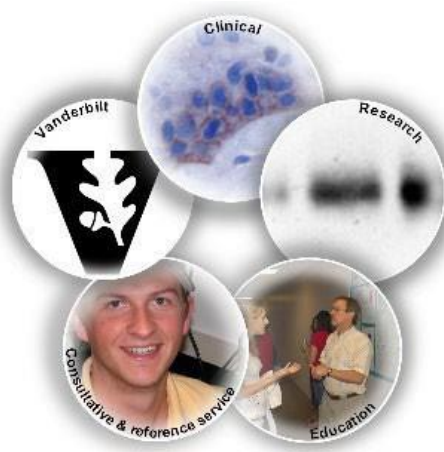


# THE GRADUATE PROGRAM IN MOLECULAR PATHOLOGY AND IMMUNOLOGY



## FACULTY AND STUDENT HANDBOOK: REQUIREMENTS AND RESPONSIBILITIES

DEPARTMENT OF PATHOLOGY, MICROBIOLOGY AND IMMUNOLOGY  
VANDERBILT UNIVERSITY



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## **I. PURPOSE OF THE MPI STUDENT HANDBOOK**

The purpose of the PhD in Molecular Pathology and Immunology Student Handbook is to help guide students as they progress through the PhD program. Because the Ph.D. program is conferred and governed by the academic requirements established by the Vanderbilt University (VU) Graduate School, students should also be familiar with the policies and procedures in the [Vanderbilt University Student Handbook](#) and [Vanderbilt University Graduate School Catalog](#). For questions about information in the handbook, students should contact their advisor, the Program Manager, or the Director of Graduate Studies (DGS).

## **II. OVERVIEW**

The graduate program in Molecular Pathology and Immunology provides training in biochemical, cell, and molecular biological research to elucidate the fundamental mechanisms of human disease processes. The program emphasizes training in experimental laboratory investigation leading to the Ph.D. degree for students interested in pursuing careers in basic biomedical research and teaching. Graduate study in this area offers students the opportunity to integrate principles of immunology, molecular genetics, cell biology, biochemistry, and biophysics into research relevant to improving the quality of life through the discovery of new avenues for treatment of disease.

## **III. PROGRAM**

### **A. First Year**

The first year of graduate study in Biomedical Sciences at Vanderbilt is under the direction of one of the introductory programs, such as the Interdisciplinary Graduate Program (IGP), Quantitative Chemical Biology (QCB) or Medical Scientist Training Program (MSTP). All graduate students in the Biomedical Sciences, regardless of their specific interests will be enrolled in one of these programs for their first years of study. During this tenure, the students take a common curriculum that is designed to provide a solid core of knowledge in all of the disciplines of basic biomedical science. Even though the students entering this program come from diverse academic backgrounds, it is the aim of this program to prepare students to enter any department with the foundation to perform effectively in any advanced course and to complete the requirements for the Ph.D. degree. During this initial training, students identify the laboratory in which they will pursue their thesis research through research project rotations or discussions with the laboratory PI. At the end of the Spring semester, the students declare their choice of a department and laboratory for their thesis research. If the student chooses the laboratory of a PI with a primary or secondary appointment in Pathology, Microbiology, and Immunology, they will decide with their mentor which of the two graduate programs (Molecular Pathology and Immunology or Microbe-Host Interactions) with which they will associate.

#### **\* *Special Note concerning direct admission:***

On rare occasions, a student can gain admission directly into the graduate program in Molecular Pathology and Immunology. To do so, a student must complete an application in SLATE, providing all requested information. The application will be interviewed by the DGS and at least 2 other faculty members (one of whom should be a member of the MPI GEC). The application, including an interview

evaluations will be reviewed by GEC who must provide formal approval before the student can enter the program. After GEC approval, the DGS will petition the Senior Associate Dean for Biomedical Research Education and Training for approval of the student to enter the program. The BRET office will only approve direct admissions for students with a strong rationale for approving a special admit. For example, a strong rationale might include that the potential admit already has an MSc in a relevant area of biomedical sciences and has an established connection to research in the sponsor's laboratory.

Direct admission usually occurs when the prospective student has already identified a research laboratory and a mentor within the Department, and the mentor has agreed to provide financial support (tuition, fees, and stipend) for the student. In most cases, students gaining direct admission will be required to take the IGP coursework during their first year. They will not be limited to 8 hours/semester as with the typical IGP student. When a faculty member sponsors direct admission of a student into a PhD program, the faculty member takes full financial responsibility for the student throughout their graduate career. The appointment requires sign-off by the Chair of the faculty member's home department confirming financial backup. If a direct admission student leaves the mentor's laboratory, it is the responsibility of the sponsoring faculty member to cover the student stipend until a new laboratory is found or the student leaves the program. The BRET Office will not support rotations of direct admit students to find a new laboratory.

## **B. Course Requirements — Ph.D.**

### Required:

#### **Summer (generally in the first year)**

M&IM 8332: Foundations in Microbiology and Immunology I\*\*

#### **Fall (generally in the second year)**

**Each week must attend either Pathology or Immunology Journal Club.**

PATH-GS 8331: Seminar in Experimental Pathology (Pathophysiology Journal Club)

**Or**

PATH-GS 8339: Foundations of Immunology (for 1 credit): (Immunology Journal Club)

#### **MPI Introductory Course**

choose one of the following:

PATH-GS 8351: Pathobiology and Pathology

PATH-GS 8339: Foundations of Immunology (2 or 3 credits depending on Journal Club)

#### **Spring (generally in the second year)**

Each week must attend either the Pathology or Immunology Journal Club, either:

PATH-GS 8332: Current Topics in Experimental Pathology (Pathophysiology JC)

**Or**

PATH-GS 8322: Experimental Methods in Pathology (Immunology JC)

M&IM 8335: Research Proposals: Preparation & Critical Review

M&IM 8334: Special Topics in Molecular Pathogenesis (*you must choose at least 4 of the offered half-credit Modules for a total of 2 credits*)

#### **Every Semester**

Research

PATH-GS 8999: Non-Candidate Research (*research prior to entering candidacy*)

**Or**

PATH-GS 9999: Ph.D. Dissertation Research (*research after entering candidacy*)

*\*\*Foundations I provides introductory material on pathology, immunology, and microbiology and is recommended but not required. If a student, in consultation with their mentor, feels a different course would better meet their needs, they should discuss their plans with the DGS for approval. Elective courses:*

Required coursework is minimal to allow the student flexibility in their education. Elective coursework will generally be required to complete the graduate school requirements. Students are encouraged to choose courses that fit into their career plans from any biomedical graduate program.

Students must make a grade of B- or better in all coursework to receive credit, complete at least 24 hours of didactic work, and receive satisfactory (S) grades in Pathology 8999 and Pathology 9999. Three unsatisfactory grades will result in dismissal from the program.

Other venues: Students in the Molecular Pathology and Immunology Graduate Program are expected to attend weekly "Journal Club" sessions in either Immunology or Molecular Pathology and "Molecular Pathogenesis Trainee (MPT)" presentations. Attendance can be excused if the student has an emergency, is attending an offsite conference or if an important seminar or meeting is occurring on site that conflicts with attendance at "MPT" or "Journal Club." It is expected that absences will be rare during the semester. For anticipated absences, it is the student's responsibility to obtain permission to be absent from the DGS (for MPT) or course director for "Journal Club" as soon as they realize a conflict exists. In the case of emergencies, notification should be as soon as possible but no later than one week following the absence. It is at the discretion of the "MPT" or "Journal Club" directors whether an absence is excused. The DGS and MPI Program Manager should be copied on all requests for absence. Attendance is kept at "MPT" or "Journal Club" and the student's attendance record is provided to the student's Dissertation Advisory Committee Chair prior to each meeting of the committee. The student's attendance is factored into the committee's overall evaluation of the student's progress.

## C. Course Requirements — MSTP (Medical Scientist Training Program) Students

<b>MOLECULAR PATHOLOGY AND IMMUNOLOGY</b>	<b>GS Credit Hours</b>	<b>Semester Total</b>	<b>Cumulative Total</b>
<b>MEDICAL SCHOOL</b>			
<b>Fall (VMS I)</b> <ul style="list-style-type: none"> <li>• HBA, M&amp;IMM, Homeostasis</li> <li>• MSTP Seminar (IGP 8310)</li> </ul>	8 1	9	
<b>Spring (VMS I)</b> <ul style="list-style-type: none"> <li>• EDR, BB&amp;M</li> <li>• MSTP Seminar (IGP 8310)</li> </ul>	4 1	5	
<b>Fall (VMS II)</b> <ul style="list-style-type: none"> <li>• MSTP Seminar (IGP 8310)</li> </ul>	0	0	
<b>Spring (VMS II)</b> <ul style="list-style-type: none"> <li>• MSTP Seminar (IGP 8310)</li> </ul>	0	0	
<b>Didactic Hours</b>			<b>14</b>
<b>GRADUATE SCHOOL</b>			
<b>Fall</b> <ul style="list-style-type: none"> <li>• Journal Club</li> <li>• Pathobiology and Pathology or Immunology <i>If an MSTP student feels they have sufficient background in immunology or pathogenesis, they can (with mentors permission) request and alternate course.</i></li> <li>• MSTP Seminar</li> </ul>	1 2 1	4	
<b>Spring</b> <ul style="list-style-type: none"> <li>• Journal Club</li> <li>• Research Proposals: Preparation &amp; Critical Review</li> <li>• Selected Topics in Molecular Pathogenesis</li> <li>• MSTP Seminar</li> </ul>	1 2 2 1	6	
<b>Didactic Hours</b>			<b>10</b>
<b>Total Didactic Hours</b>			<b>24</b>

#### **D. Selection of Thesis Advisory Committee**

The Thesis Advisory Committee will consist of at least five faculty members including the mentor, but a committee can consist of more than five members. All committee members must be a member of the Graduate School Faculty (this requirement can be waived in certain circumstances). At least three members, including the Thesis Advisor, must be a member of the MPI program\*. At least one member of the committee must not have a primary or secondary appointment in PMI but have a Graduate Faculty Appointment within another program. A majority of the committee members should be tenured faculty members, particularly if the Thesis Advisor is non-tenured.

The Thesis Advisory Committee helps advise the student throughout the course of their graduate training. Members should be selected carefully, based on their specific areas of expertise and their expected contributions in advising the student during the dissertation research. The committee will also administer both Phase I and Phase II of the Qualifying Exam and the final defense of their thesis. To help ensure that the committee make up provides a breadth of guidance and has a range of experience, the student and preceptor should feel free to consult with the DGS regarding prospective committee members.

Once a potential slate of committee members is decided upon, it must be approved by the MPI Graduate Education Committee (GEC). The student should submit to the DGS the list of prospective committee members, a description for each member indicating why, relative to the thesis research, the particular faculty member has been selected, and list any potential conflicts of interest. The form for submitting this information is available from the MPI Program Manager. The DGS will submit the proposed committee members to the MPI Graduate Education Committee (GEC) for advice and consent. After obtaining approval from the GEC, the student may contact the faculty to determine their willingness and availability to serve. Faculty members should not be asked to serve on the committee until the list has been approved by the DGS and GEC.

After faculty members have agreed to serve on the committee and a chair chosen, a "Request to Appoint a Thesis Committee" form should be completed and submitted to the Graduate School. The Graduate School then officially appoints the committee and notifies each member. The "Request to Appoint a Thesis Committee" form and other forms can be found on the Graduate School website [https://gradschool.vanderbilt.edu/academics/forms\\_timeline.php](https://gradschool.vanderbilt.edu/academics/forms_timeline.php). The completed form should be submitted to Liz Roelofs, who will obtain signatures and submit it to the Graduate School.

The Chair of the Thesis Advisory Committee should be selected by the Thesis Advisor and the student in consultation with the DGS. In general, the Chair of the committee should be a tenured member of the MPI program.

*\*All primary and secondary graduate faculty within the Molecular Pathogenesis division are members of both the MPI and MHI programs.*

#### **E. Phase I Planning Meeting**

In the student's first year in the MPI program (preferably in November or December), they will meet with their committee for the initial Phase I Planning Meeting prior to their Phase II Qualifying Exam. During this meeting, the committee will (1) evaluate the student's ability to independently define a basic scientific

research question, evaluate relevant literature, and propose critical experiments to address the question; and (2) explore the student's basic knowledge in the field of immunology and pathology (3) determine if the student is ready to begin undertaking independent research. The goals of the meeting are to introduce the student to thesis committee members and the process of a committee meeting, to provide constructive guidance early in a project, and to help prepare students for their Ph.D. Qualifying Exam, which will happen about a year later. For this reason, the Phase I meeting will follow a similar format to that of the qualifying exam. Since MSTP students begin their lab work later, they may schedule their Phase I meeting early in the Winter/Spring semester but should do so as soon as they feel prepared in their G1 year.

For the Phase I meeting, the student is required to develop a set of specific aims based on the research they plan to undertake in the Thesis Advisor's laboratory and defend the aims and their rationale before the Thesis Advisory Committee. A one-page outline of the specific aims (following the guidelines and rules for the aims section of an NIH F31 grant) must be submitted to the Thesis Advisory Committee and DGS at least 10 days prior to the date of the meeting. This document should be prepared in consultation with the thesis mentor. Although the Aims document will only be one page, the student should come to the meeting prepared to 1) explain and defend the hypothesis to be tested and explain how the specific aims directly address the hypothesis, 2) why the proposed experimental approach and design were selected, 3) what outcomes are anticipated for each aim, and 4) what problems with the approach might be encountered. In addition, the student should provide the committee with a written list of ten key journal articles they found the most critical in developing their hypothesis. The list should also include 2-3 bullet points for each paper that highlight the importance of these papers to the hypothesis. During the meeting, the student should be prepared to discuss how these papers contributed to their hypothesis and research design.

The format of the Phase I meeting is left to the committee to decide but generally the student will prepare a short (~20 minute) presentation of their hypothesis, their specific aims, and their approach to testing their hypothesis and achieving their specific aims. The committee will ask questions during and after the presentation. It is important that the committee ask questions focused on the proposal to be able to evaluate the student's ability to define a basic research question and propose experiments to address that question. Equally important, the committee should ask questions to assess the student's breadth of knowledge of basic immunology and cell pathology as it relates to their proposal. While the amount of time allotted for each of these areas is not specified, it is important that sufficient questions are asked to determine if the student is prepared to proceed with the dissertation proposal and thesis research and to allow the committee to provide the student with substantive feedback regarding areas that need to be improved prior to taking their Qualifying exam.

Similar to a regular committee meeting or the Qualifying exam, the Phase I Meeting should last no longer than two hours. During the meeting, the thesis advisor must not participate in the questioning or discussion. If the committee finds a sufficient gap in knowledge or experimental plans, students may be asked to seek additional coursework, re-write the specific aims page, or repeat the Phase I meeting, although the latter is considered only in rare circumstances.

To ensure that the Phase I meeting occurs prior to the end of December, the student should finalize the date of the meeting as soon as possible after the specific aims have been determined, recognizing that the time between Thanksgiving and Christmas is usually a difficult time to schedule meetings. The student should notify the MPI Director of Graduate Studies and the Program Manager as soon as a meeting date

is finalized. The Program Manager can help arrange a suitable room for the meeting. Notification of the date and scheduling of a room should be completed no less than four weeks in advance of the meeting.

A student should feel free to use the revised aims page, as well as an expanded document describing the experiments to accomplish the specific aims, as the written material for the "Research Proposals: Preparation & Critical Review" course.

Following the Phase I meeting, the Chair of the committee should meet with the student to discuss how the student did and pass on any comments from committee members. The chair will also author a letter indicating those aspects of the exam in which the student performed well and indicating aspects where deficiencies were noted. In the case of deficiencies, their severity should be indicated and a mechanism for the student to improve his/her performance should be described. This letter should be approved by all committee members and then sent to the student (with copies going to the mentor and DGS).

#### **F. Phase II Qualifying Examination**

A student must have completed at least 24 hours of didactic work prior to taking the Qualifying Exam. Unless there are special circumstances approved by the DGS (in consultation with the MPI GEC), for students entering from the IGP or QCB, the Qualifying Examination usually should be undertaken during the fall semester of the student's third year (second year in the MPI program). Since MSTP students enter at a later time, the exam should be scheduled as close to fall of the third year as possible, but leeway is granted. The students advisory committee is the ultimate decider of when the student is prepared to take the qualifying exam.

Once you have established a date for your Qualifying Examination, you should fill out the Request to *Schedule Qualifying Exam* form and submit it to the Program Manager for the DGS to sign. After being signed, the Program Manager will submit the form to the Graduate School. The form is available at [https://gradschool.vanderbilt.edu/academics/forms\\_timeline.php](https://gradschool.vanderbilt.edu/academics/forms_timeline.php).

For the Qualifying examination, the student must submit to the Committee and to the DGS a dissertation research proposal in the format of an NIH F31 grant proposal. (Use Arial, Helvetica, Palatino Linotype, or Georgia typeface, and a font size of 11 points or larger with 0.5-inch margins, no more than 6 lines/inch, and no more than 15 characters per inch average spacing.) The proposal should include a Specific Aims page (1 page) and a Research Strategy (Significance, Innovation, and Approach) up to a maximum of 7 pages (6 pages for Research Strategy and 1 page for Specific Aims). The Phase II proposal could be an extension or refinement of work proposed in the prequalification meeting or could be based on a new research direction as decided by the student and her/his mentor. The student in consultation with the committee will set a date and will notify the DGS who in turn notifies the Associate Dean of the Graduate School. The DGS and Program Manager must be notified four (4) weeks prior to the date of the exam. The written proposal must be submitted to the members of the committee **at least 10 days prior to the examination**.

The format for the examination will be determined by the committee but generally includes a brief oral presentation by the student followed by a question/answer period. All questions should be related to the proposal but can include general knowledge when it relates to the proposed experiments or outcomes.

If the student passes the examination, they are admitted to candidacy for the Ph.D. degree. If the committee feels the student has failed the exam, they will be given an opportunity to retake the exam. If the student fails the second exam, they will be withdrawn from the Ph.D. program. If, however, the committee feels that the student could remediate the deficiencies in the exam, the student can be given a "provisional pass" and asked to re-write all or part of the proposal or undertake other remediation. The

committee may also specify a time period in which the students must respond to the concerns. If the student does not successfully address the concerns of the committee (determined, at the committee's discretion, either by written documentation or reexamination), the student will have been deemed to have failed the examination and will be asked to withdraw from the Ph.D. program. By the regulations of the Graduate School, the candidate has a maximum of 4 years from the date of passing the qualifying examination to complete the Ph.D. degree. However, an extension can be granted when circumstances warrant.

Following the exam, the Chair of the committee should meet with the student to discuss how the student did and pass on any comments from committee members. The chair will also author a letter indicating those aspects of the exam in which the student performed well and indicating aspects where deficiencies were noted. In the case of deficiencies, their severity should be indicated and a mechanism for the student to improve his/her performance should be described. This letter should be approved by all committee members and then sent to the student (with copies going to the mentor and DGS). The Chair is also responsible for completing all paperwork (REDCap SACs forms, etc) needed to record the results of the exam.

### **G. Thesis Advisory Committee Meetings and Role of Thesis Advisory Committee**

It is the responsibility of the Thesis Advisory Committee to ensure that the requirements of the department and the Graduate School are met by the candidate for the degree. In addition to reviewing the scientific progress of the student, the committee should be generally concerned with the student's development during the program. Students should feel free to seek help from any member of the Thesis Advisory Committee.

After the Phase I qualifying exam, the Thesis Advisory Committee should meet with the student at a time about midway between the Phase I and Phase II qualifying exams to review progress. Following successful completion of Phase II of the Qualifying Exam, the Thesis Advisory Committee should meet with the student and Advisor **at least every 6 months** to review progress and to assist the student in planning the direction of research. Most advisory committee meetings should last no longer than an hour. However, the student should **schedule the room for at least an hour and a half**. This will ensure there is sufficient time to discuss all necessary issues and for the committee chair to discuss the committee's comments with the student after the meeting.

The DGS and Program Manager should be notified of all committee meetings. Prior to these meetings, the student will develop a progress report for the period of time since the last meeting. This report should be given to each committee member at least one week prior to the meeting. The Chair of the Thesis Advisory Committee will use the Student Advisory Committee report form (available through RedCap) to record the results of each meeting. The student will make arrangements through RedCap and invite, via Redcap, the Committee Chair to access the form. The report form should be approved by the student after discussion with the committee Chair. In addition, the Chair should provide a letter to the applicant detailing the results of the meeting. After discussion with the committee chair, the student should prepare a draft for this letter that the Committee Chair will critique and edit as necessary. The final letter should be agreed upon by all committee members before being sent to the student. Copies of the letter should be sent to each member of the Thesis Advisory Committee and Mentor. Copies of the report and letter also must be filed (via RedCap) and copies sent to the DGS. This procedure will help maintain open communication between the student, thesis advisor, DGS, and the Committee. If a student receives an unsatisfactory report, they must schedule a meeting with the DGS to discuss the situation.

## **H. Role of the Mentor During Prequalification Meeting, Qualifying Exam, and Dissertation Defense**

Mentors provide a unique perspective on the student and their research. Their participation in committee meetings is crucial. However, in the Phase I and Phase II examinations as well as at the final examination, the student must perform unaided and unhindered. Consequently, mentors are not allowed to participate in the examinations nor in the subsequent deliberations concerning the student's performance, unless directly called upon by the committee chair to provide clarification or advice.

## **I. Journal Club and Research Presentations**

Written and oral communication are the key methods by which scientists communicate their work and excellent communication skills are critical to scientific progress and advancement of one's career in science. For that reason, MPI students are required to attend the programs MPT and journal clubs each semester they are in the program. MPI students are expected to actively participate in discussion during these sessions. Each year MPI students are required to present for MPT a 25-minute (presentation and questions) update on their research. Attendance at MPT and journal clubs will be tracked. At the end of each semester, the DGS reviews attendance records. If a student has three or more unexcused absences, they will receive a letter from the DGS (and copied to their Mentor) reiterating the requirement to regularly attend MPT and journal club. In addition, the students' Committee Chair will be notified, and their poor attendance record will be discussed and documented as part of the record of their next committee meeting.

## **J. Conflict resolution**

It is recognized that there may exist scientific or other issues that interfere with the student's progress or with the mentor-student relationship. The student may feel that his/her academic progress is being limited in some way or is being unfairly evaluated; that his/her intellectual contributions are not being fairly acknowledged; or that another type of interpersonal conflict exists. Students have several avenues available to them to achieve resolution of such concerns. However, the DGS is always available to discuss an issue. Students who already have a thesis advisory committee are encouraged to discuss scientific concerns with the chair or members of that committee. In addition, students are always free to discuss concerns with the Division Chief.

The counseling personnel in the BRET office or the Student Care Network are also reasonable avenues to gain advice on resolving conflicts. Students should communicate any such concerns with the appropriate persons while the problems are still in their early stages. If confidentiality is required, the student is advised to consult with the counseling personnel at the Student Care Network (<https://wp0.vanderbilt.edu/studentcarenetwork/helping-others/>)

It is the intention of the MPI program to provide a safe, understanding, and nurturing environment. Students should not hesitate to bring forward issues of sexual harassment or discrimination of any kind to the attention of their mentor or the MPI program leadership. However, please realize that faculty and staff are not confidential sources. They are required by law to report any information they have about harassment, assault, or discrimination. On the other hand, the Professional Counselors and Project Safe Staff ARE confidential sources and can provide advice and direct you to other resources. Information on Project Safe is available at:

<https://wp0.vanderbilt.edu/projectsafe/>

## **K. MPI Policies on Changing Research Groups**

Experience has taught us that despite a rotation system for choosing a mentor, not all mentor-mentee matches are successful in the long term. If a student has consulted with their thesis committee chair (provided they are sufficiently advanced to have one), their Director of Graduate Studies, and an Auxiliary Mentor of their choosing, and come to the decision that changing mentors will allow them to thrive in their graduate studies, the BRET Office will support the student during the transition to a new group. Specifically, the BRET office will support any student who matriculated through the IGP, QCB, or was a direct admit to a School of Medicine program that accepts students from the IGP and QCB, to conduct up to two 4-week rotations in any group within the School of Medicine led by a member of the graduate faculty that has expressed an interest in considering the student for pursuit of their thesis research. To begin this process, please contact the Senior Associate Dean for BRET.

### **Process to document and mitigate issues occurring between mentor and mentee**

- 1) The students' committee should be vigilant regarding changes in the mentor-mentee relationship, altered performance or mental state of the student, or if the student or mentor brings up issues citing established and discussed expectations between mentor and student. In that case, the committee Chair should contact the DGS to make them aware of these observations and seek feedback.
- 2) The DGS can meet with the student, with or without the committee chair or an auxiliary mentor (a list of auxiliary mentors can be found here: <https://medschool.vanderbilt.edu/bret/auxiliary-mentoring/> ) to discuss the issue(s) and see if there is any avenue for resolution.
- 3) The student can also choose to meet with the thesis committee chair, or auxiliary mentor without the DGS, to discuss issues and intent to transfer labs.
- 4) If the issues cannot be resolved, and the student decides to leave a research group, they should first contact the Senior Associate Dean for BRET to initiate the process for interim support. At this point, the student should also notify the thesis committee of this decision. This is important, so as to maintain a professional relationship with the original thesis committee members especially if some of these individuals may serve on the new committee, upon selection of a new thesis lab.
- 5) The student – as is typical for any professional environment – should give adequate notice (minimum 2 weeks) to the current research group. This should be done in writing, via email and the DGS should be copied for record keeping. This should allow the student to close out their work in the lab with minimum inconvenience to the PI and laboratory. This is viewed as a component of professional development. The student should also again, notify the thesis committee, as this committee will change with the change of labs. Before leaving their current laboratory, the student must submit their up-to-date lab notebook and records to their previous PI and a document containing the location and description of any materials they have generated or procured in the lab. Students may not remove materials or intellectual property (including unpublished data) from their old lab without specific permission from the former mentor. This is in accordance with procedures currently in place for departing lab members (graduates or summer students and staff).
- 6) If the student wishes to stay within MPI, they must find a new lab by contacting the program faculty in whose research they are interested. The DGS can assist in this, but it is the student's responsibility, and success is not guaranteed by the program. A proposed new mentor must be willing to provide bench space, funds for the stipend and student fees including health insurance, all remaining tuition payments,

supplies for the proposed project, and, of course, mentoring. If the student happens to be supported by a T32 Training Grant, ongoing support may be possible pending approval of the Training Grant Director. However, the student cannot assume that their training grant will continue to support them after they change labs. If the student is supported by an Individual Fellowship, they must contact their Program Official to determine whether their Fellowship support will continue following the change in mentorship. Documentation of approvals and confirmation of continued support need to be submitted to the DGS for final approval before the switch in labs can be made.

7) Once a new lab is selected, the student will reset their thesis committee in concert with the DGS and new PI. Once the new committee is assembled it is sent to the GEC for approval.

*Note that a student moving to another MPI laboratory may need to select a new Dissertation Committee and will need to propose a new project that is distinct from that in the former laboratory (unless the former PI agrees to allow the student to use some of their data or if the former PI has died). The new committee may require that a student demonstrate sufficient knowledge in the new area of study through a formal exam, a written proposal, or both. In the event that there appears to be an overlap between the new and previous research projects or between the new project and other work in the former mentor's lab, the DGS, in collaboration with the Graduate Education Committee, will evaluate this. If they find that too much overlap exists, a new project must be conceived.*

8) The thesis committee ultimately makes the decision regarding whether the total body of work constitutes a thesis. Therefore, During the first meeting, the new committee will outline expectations and how the process will move forward. If the student includes data from their first laboratory in their thesis, the original PI will have the opportunity to review the thesis. If the PI finds an issue with the included content, the GEC will be consulted to arbitrate.

9) Students should note that the Graduate School expects students to complete the Ph.D. requirements within 4 years after passing the Qualifying Exam. Thus, students who change labs should expect to expend more effort in order to graduate in a timely manner or be in contact with the DGS, along with their new mentor in order to request the appropriate extensions – as needed – from the graduate school. ***Do not wait until it is too late! If you have something to discuss, please reach out to your DGS.***

## **L. Ph.D. Thesis**

### *Preparation*

The Thesis Advisory Committee, in consultation with the student, the thesis advisor, and the DGS, will determine when the student has completed the requirements for the dissertation research and is prepared to write the thesis. Since the generation of original knowledge and publication of this knowledge is felt to be an integral part of graduate education, the student must demonstrate independent scholarship resulting in a tangible product before they will be allowed to defend their thesis. Normally this will be demonstrated by the production of at least one first-author manuscript describing original work that has been accepted for publication by a refereed journal. At the discretion of the dissertation committee, a co- first author paper is acceptable for meeting this requirement as long as the committee is convinced that the student has contributed intellectually in a substantial way to the design of experiments, analysis of data, and the writing of the manuscript, in addition to performing the experiments. Recognizing the diversity of scientific endeavors, at the discretion of the Thesis Advisory Committee and with approval of the MPI Graduate Education Committee, alternative proof of independent scholarship may be accepted. Alternatives might include successfully patenting a piece of equipment or technique or development of

software tools that advance some aspects of scientific endeavor and are made widely available to the scientific community. In deliberating whether a co-first author paper or alternative proof of scholarship will be accepted for meeting the independent scholarship requirement, the committee should consider whether the student has completed a body of work that reflects independent scholarship signifying that the student is ready for their next step towards an independent career in science.

The student should review the "[Thesis & Dissertation Guidelines](#)" from the Graduate School website. This describes the requirements for the writing of the thesis as dictated by the Graduate School. If further questions arise, the Graduate School should be consulted. The format for the thesis is flexible; however, the student should obtain approval for the format from the thesis advisor, the DGS, and the Graduate School prior to writing the document.

### **Thesis & Dissertation Guidelines**

- [General Information](#)
- [Manuscript Preparation](#)
- [NEW: Dissertation Template](#)
- [Approved LATEX Template for Dissertations](#)
- [Submission Requirements](#)

The student must notify the DGS and the Program Manager of the Thesis Advisory Committee membership, date, time, and location of the defense at least four (4) weeks in advance of the defense date. The student must submit a copy of the thesis to each member of the committee at least two weeks prior to the final defense and examination. The student will fill out the Intent to Graduate Form located in YES by the deadline listed on the [Graduate School Calendar](#).

### **Defense**

Graduate School rules for the formal Thesis Defense are laid out in the Graduate School Handbook. Below are the MPI-specific rules for the defense.

The defense will occur in two parts. A closed exam involving only the members of the Thesis Advisory Committee and a public exam involving a presentation of the research to the academic community. The student should contact the program manager who can help the student make arrangements for a room and send out appropriate notifications for each part of the exam.

The **closed exam** will involve the evaluation of both the written thesis and the student's ability to answer questions regarding their research. The committee must receive a completed copy of the dissertation no later than 2 weeks before the exam. Failure to submit the Thesis to the committee by the deadline may result in the exam being canceled and rescheduled. The DGS will be the final determiner regarding whether to postpone the exam for failure to provide the Thesis promptly.

The committee will review the Thesis in advance of the meeting and, if significant problems exist in the written document, the exam can be postponed by a unanimous decision of the committee (excluding the mentor). A decision to postpone should be made no later than 1 week before the exam.

Guidelines for reading and evaluating the thesis are the following:

1. The data presented are adequate in scope and no major questions arise concerning the design of experiments employed to collect the data.
2. Introduction, Results, and Discussion are not flawed to a degree that requires drastic rewriting and/or reinterpretation.
3. The thesis is well written, and the presentation is sufficiently clear to allow an unambiguous understanding of the principal themes.
4. Overall, the thesis as presented is acceptable as the basis for the examination of the candidate.

The closed exam will be conducted by the members of the Thesis Advisory Committee (except the mentor). Other members of the graduate faculty may attend the exam with the approval of the DGS. The DGS will determine whether a faculty member's presence is warranted in consultation with the student and committee members. The visitors may not take part in the formal questioning of the candidate nor the decision regarding whether the student has passed or failed the exam. The format for the closed examination will be determined by the committee but generally includes a brief oral presentation by the student followed by a question/answer period. The exam should last no longer than 2 hours. In determining whether the student has passed or failed, the committee will evaluate both the written thesis and the student's ability to answer questions about their research. At the end of the examination, the student is asked to leave the room while the committee discusses the examination and evaluates the student's performance. The SACS forms may be filled out at this time but should not be submitted to the Graduate School until both portions of the exam are completed.

No earlier than 2 weeks after the successful completion of the closed exam, the student will present the **public portion of the exam**. This will be in the form of a standard one-hour seminar on their research. The Program Manager can help make arrangements for this presentation and send out notifications. The [Defense Request Form must be digitally submitted](#) to the Graduate School **at least two weeks in advance of the open exam** using the form available on the Graduate School website. Notification to the Graduate School of the exam date will not be made until the student passes the closed portion of the exam. Thus, if the open defense is scheduled for 2 weeks after the closed defense, the student should realize the open defense may need to be canceled if the student does not pass the closed exam or if the committee requires written changes to the Thesis document or remediation of some aspect of the oral defense before certifying a pass. No exceptions will be granted except under extreme circumstances at the discretion of the DGS in consultation with the Examining Committee. **Students wanting to ensure that they are allowed to participate in the Commencement exercises for the year they graduate should make sure they complete both portions of the Final Exam well in advance of the Graduate School deadline for submitting paperwork for Graduation.**

The seminar portion of the exam is presented to the Thesis Advisory Committee and the academic public. It is permissible for the student to acknowledge those who have helped them complete their Ph.D. requirements. However, there should be no more than 2 acknowledgment slides and the acknowledgment portion of the presentation limited to 5 minutes or less. At the conclusion of their seminar, the student will answer questions from the public and their committee members. The public will be dismissed, and the committee will make a final determination of whether the student should be awarded a Ph.D. If successful, the members of the examining committee will sign the appropriate forms.

The Program Manager will send the [Defense Results Form](#) to the committee and DGS before the open exam and obtain all required signatures. You may also send the [title](#) and [abstract](#) pages to the Program Manager to be signed at the same time since they both require signatures from the mentor and committee. Once all documents are signed, the Program Manager will submit the results form to the Graduate School and the title and abstract pages back to you to upload electronically in VIREO. Once the defense results form is submitted you will receive a confirmation email from the Graduate School.

#### Final Preparation and Thesis Submission

Following the examination, the student must, with the help of the Thesis Advisor, make any necessary corrections to the thesis.

The following items must be submitted to the Graduate School by the deadline listed on the [Graduate School Academic Calendar](#)

#### **Thesis Dissertation Submission**

Once you've submitted your intent to graduate in YES you will begin to receive emails from the Graduate School regarding the thesis submission. It is then the responsibility of the student to submit the thesis to the Graduate School.

[View the Checklist for Graduation](#)

[Format Guidelines](#)

[VIREO Electronic Submission](#)

#### **M. Graduate Student Travel**

The Molecular Pathology and Immunology Graduate Program encourages all students to present at national and international meetings during their training. Dissemination of research findings and engagement with scientific peers is a professional obligation of being a research scientist.

The BRET office has developed and launched a new electronic tool to support students who are traveling for Vanderbilt business. The new system, hosted in REDCap, will allow you to alert faculty and financial administrators of your upcoming trip and allow them to approve your travel and identify the funds you will use to support your trip.

To start the process, please proceed to the [BRET Travel Webpage](#). On the right-hand tool bar, please click "[Student Intent to Travel REDCap](#)" to access the form.

For a guide on the travel process, please refer to the BRET Travel Procedures posted on the BRET Travel Webpage. You may refer all travel-related questions to [Aaron Howard](#). You may also [schedule a 1:1 meeting](#) with him at any time.

**All airfares MUST be booked through CONCUR.** Airfare not booked through CONCUR will NOT be reimbursed.

**Graduate School Travel Grant:** Students are encouraged to present their research at major regional, national, and international conferences. After completing at least one academic year at Vanderbilt, students may apply for a travel grant from the Graduate School for up to \$1,000 per budget year (July 1 to June 30) for domestic or international travel. Students are allowed a total of three travel grants during their entire tenure at Vanderbilt.

## **N. Master's Degree**

The Molecular Pathology and Immunology program does not offer a dedicated master's degree program. However, a student who has successfully completed 24 hours of didactic coursework and 30 hours of total credits towards the Ph.D., can apply to leave the MPI program with a terminal master's degree. When all requirements are met, the Graduate Education Committee will approve the request and the MPI Director of Graduate Studies will submit the necessary paperwork to the Graduate School.

## **O. Unsatisfactory Performance and Procedures and Guidelines for Dismissal from the MPI Graduate Program**

A student must maintain a 3.0 average for didactic coursework to remain in the Graduate Program. After completing their didactic course requirements, students will register for research hours. Performance in the "research" course is graded as satisfactory (S) or unsatisfactory (U) by the student's mentor for the fall, spring, and summer semesters.

A student is required to meet with their advisory committee at least once every six months. During the meeting, the students will update the committee on their progress and receive advice. Following the meeting, the committee chair will submit a report and an overall evaluation of the student's progress as assessed by the committee members.

If a student receives a "U" grade for research hours, receives an unsatisfactory (U) overall performance evaluation by their advisory committee, or if performance issues are reported to the Director of Graduate Studies by the mentor, a formal review of performance will be initiated.

### **What to expect on behalf of the mentor:**

- A student in danger of receiving a "U" in their research should be informed of poor performance during the semester and given a chance to improve their performance. "Satisfactory" performance is that which the committee determines represents adequate progress toward the Ph.D. degree during the six-month evaluation period. While this is by nature subjective, it involves substantial effort from the student and full involvement in the expected activities of the laboratory, including presentations at group meetings, participation in seminars and conferences, preparation of manuscripts, study of the literature, and regular meetings with the mentor. Students are expected to schedule their committee meetings on time and meet the program's deadlines. A Satisfactory can be awarded in periods in which no publishable results are obtained if the committee determines that the student's research efforts and involvement during that period were appropriate. An Unsatisfactory grade can be awarded when students show a pattern of insufficient effort, inadequate preparation, inadequate poor attendance in the lab, or unwillingness to cooperate with the mentor.
- At any point, if a mentor deems that a student is performing below expectations, they should initiate a discussion with the student regarding how to improve performance. If the student continues to perform below expectation, the mentor should notify the Director of Graduate Studies and also provide the student with a written document describing deficiencies and suggested ways the student

can improve. Mentors should not assign an unsatisfactory grade in research without having discussed the issues with the student and providing a chance for remediation.

When there are performance issues documented or an unsatisfactory grade is awarded, the Director of Graduate Studies will independently discuss performance issues with the student, the mentor, and the student's Thesis Advisory Committee to ascertain the cause of the issues. Following this, the Director of Graduate Studies will arrange a meeting, attended by the Director of Graduate Studies, the student, the mentor, and, if necessary, the Thesis Advisory Committee. This group will discuss and document any performance issues and agree upon steps to be taken to remediate performance issues. A memo summarizing the meeting will be provided to all who attend the meeting and copied to the Graduate School. The summary will clearly outline how the student will remediate performance issues and will provide a reasonable timeline for completing the remediation. If the student repeatedly fails to meet the clearly stated deadlines, resulting in two more consecutive "U"s, the Molecular Pathology and Immunology graduate program may submit the documentation of failure to the Graduate School and recommend that the student be dismissed from the Graduate School.

If the Director of Graduate Studies has a conflict of interest, the Molecular Pathogenesis Division Chief may act in the DGS' stead. If both have a conflict of interest which would prevent them from being impartial in examining performance issues and help devise remediation plans, the MPI Graduate Education Committee will designate a faculty member to oversee discussions and planning. If the student feels that the graduate program has not been fair in assessing their progress and their attempts at providing adequate guidance to remediate performance issues, the student may appeal to the Associate Dean for BRET for mediating resolution. All students may also seek a success planning meeting with the Graduate School's Senior Academic Life Coach for advice and perspective on their situation.

[https://medschool.vanderbilt.edu/bret/wellness\\_resources\\_student\\_faculty/](https://medschool.vanderbilt.edu/bret/wellness_resources_student_faculty/)

Receiving 3 unsatisfactory (U) grades for research hours will result in dismissal from the Graduate School. Moreover, no course credits are given when a "U" is awarded.

#### **IV RESEARCH EXPECTATIONS**

Students are required to meet with their Ph.D. Thesis Advisory Committee every six months or more often if requested by the student or their committee. Students are expected to conduct themselves and their research in an ethical and professional manner. The Thesis Advisory Committee, in consultation with the student, the thesis advisor, and the DGS, will determine when the student has completed the requirements for the dissertation research and is prepared to write the thesis. Since the generation of original knowledge and publication of this knowledge is felt to be an integral part of graduate education, the student must demonstrate independent scholarship resulting in a tangible product before they will be allowed to defend their thesis. Normally this will be demonstrated by the production of at least one first-author manuscript describing original work that has been accepted for publication by a refereed journal. At the discretion of the dissertation committee, a co-first author paper is acceptable for meeting this requirement as long as the committee is convinced that the student has contributed intellectually in a substantial way to the design of experiments, analysis of data, and the writing of the manuscript, in addition to performing the experiments. Recognizing the diversity of scientific endeavors, at the discretion of the Thesis Advisory Committee and with approval of the MPI Graduate Education Committee, alternative proof of independent scholarship may be accepted. Alternatives might include successfully

patenting a piece of equipment or technique or the development of software tools that advance some aspect of scientific endeavor and are made widely available to the scientific community. While tangible evidence of scholarly activity is required, it should not be viewed as sufficient. In other words, thesis committees will only grant permission to defend once a student has accumulated a sufficient body of work and has demonstrated that they can answer questions about their project at thesis committee meetings at a level expected for a student obtaining a Ph.D. degree from MPI. There is no requirement for external grant funding or attendance at an academic conference, but these are encouraged.

*At Vanderbilt, we have a long tradition of free expression, which is one of our core principles. We believe in bringing together people of differing viewpoints for a common purpose. Learn more about [how we practice free expression at Vanderbilt](#) and read [Vanderbilt's Freedom of Expression policy in the Student Handbook](#).*

## **V. TRAINING FOR THE PROFESSION**

The emphasis of the graduate program is on research and research training in the areas of Pathology and Immunology. This training is applicable to a wide variety of career options, and we encourage MPI students to take advantage of the many career exploration and development resources provided by the Biomedical Research Education and Training (BRET) office:

[HTTPS://MEDSCHOOL.VANDERBILT.EDU/BRET/PROFESSIONAL-RESOURCES-2/](https://medschool.vanderbilt.edu/bret/professional-resources-2/)

The MPI Graduate Program does not require teaching as part of the curriculum. However, there are opportunities for teaching within the department. If a student is interested in training and experience in teaching, they should discuss possible opportunities with the Director of Graduate Studies and receive permission from their Thesis Advisor.

## **VI. ADVISING AND MENTORING**

The MPI program views effective mentoring as a key part of Graduate Education. Each potential mentor must first request permission to accept MPI graduate students into their laboratory. These requests are reviewed by the DGS and Molecular Pathogenesis Division Chief. Past mentoring history is taken into consideration before granting the request. All mentors approved to take graduate students have completed mentor training through the Center for the Improvement of Mentored Experiences in Research (CIMER) training modules.

When accepting a new student, advisors and their student are sent a copy of the “AAMC Compact Between Biomedical Graduate Students and Their Research Advisors” and are expected to review this document. The faculty member is also provided a copy of the “MPI Faculty Mentoring Document” which lays out the mentoring expectations of the program. The student and mentor must discuss and sign both the “MPI Student Placement and Responsibility Agreement” and the “Compact Between MPI Graduate Students and Their Research Advisors” forms. The BRET office requires the completion of an annual individual development plan (IDP) which reviews research progress and sets future goals and opportunities for the exploration of career development options. Guidance regarding the continuing role of both student and advisor at the various stages of the student’s training is addressed throughout this “MPI Student Handbook.”

## **VII. PROGRESS TOWARDS DEGREE**

The faculty in the MPI program are committed to ensuring that students graduate with their Ph.D. degree in a timely fashion. The DGS monitors student progress and helps alleviate obstacles to timely progress. Each student meets with their Thesis Advisory Committee at least once every six months. Part of the

committee's charge is making sure the student is making sufficient progress and has clear goals for completion of their training. The Graduate School requires completion of Ph.D. work within four years after passing the qualifying exam. In cases where the complexity of the research project or unforeseen circumstances delay finishing within this period despite satisfactory effort by the student, the DGS can request an extension of this deadline from the Graduate School. If a student and their committee feel they will not be able to complete the Ph.D. requirements within four years, they should set up a meeting to discuss the reasons for delay and help the DGS craft the request for extension.

## VIII. FORMS LIST

All pertinent forms (as listed below) can be accessed via the Graduate School Website:

Alternative to PDF forms, graduate students can now utilize the [Doctoral Workflow](#) form to request to:

- Appoint/modify Ph.D. committee
- Schedule/modify qualifying exam
- Schedule/modify dissertation defense
- Extend deadline to Enter Candidacy
- Extend Candidacy

\*Please find available User Guides below:

[User Guide for Students](#)

### Ph.D. Program PDF Forms

- Complete Coursework. Check with your program regarding transfer credit and independent study policies.
  - Request for Individual Study – students initiate this process on their student landing page in YES
  - [Permission to audit](#)
  - [Request to appoint or change adviser](#)
- Qualifying Exams
  - [Submit qualifying exam results \(with original signatures\)](#)
- Submit Intent to Graduate
  - Students planning to graduate at the end of the fall, spring, or summer term should submit the Intent to Graduate form to the Registrar's Office through the [YES student portal](#).
    - For step-by-step instructions on how to declare intent to graduate, please refer to the [Yes User Guide document](#).
    - Contact [yes@vanderbilt.edu](mailto:yes@vanderbilt.edu) or 615-343-4306 if you need additional assistance.
    - The [Graduation Confirmation User Guide](#) provides additional instructions required for graduation.
- Prepare Dissertation according to [Thesis and Dissertation Guidelines](#).
- Dissertation Defense and Submission
  - Have your adviser or department administrator [submit dissertation defense results](#) to the grad school admissions portal. Upload your dissertation as the primary document and your signed

title page and abstract as administrative files to your VIREO profile.

## **IX. Graduate School Policy on Parental Leave (October 2009)**

### Eligibility:

All students enrolled full-time in the Graduate School and supported by funding from either internal or external sources are covered by this policy. This includes students with funding through stipends, such as training grants or service-free fellowships, and students compensated for services, such as teaching assistants or research assistants. Students supported by external funding sources may be subject to additional rules of the granting agency regarding parental leave. Students are not employees and thus are not subject to the provisions of the Family and Medical Leave Act (FMLA).

Parental Leave Guidelines can be found at:

<https://medschool.vanderbilt.edu/bret/parental-leave-policy/>

## **X. Graduate School Policy on Outside Employment**

Graduate students in the Molecular Pathology and Immunology graduate program receiving Vanderbilt University financial support or services must devote full-time effort to graduate study. Students cannot accept jobs for pay within or outside the University unless prior approval is given by their advisor, their Director of Graduate Studies, and the Dean for the Office of Biomedical Research Education and Training. Exceptions to this rule include part-time internships and activities that contribute to career development and that do not exceed the time commitment outlined by the National Institutes of Health, service as course associates at Vanderbilt, and occasional and temporary part-time pursuits (e.g. house sitting). Engagement in outside employment without obtaining approval may result in loss of financial aid, including stipend.

## **V. Graduate School Catalog Description**

Link to the Graduate School MPI Catalog Description: [Molecular Pathology and Immunology](#)