the Standing Committee member and alternate are members of the student's Thesis Committee, the Chair of the Graduate Committee will designate a faculty member in the Department to serve as an *ad hoc* member of the Standing Committee for the Qualifying Examination.

Qualifying Examination: The Examination will begin with an initial closed meeting of the Examination Committee to review the student's academic record, research performance, and written proposal. The Committee will also decide on the general areas of questioning for the oral examination. In some cases the Committee may decide the student's background or written proposal are not ready for examination at that time and, if so, will inform the student in detail of the steps necessary to correct these deficiencies.

The purpose of the Qualifying Exam is to evaluate whether a student is qualified and competent to continue studies toward a Ph.D. in Microbiology and Immunology. This determination involves evaluation of the potential of a student for independent thought, her or his approach to investigating a significant scientific problem in a sound manner and his or her general knowledge in microbiology and immunology. **The Department of Microbiology and Immunology requires that the procedures for the Qualifying Examination be started before the Fall semester and be completed before the end of the fall semester.**

There are two major goals of the Qualifying Examination. First, the preparation stage of the examination encourages the student to research and organize the background knowledge that serves as the basis for the research proposal and to devise a series of experiments that will investigate a significant and novel problem in the student's field of interest. The preparation stage culminates in a written Thesis Proposal presented to Thesis Committee. The format and requirements for the Thesis Proposal, as well as the criteria for its acceptance or refusal by the Thesis Committee, are described in the Graduate Student Handbook.

The second goal of the qualifying exam is an assessment of the student's basic knowledge in the chosen field of study. This assessment occurs during a closed meeting with the Qualifying Examination Committee. The focus of the examination is not the Thesis Proposal or the supporting data. Instead, the exam will evaluate the whether the student's basic theoretical and practical knowledge is sufficient for the student to pursue a significant thesis. In this respect, the Thesis Proposal serves as a touchstone that will guide the committee's questions. The goal of these questions is to determine whether the student's coursework and preparation for the examination provide a sufficient foundation to qualify the student for the investigation of a significant scientific problem. Accordingly, the questions will test the student's knowledge of (i) the general theories and paradigms in the chosen field of study, (ii) the classical and current literature related to the student's chosen field of study and (iii) the experimental techniques commonly used in the chosen field of study, as well as alternative approaches and their strengths and weaknesses.

Following the oral examination, the Examination Committee will meet in closed session to evaluate the student's overall performance (including the oral examination, academic record, and laboratory performance). The advisor is to leave the final closed session before a vote is taken and does not have a vote. The committee will then vote on the following options: (1) the student may pass; (2) the student may fail; or (3) the student may pass contingent upon meeting some further requirement set by the Examination Committee (e.g., the student may be required to rewrite the proposal and obtain committee approval of the revised proposal, to repeat the oral examination, and/or to take further course work to remedy some deficiency in her or his background).

The Chair of the Examination Committee will notify the Associate Dean for Graduate Studies in writing that the student has passed, failed, or received a contingent pass of the Qualifying Examination.

If the student has passed, the Associate Dean will advance the student to the status of Candidate for the Ph.D. degree. This status is required by University regulations.

If the student receives a pass contingent on meeting some further requirement, the Chair of the Examination Committee will inform the student of this in writing. A copy of this letter will be placed in the student's departmental file and a copy will be sent to the Associate Dean for Graduate Studies. When the requirement has been satisfied, the student must send written documentation of this to the Department (to be placed in the student's departmental file) and to the Associate Dean for Graduate Studies. If no documentation is received by the Department stating that the student has met the additional requirement(s), the Chair of the Department will not approve the student's Ph.D. thesis for defense.

If the student fails, a second examination may be taken after a period of five calendar months. A third examination may be taken only by recommendation of the Graduate Committee and with the approval of the Associate Dean for Graduate Studies.

The M.S. "on the way" to the Ph.D. - Many students will qualify for the M.S. degree under Plan B on the way to earning the Ph.D. In this case, passing the Ph.D. qualifying Examination will substitute for the Master's Essay. At the time of the Qualifying Examination, the student will prepare a Master's Program, listing 24 hours of course credit and 6 credits of Ph.D. Research. As a general rule, no Research credit should be included. The student will also prepare a Ph.D. program, which will list at the top "Credit for M.S. degree 30 hours" in the appropriate spaces. Additional courses and Ph.D. Research (**MBI 595**) will then be listed, up to a total of 96 hours. **No courses or any other credit that is a part of the Master's Program should be listed again here.**

Programs of Study - Usually, upon passing the qualifying examination, the student is recommended for the M.S. degree. Therefore, at the time of the examination, a filled-in M.S. program plan, which includes 30 hours of graduate credit, should be submitted. Shortly afterwards, a completed Ph.D. program, approved by the student's advisor and initialed by the members of the advisory committee, should be filed. This will list the 30 hours credit for the M.S. degree, plus additional credit, for a total of 96 hours, including Ph.D. research credit. Should the entire program be successfully completed, including a successfully-defended Ph.D. thesis, with fewer than 96 hours, a program form with the research credit actually completed can be substituted.

General Considerations

Student Evaluation - Since the Department accepts students, provides student financial aid, and recommends the granting of the graduate degree, it is the department's responsibility to keep track of its students and to determine that they are making progress in their graduate training. This review is done as follows:

First year students will be reviewed at the end of the first and second semesters by the IMV Cluster Director in conjunction with rotation advisors. During their second year, each student chooses a thesis committee and this committee must meet at least annually to review the student's progress. Therefore, at the end of a student's second, third, etc., years, the review is the meeting form report from the student's thesis committee (signed by all members) stating that it met, reviewed the student's progress, and agreed that the progress was acceptable. Any reservations should also be included in this note.

In order to be in good standing for any academic year (starting in September), a student's progress must have been reviewed for the preceding year. It is the responsibility of the IMV Cluster Director to make sure that first year students are reviewed. After that, it is the responsibility of each student to make sure his or her committee has met and sent the appropriate form to the Departmental Office. Students and faculty should note that fall registration **will not** be processed by the Department unless the preceding year's review has been done.

Fellowships and Research Support - For short-term visits to other laboratories, primarily to learn some particular technique, President's Fellowships are sponsored by the American Society for Microbiology. The fellowship program is described annually in ASM News. Also, there are some local funds for research support, such as the local American Cancer Society awards, and students should consult with their advisors concerning application through their advisor.

FINAL YEAR

A. Seminar - During the final year of study, each Ph.D. candidate **MUST** present the results of his/her research conducted for the thesis at a departmental seminar. This seminar will immediately precede the final examination but may be part of the regular departmental seminar series. In the latter case, the Chairman of the seminar committee should be consulted well ahead of time because there are generally scheduling problems in the spring semester.

B. Thesis Format - When the student's thesis committee and advisor have approved the completion of the thesis research the appropriate form should be signed and delivered to the Departmental office. When the student is ready to write the thesis, he/she should obtain, from the Office of the Dean of Graduate Studies, a copy of the booklet "The preparation of theses. A manual for graduate students." This booklet outlines the University requirements for format, documentation, and the physical form of the thesis. The student must prepare the thesis such that

all of the requirements set forth in this booklet are met. Below, we describe the formats acceptable to the Department for the section called "Text of the thesis" in this booklet.

The student must consult with his/her advisor prior to writing the thesis in order to reach an agreement regarding the format and content of the thesis. The advisor has the ultimate responsibility and authority to determine the format of the student's thesis. It is best to reach this agreement before starting to write the thesis.

1. Format One

This 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.

2. Format Two

Often the research that the student has completed does not organize well into Format One, because several different research avenues were taken. These different research projects may be related to each other or relatively independent of each other. In this case the student and advisor may wish to separate the presentation of the results into separate chapters. The following format is recommended:

- 1. Introduction.** This scholarly review of the literature should be completed essentially the same as in Format One, although it may be somewhat shorter, since each chapter of the Results section (see below) will have its own introduction.
- 2. Methods.** All of the methods used should be presented together in this section, rather than in the results section of the thesis, to avoid duplication. This section should be essentially the same as in Format One.
- 3. Results.** The results should be presented in a chapter format; each chapter would have its own introduction, results, and discussion section. The introduction should be relatively short and directed toward the data presented in the results section. The results should be the same in content as in Format One for the portion of the research presented, and the discussion should focus on the data presented in the results.
- 4. General Discussion.** As there was a discussion section presented with each chapter, it is not necessary to repeat, in detail, information already presented. The purpose of this section is to tie together the material presented in the individual chapters in order to present the thesis as a cohesive body of work. However, the discussion should be sufficiently long to analyze the data in the entire body of the thesis, to present any reservations in the interpretation of the data, and to present the significance of the thesis relative to the Research Field.

3. Format Three

It is expected that students will endeavor to publish their research while it is still in progress, rather than waiting until after the thesis has been completed. This is advantageous to the student, as he/she will obtain an outside appraisal of his/her research. The Department, under certain circumstances, accepts an alternative format to the thesis that allows the student to use manuscripts prepared for publication as part of the text of the thesis. Generally, the alternative organization of the thesis should be as follows:

- 1. Introduction.** This should be a scholarly review of the pertinent literature, essentially the same as in Format One. It should be considerably longer and more complete than that allowed as an introduction to a research paper in a journal.

2. Results. The results should be presented in a chapter format; with each chapter containing one published or submitted manuscript. Thus, each chapter could have its own introduction, methods, results, discussion, and references (not necessarily in this order). As journals are under pressure to shorten papers, these sections should include, rather than omit, tables and/or figures that were deleted from a submitted manuscript. These or other data that were omitted from the manuscript may be included, as required by the advisor, either here or in an appendix. The physical form of the chapter must comply with the University regulations regarding margin size and printing on bond paper, etc. If excerpts of a published manuscript are reproduced as it appears in the journal, the student must obtain copyright waiver from the journal before he/she can include this material in the thesis. In the case of manuscripts that were co-authored by persons other than the student or the advisor, the contribution of the co-author(s) must be specifically identified, preferably in the Acknowledgements section. However, copies of publications can **not** be submitted in lieu of a dissertation.

3. Discussion. As there may be discussion presented within each chapter, it is not necessary to repeat, in detail, information already presented. The major purpose of this section is to tie together the material presented in the individual chapters in order to present the thesis as a cohesive body or work. However, the discussion should be sufficiently long to allow an analysis of the data in the entire body of the thesis, to present any reservations in the interpretation of the data, and to present the significance of the thesis relative to the research field.

4. Bibliography. The references cited for the introduction and discussion should be merged and presented after the discussion.

Appendices can be used with any of the three formats to provide supplemental material, such as extra detail on methods used, data that did not "fit" into the thesis or was part of an incomplete project, data deleted from published manuscripts (Format Three), etc.

Other relevant comments - Although there is no formal requirement, students are urged to prepare a preliminary copy of the thesis for evaluation by the advisory committee. This procedure can save on extensive revisions of the final typed copy. Also, it is good to know before the final examination that the committee finds the thesis generally acceptable. It is possible to obtain partial support for preparation of thesis from research grants, especially if figures and tables from the thesis are used for the preparation of scientific journal articles.

Registration of the Thesis Please consult the Academic Calendar for blackout dates.

Ph.D. Defense

38 WORKING DAYS prior to the students defense date:

Give Department Graduate Coordinator necessary information to prepare paperwork to be submitted to the Senior Associate Dean for Graduate Affairs office. Information needed: date, time and place of public and closed defense, committee members, and abstract and title page.

Program of study signed by Advisor and Chair of Department showing 96 credit hours

- 1) Permission form signed by Advisor to register the thesis
- 2) Appointment form for Ph.D. Final Oral Examination
- 3) Department Statement of Completion of Ph.D. requirements
- 4) Memo to the Senior Associate Dean for Graduate Affairs from Graduate Coordinator
- 5) Copy of thesis title page and abstract

28 FULL working days (Fall and Spring) and 33 FULL working days (Summer) prior to defense date:

Thesis paperwork needs to be submitted to the Graduate Education Office. Once your paperwork has been submitted, you will receive an email from the Registrar (Linda Lipani) to set up an appointment to meet with her prior to registering your thesis with the Office of Council for Graduate Studies (Pat McLane) on River Campus.

18 FULL working days (Fall and Spring) and 23 FULL working days (Summer) prior to defense date:

Thesis needs to be registered in the Office of Council for Graduate Studies (Pat McLane). You will need to take with you: 1 bound copy of your thesis, signed appointment form*, extra copy of abstract and title page*, copy of your advising record*, program of study*

* The Senior Associate Dean for Graduate Affairs office (Medical Center) gives to you to take over the Council on Graduate Studies office on River Campus.

Before the exam, the student's advisor receives confirmation of the scheduling of the exam and the name of the chairman of the examining committee who is appointed as the representative of the Dean of Graduate Studies.

After successful completion of the Ph.D. oral examination and after making any necessary corrections in the thesis, the student must:

1. Submit corrected thesis to Proquest
2. Submit **one** corrected electronic copy of the thesis to the Department Office.

MISCELLANEOUS

A. Melville A. Hare Awards for Excellence in Teaching and Research - The Department makes annual awards to students to recognize superior performance in teaching or research, with one to two awards given in each category. The awards will consist of a certificate and a monetary award, funded by contributions from the family of Dr. Melville A. Hare.

For the teaching award, the course director will nominate a graduate student for the award, providing a letter of recommendation and soliciting supporting letters from students taking the course. This nominating material will be sent to the Chairman of the Hare Award Committee to choose the awardee from among those nominated. There may be one, two, or no awards given in a particular year. The committee will meet before the end of the spring semester, and awards will be presented at the fall Medical School Convocation.

For the research award, the student will be nominated by his/her advisor, with letters of recommendation also solicited from members of the student's Thesis Committee, and other faculty members, as appropriate. Supporting material should be included with the nomination, e.g., a published paper, a manuscript submitted for publication, or a copy of a poster presented at a professional meeting. The student's performance in **MBI 501** may be included. If a student has collaborated with others in his/her research, the contribution of the student to the research project must be clearly defined. The nominations will be submitted to the Chairman of the Hare Award Committee, and the awardee(s) will be determined either by the committee. The award(s) will be presented at the fall Medical School Convocation.

B. Housing - It is the responsibility of each student to secure a place to live in Rochester. The University offers a limited number of housing facilities within walking distance of the Medical Center for both single and married students. Information about these facilities as well as an abbreviated list of apartments and houses in the immediate area can be obtained from the University Housing Office at the Towne House.

C. Graduate Student Society (GSS) - The GSS includes all full-time graduate students in the Medical Center. Each year the GSS selects a Board of Officers responsible for planning the year's activities as well as serving as a liaison between the students and the Administration. The GSS Board keeps the students informed on all policy matters in the Medical Center and periodically plans social functions giving graduate students the opportunity to meet students from other departments in a relaxed atmosphere.

Procedure for Hearing Charges of Academic Misconduct by a Graduate Student **Introduction**

Under the policy adopted by the University Committee on Graduate Studies (Jan. 29, 1986) for handling complaints of graduate student misconduct, each department is required to have a procedure for hearing charges of academic misconduct that may be lodged against any of its graduate students. Such charges will be referred to the department by the Associate Dean of Graduate Studies, and will be accompanied by a written statement of the charges and the determination by the Associate Dean that he has judged this to be an academic matter. (Charges on non-academic misconduct are handled through a separate mechanism.) What follows is the policy adopted by the Department of Microbiology and Immunology on May 22, 1986.

POLICY

The Hearing Panel of the Department of Microbiology Immunology that will hear

charges of academic misconduct against any of its graduate students will be the Graduate Committee of the Department. As presently established, this body consists of eight members of the faculty, appointed by the Chairman of the Department to handle all matters relating to the graduate program.

Upon receipt of a charge of misconduct from the Associate Dean of Graduate Studies, the Chairman of the Committee will promptly convene a meeting of the Committee, and inform them of the nature of the charge. At this point, any member of the Committee who feels that there is a conflict of interest or other circumstance that might affect his or her ability to hear the case without prejudice or favor shall withdraw from all further proceedings relative to the hearing. The Chairman of the Committee will then arrange with the accused student a time and place for a formal hearing on the charge, and inform him or her of the membership of the Hearing Panel. The accused will have the right to excuse not more than two members of the Panel, before the hearing, without explanation or cause. The accused will be provided with a copy of this policy, and with a copy of the policy adopted by the University Council. The hearing will be confidential and closed. The Chairman will preside.

At the hearing, the accused will have the right to be accompanied by a person of his or her choice, who is not an attorney, for purposes of advice and moral support. The Committee may request testimony from other individuals whom they have reason to believe have direct knowledge of the alleged incident. The accused will have the right to be present during such testimony, to ask questions of the witness through the Chairman, and to offer rebuttal. The accused may also request testimony from other persons who may be able to offer relevant information on behalf of the accused. Ordinarily, a single hearing will deal with all of the issues of the charge, but in exceptional circumstances, it may be necessary to hold additional hearings, which shall be scheduled without unnecessary delay.

At the end of the hearing, the Committee will meet in closed session to decide the case, and if deemed appropriate, to assign a penalty. A majority vote will prevail. The Chairman will vote only in the case of a tie. The decision will be communicated to the Associate Dean in writing.