

# **Immunology & Molecular Pathogenesis**

## **STUDENT HANDBOOK**

**2018 - 2019**

**Laney Graduate School**

**Graduate Division of Biological & Biomedical Sciences**



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## I. PROGRAM ADMINISTRATION

### Director

John Altman, PhD                      Dept. of Microbiology/Immunology                      727-3393  
2024 Yerkes

### Director of Graduate Studies- Pre-Qualifying Students

Jacob Kohlmeier, PhD                      Dept. of Pediatric Infectious Diseases                      712-7883  
3133 Rollins Research Center

### Director of Graduate Studies- Post-Qualifying Students

Arash Grakoui, PhD                      Dept. of Medicine,                      727-5850  
Infectious Disease Division  
3020 Yerkes

### Seminar Director

Mehul Suthar, PhD                      Dept. of Pediatrics,                      727-3052  
Infectious Disease Division  
2022 Yerkes

### Head Recruiter

Haydn Kissick, PhD                      Department of Urology                      727-9029  
412-1462 Clifton Rd Building  
[haydn.kissick@emory.edu](mailto:haydn.kissick@emory.edu)

### Executive Committee Members

John Altman, PhD                      Dept. of Microbiology & Immunology                      727-5981  
2024 Yerkes  
[jaltman@emory.edu](mailto:jaltman@emory.edu)

Byron Au-Yeung, PhD                      Dept. of Medicine, Rheumatology                      727-5981  
246 Whitehead Building  
[byron.au-yeung@emory.edu](mailto:byron.au-yeung@emory.edu)

Cheryl Day, PhD                      Dept. of Microbiology/Immunology                      727-4374  
1024 Yerkes  
[cheryl.day@emory.edu](mailto:cheryl.day@emory.edu)

Mandy Ford, PhD                      Dept. of Medicine, Surgery                      727-2900  
5203 Woodruff Memorial Building  
[mshawve@emory.edu](mailto:mshawve@emory.edu)

Arash Grakoui, PhD                      Dept. Medicine, Infectious Diseases                      727-5850  
3020 Yerkes  
[agrakou@emory.edu](mailto:agrakou@emory.edu)

Joshy Jacob, PhD                      Dept. of Microbiology/Immunology                      727-7919  
2042 Yerkes  
[jjacob3@EMORY.EDU](mailto:jjacob3@EMORY.EDU)

Haydn Kissick, PhD                      Department of Urology                      727-9029  
412-1462 Clifton Rd Building

	<a href="mailto:haydn.kissick@emory.edu">haydn.kissick@emory.edu</a>	
Jacob Kohlmeier, PhD	Dept. of Microbiology/Immunology 3133 Rollins Research Center <a href="mailto:jkohlmeier@emory.edu">jkohlmeier@emory.edu</a>	727-7023
Sean Stowell, MD, PhD	Dept. of Pathology and Lab Medicine 105P Whitehead Building <a href="mailto:srstowe@emory.edu">srstowe@emory.edu</a>	727-3456
Mehul Suthar, PhD	Dept. of Pediatric Infectious Diseases 2022 Yerkes <a href="mailto:mehul.s.suthar@emory.edu">mehul.s.suthar@emory.edu</a>	727-3052
Malu Tansey, PhD	Dept. of Physiology 605L Whitehead Building <a href="mailto:malu.tansey@emory.edu">malu.tansey@emory.edu</a>	727-6126
Jens Wrammert, PhD	Dept. of Infectious Disease E480 Health Sciences Research Building <a href="mailto:jwramme@emory.edu">jwramme@emory.edu</a>	778-3265

### **Student Representatives**

Camilla Margaroli, Senior Representative  
[camilla.margaroli@emory.edu](mailto:camilla.margaroli@emory.edu)

Katherine Bricker, Junior Representative  
[katherine.m.bricker@emory.edu](mailto:katherine.m.bricker@emory.edu)

### **Program Administrator**

Emily Morran  
GDBBS  
1462 Clifton Rd. Suite 300A  
[emily.morran@emory.edu](mailto:emily.morran@emory.edu) 727-2546

Program Website: [http://biomed.emory.edu/PROGRAM\\_SITES/IMP/index.html](http://biomed.emory.edu/PROGRAM_SITES/IMP/index.html)

## **II. ADMISSION TO GRADUATE STUDIES**

### **A. ADMISSION REQUIREMENTS**

The graduate Program in Immunology and Molecular Pathogenesis is designed for those pursuing a PhD or the combined MD-PhD. The Program's Recruitment Committee considers prior research experience to be the most important factor in the application review process, followed in order by letters of recommendation from research mentors, transcripts and GPA, other relevant letters of recommendation, if any, and honors and/or leadership positions. A successful applicant typically has a strong science background including coursework in biology, inorganic and organic chemistry, biochemistry, and molecular biology. Deficiencies in course background may be made up during the first year of graduate study upon recommendation of the Executive Committee. We do not admit students for a Masters Degree.

## **B. ADMISSION OF STUDENTS ARRIVING WITH NEW EMORY FACULTY MEMBERS**

- If the proposed student has passed their qualifying exam at their current institution, IMP strongly recommends they complete their degree through their current university.
- If they would like to transfer into the IMP Program, they must complete the typical application process. They should contact the Director of Admission for the Graduate Division of Biological and Biomedical Sciences, as well as the IMP Recruiter, Director, and Program Administrator to notify them in advance of their application and situation.
- As a courtesy, the Program may review the student's credentials prior to applying to provide guidance to the incoming faculty member and proposed student as to the appropriateness of the student applying to Emory.

## **III. ADMINISTRATIVE STRUCTURE**

All graduate degrees offered by the program in Immunology and Molecular Pathogenesis are granted by the Laney Graduate School and the Division of Biological and Biomedical Sciences. The Dean of the Graduate School and the Director of the Division are assisted in the formulation of policy and the resolution of problems by an Executive Committee, which consists of the Directors of Division programs offering graduate training. In addition, a Divisional Student Advisory Committee consisting of students from each of the programs affords a way for student concerns to be raised and discussed.

Within the IMP program, the Director and two DGSs oversee student progress and provide support and guidance to students as they work towards their PhD. In this capacity, the Director and DGSs are also responsible for ensuring all students are completing program requirements towards their degree. The Director and DGSs are assisted in carrying this out with the input, feedback, and support of the program Executive Committee. For more information about Executive Committee roles, including program leadership roles and election procedures please see the IMP Faculty Handbook.

## **IV. PROGRAM REQUIREMENTS**

A summary of requirements for obtaining a PhD degree from the IMP program are:

1. Obtain a grade of "B" or better in all courses including laboratory rotations
2. Choose a dissertation advisor
3. Pass the oral qualifying exam
4. Form a dissertation committee & hold committee meetings (required frequency described below)
5. Develop a committee-approved dissertation proposal
6. Apply for Candidacy

7. Submit a review of the literature
8. Participate in the academic events of the program, which includes seminars, Research in Progress presentations, journal clubs, etc.
9. Write and successfully defend a dissertation
10. Fulfill LGS requirements, specifically the Jones Program in Ethics, TATTO, and final dissertation and graduation requirements.

Each requirement is explained in more detail below. Please refer to the current IMP Student Timeline available on the [IMP website](#) for current due dates pertaining to each requirement.

## A. REQUIRED COURSEWORK

The curriculum detailed below satisfies all coursework credit hours and IMP program course requirements in the first two graduate years. However, students may enroll in additional GDBBS courses after the 2nd year with the approval of their advisor and the post-qual DGS.

### 1. PhD Course Requirements

#### **Semester 1 (Fall – registered by the Program Administrator)**

Basic Biomed & Biol Sciences I	IBS 555	6 credits
Concepts of Immunology	IBS 542	4 credits
Laboratory Rotations	IMP 597r	1 credit
Colloquium in Immunology	IMP 792r	2 credits
Advanced Graduate Seminar	IMP 790r	1 credit
Jones Program in Ethics	JPE 600	0 credit

#### **Semester 2 (Spring. Students register themselves beginning in Spring of Year 1)**

Virology	IBS 513	5 credits
Current Topics in Immunology	IBS 747r	5 credits
Advanced Graduate Seminar	IMP 790r	1 credit
Laboratory Rotations	IMP 597r	1 credit

#### **Semester 3 (Fall)**

Advanced Graduate Seminar	IMP 790r	1 credit
Annual Reviews in Immunology	IBS 777r	2 credits
Colloquium in Immunology	IMP 792r	2 credits
Advanced Graduate Research	IBS 699r	4 credits
TATTO (more info below)	TATT 600	1 credit
TATTO	TATT 605	2 credits

#### **Semester 4 (Spring)**

Advanced Graduate Seminar	IMP 790r	1 credit
Hypothesis Design & Scientific Writing	IBS 522R-02P	4 credits
Stat Design and Analysis of Experiments	IBS 538	4 credits
Advanced Graduate Research	IBS 699r	1 credit
TATTO (if not completed in fall)	TATT 605	2 credits

## Years 3+ (Fall & Spring)

### Prior to submitting Application for Candidacy:

Advanced Graduate Seminar	IMP 790r	1 credit
*Adv. Graduate Research	IBS 699r	8 credits

### After submitting Application for Candidacy:

Advanced Graduate Seminar	IMP 790r	1 credit
*Dissertation Research	IMP 799r	8 credits

\*Research credits are variable and should be adjusted based on any additional electives the student may take. Total credits should be at least 9, or, if exceeding 9, be as close to 9 as possible for each semester in years 3+.

Over the summer, students will register for 9 credits of research. Pre-candidacy students should register for Advanced Graduate Research, IBS 699r. Post-candidacy students should register for Dissertation Research, IBS 799r.

Students can be exempted from specific required courses if it is established that equivalent previous course work has been satisfactorily completed. Other electives would then be available for the student to substitute for the exempted required course. This must be approved in writing by the Director of Graduate Studies and the faculty advisor.

### Electives

Electives are to be decided jointly between student and advisor.

### Possible GDBBS Electives Include:

IBS 568	Principles of Anti-infectives
IBS 760R	Computational Systems Biology: Modeling Biological Responses
IBS 524	Cancer Biology II

Other electives can be found on the [GDBBS Internal website](#) under “Students” → “Course Information”.

### On Non-GDBBS Electives

Students wishing to take for credit electives outside of GDBBS must obtain prior approval from all of the following: (1) their research mentor, (2) an IMP DGS, and (3) the instructor in charge of the course. In general, the program does not encourage students to make substantial commitments to elective courses because these can detract from their focus on their research projects.

## 2. MD - PhD Course Requirements

MD-PhD rotations and the first IMP courses take place in the M2 year (spring). This prepares MD-PhD students to take the qualifying exam in January of the G1 year. The following curriculum fulfills course requirements for the IMP Program.

### M2 Semester (Spring)

3 rotations		
Virology	IBS 513	5 credits
Current Topics in Immunology	IBS 747r	5 credits



### **G1 Semester 1 (Fall)**

Advanced Graduate Seminar	IMP 790r	1 credit
Concepts of Immunology	IBS 542	4 credits
Colloquium in Immunology	IMP 792r	2 credits
Annual Reviews in Immunology	IBS 777R	2 credits
Adv. Graduate Research	IBS 699r	1 credits
Jones Program in Ethics (more info below)	JPE 600	0 credit
TATTO (more info below)	TATT 600	1 credit
TATTO	TATT 605	2 credits

### **G1 Semester 2 (Spring)**

Advanced Graduate Seminar	IMP 790r	1 credit
Stat Design and Analysis of Experiments	IBS 538	4 credits
Adv. Graduate Research	IBS 699r	2 credits
Hypothesis Design & Scientific Writing	IBS 522R-02P	4 credits
TATTO (if not completed in fall)	TATT 605	2 credits

### **Years G2+ (Fall & Spring)**

Prior to submitting Application for Candidacy:

Advanced Graduate Seminar	IMP 790r	1 credit
*Adv. Graduate Research	IBS 699r	8 credits

### **After submitting Application for Candidacy:**

Advanced Graduate Seminar	IMP 790r	1 credit
*Dissertation Research	IMP 799r	8 credits

Over the summer, MD-PhD students will register for 9 credits of research. Pre-candidacy students should register for Advanced Graduate Research, IBS 699r. Post-candidacy students should register for Dissertation Research, IBS 799r.

## **3. Grade Criteria**

All IMP students must meet the Minimum Standards for Academic Performance as described in the [GDBBS Handbook](#). Failure to meet these standards will trigger consequences and appeal policies also described in the GDBBS Handbook.

## **4. Jones Program in Ethics**

The Jones Program in Ethics is a comprehensive program to educate doctoral students in all disciplines in the ethical pursuit of scholarly research. It is overseen by The Laney Graduate School and is made up of three components:

1. **JPE 600 Workshop:** JPE 600 is a core course in scholarly integrity, supported by the Laney Graduate School. It is required of all incoming Laney Graduate students. Incoming students are automatically registered for this course and attend it prior to the start of the fall semester.
2. **Program-based Training:** Training in ethics and the responsible conduct of research, may take place within existing courses. Additionally, first year and 5th year students are required to participate in faculty-led seminars and discussions organized by the Directors of IMP and MMG. Attending these seminars as a first year student is part of the students' requirements for candidacy. Post-candidacy, fifth year students attend again as a refresher. These seminars currently occur during the month of September on Mondays and Wednesdays at 4pm.

3. JPE 610 Workshops: A minimum of four topical public workshops, training sessions, or lectures must be completed before graduation. Announcements of these come from the Laney Graduate School throughout the academic year. They are listed as JPE 610 workshops and will appear on the student's transcript.
4. For more information, please visit the [JPE website](#).

## 5. TATTO – Teaching Experience

The Teaching Assistant Training and Teaching Opportunity Program (TATTO) provides teacher training and experience for students in the Laney Graduate School. Completion of the TATTO program is required for all PhD students. A two-day required summer course (TATTO 600) takes place prior to the beginning of the fall semester. The GDBBS Director of Student Development coordinates this Laney requirement for all GDBBS students. She will register all second year PhD students and first year MD/PhD students for the late summer coursework.

The second part of TATTO is a teaching assistantship (TATTO 605). All students in the GDBBS are required to serve as a Teaching Assistant for one semester, usually during the second graduate year. Teaching Assistants typically serve as laboratory instructors or discussion leaders for small groups. Teaching Assistants also assist students with problems during scheduled office hours, help prepare handouts and/or laboratory material, and help administer and grade exams. Students assigned to laboratory courses assist in setting up laboratory exercises, and help students understand the theoretical and practical aspects of the exercise.

If you have specific questions or requests related to your teaching assistantship, please see the Director of Student Development in the GDBBS main office.

## B. LABORATORY ROTATIONS

As part of students' coursework, each student must complete a research rotation in at least 3 different laboratories of GDBBS faculty during the first year. Some students may decide to do a fourth rotation during the summer after their spring semester.

Prior to each rotation, students must consult with and obtain written approval from the Director of Graduate Studies for Pre-Qualifying Students, using the Laboratory Rotation Notification form available on the [IMP website](#). Once approval is obtained from the DGS, students must obtain written approval from the faculty member on the Laboratory Rotation Notification form. Students must turn this form into the Program Administrator prior to beginning each rotation. See the IMP Student Timeline on the [IMP website](#) for due dates.

Laboratory rotations expose students to different research approaches and techniques of modern science. They help define a student's research interests and make it easier to select an advisor. However, the choice of advisor is not limited to the faculty with whom the student has done a rotation. Rotations also allow faculty to observe and evaluate the first-year students in their laboratory setting. Expectations for time spent in the laboratory should be clearly established between the faculty member and the student before beginning each rotation. Students are expected to be working on their projects when not attending class.

At the close of the rotation, students must fill out the *Laboratory Rotation Summary Report* which is also on the [IMP website](#). On this form, students are required to write a

short report of the rotation to receive a grade. The summary report needs to be signed by the rotation mentor as well as the DGS. Once the *Laboratory Rotation Summary Report* is completed, students should turn it into the Program Administrator prior to the start of the next rotation. See the *IMP Student Timeline* on the [IMP website](#) for due dates. Additionally, if a student receives a grade lower than an A for a rotation, faculty are required to submit written comments on rotation performance to the DGS of Pre-Qualifying Students. The DGS will consider faculty feedback, the student's summary report, and fulfillment of the rotation weeks in assigning a rotation grade.

Incoming students may choose to participate in the GDBBS Early Start Program. This program is entirely optional and allows incoming students to matriculate over the summer prior to the start of their first year for the purpose of completing an early rotation experience before the start of the fall semester. This rotation experience does count towards a student's 3 required rotations. If the student is ready to affiliate with a mentor at the end of their third rotation, and the mentor is also ready to make a commitment to the student, the student may join the mentor's lab at that time by completing the *GDBBS Mentor Agreement and Financial Information Form* and IMP Addendum available on the [IMP website](#). Alternatively, if the student wishes to complete a 4th rotation, they may do so and affiliate with a mentor at the same time as their peers who started in the fall. It is important to note that a student who does an early start rotation begins their months of GDBBS financial support two months earlier than those students who begin in the fall, so their mentor will be responsible for their financial coverage two months earlier than students who started in the fall.

### **C. DISSERTATION ADVISORS**

The Director of Graduate Studies for Pre-qualifying students, will serve as advisor until the student has selected a dissertation advisor. Selection of a dissertation advisor takes place after the final laboratory rotation. No final commitments should be made to a faculty member by the student (or vice-versa) until this time. The dissertation advisor must be a member of the GDBBS. Although not mandatory, we strongly encourage students to select an advisor who is a faculty member of the IMP Program. Once students have selected their advisor, they must formalize this relationship by completing the *GDBBS Mentor Agreement and Financial Information Form* and IMP Addendum available on the [IMP website](#) under "Resources" and "Forms and Documents".

The GDBBS form requires the signatures of the student, advisor, DGS, and department chair of the advisor. It also requires documentation of the proposed advisor's current funding.

Students should submit all documents (Mentor agreement, Financial worksheet, & IMP Addendum) to the Program Administrator as soon as plans are made. No mentor arrangements are official until the forms have completed the full approval process of both IMP and GDBBS staff.

Students who choose a dissertation advisor at the CDC must have a co-advisor who has an Emory University faculty appointment and is a member of the IMP program.

Factors you should consider when choosing a Dissertation Advisor are discussed at length in [Appendix 1](#).

## **1. Choosing a Mentor Who is Not a Member of IMP**

Students admitted to the IMP Program are supported by the Graduate Division of Biological and Biomedical Sciences (GDBBS). As such, they may choose to do rotations or dissertation research with any faculty who are members of the GDBBS. If the student chooses to carry out dissertation work with a faculty member who is not a member of the IMP Program, three possibilities exist:

1. The student can find a co-mentor in the IMP program. This should not be undertaken lightly by the co-mentor, since this amounts to an agreement to support this student intellectually should problems arise.
2. The faculty member can join the IMP Program. This is subject to the normal procedures for inducting new faculty into the program, and is limited to faculty with training, credentials, and research support in some area of Immunology and Molecular Pathogenesis.
3. The student can arrange to transfer to the graduate program where the proposed mentor holds a training appointment. A letter of intent requesting the transfer should be sent to your current program, to your intended program, and to the Director of the Graduate Division of Biological and Biomedical Sciences. The Executive Committee of the intended program will review the student's progress in the IMP program and the student's record and approve or deny the transfer. It is expected that in most circumstances the transfer will be approved. Any additional requirements (course work, etc.) should be specified in writing and agreed upon by both the student and the intended graduate program.

## **2. Transferring to a new mentor**

Occasionally there are extraordinary circumstances when a student may elect to transfer from one mentor to another. Situations in which this happens include: (1) when a mentor leaves Emory for another institution and the student chooses not to follow them or (2) when differences arise between a student and a mentor that cannot be reconciled. These situations are usually addressed on an ad hoc basis. At a minimum, a student contemplating transfer to a new mentor must consult with the appropriate DGS, but we encourage the student to seek advice from other sources such as the Program Administrator, GDBBS Director of Student Development, IMP student representatives, or the IMP Director, as well. In some circumstances, a student or a potential new advisor may require the student to do a short lab rotation prior to a student formally joining a new laboratory, and the GDBBS will usually provide stipend support for a short duration until the student joins a new laboratory. Should unanticipated difficulties arise, the case will be referred to the IMP Executive Committee or to the GDBBS Director for final resolution. Once the student and new mentor have agreed on the student's placement, they should complete the GDBBS Mentor Agreement and Financial Information Form on the IMP website. They should also note that the arrangement is not official until the forms have completed the full approval process of both IMP and GDBBS staff.

When a student transfers to a new mentor, they may also elect to make changes to their Dissertation Committee. The student should discuss this with their new mentor and formulate a plan. If the membership of a dissertation committee needs to change, students should follow the instructions on the LGS Dissertation Committee form process.

If a student transfers to a new mentor after they have had a dissertation proposal approved by their committee, the following applies:

1. If there is not a significant change in the dissertation project, there is no need for the student to prepare a new dissertation proposal.
2. If there is a significant change in the dissertation project, then the student should prepare a new dissertation proposal consisting of at a minimum an abstract and a specific aims page. The deadline for completion of this proposal is 3 months after starting in the new lab.

If a student transfers to a new lab before December 1 of Year 3, then they must complete their Review of the Literature by December 1 of Year 3 or by 9 months after starting in the new lab, whichever comes later. If the student transfers after they had already completed their required Review of the Literature, then it will be up to the student and the mentor to decide on when the student writes Chapter 1 of their dissertation.

#### **D. PHD QUALIFYING EXAMINATION**

An oral qualifying examination is administered to evaluate students' mastery of scientific concepts before permitting them to proceed to full-time doctoral dissertation research. If a student fails the qualifying examination, they will have one more opportunity to retake and pass the oral test.

The oral examination will assess each student's comprehensive knowledge of immunology and other pertinent scientific areas. Each student is expected to be fully-versed in immunology and virology. The primary content for these two areas is covered in the first year required courses: IBS 542- Concepts of Immunology and IBS 513- Virology. Question topics can also include biochemistry as well as experimental techniques and design. In addition to possessing a broad range of facts and knowledge, the student must demonstrate an ability to synthesize information and display systematic reasoning skills. The oral examination will be administered during the first weeks of January (Year 2 for PhD/G1 for MD-PhD).

A committee of four IMP faculty members will be assigned to administer the oral examination to each student. One member will be either the IMP Director or an IMP DGS who will serve as chairperson. Students will find out who is on their committee 1 week in advance of the exam. The committees, dates, and locations will be arranged by the DGS for Pre-Qualifying Students with administrative support from the Program Administrator. Advisors **will not** be permitted to attend the examination. The examination will begin with the student providing a five-minute overview of their current research. No slides or overhead transparencies may be used. However, it is permissible to write/draw material on the board during the examination. Each member will then be given ten minutes to individually ask questions, followed by a five-minute period when the other members can pose follow-up questions. There will be two rounds of questioning.

Students must obtain the *IMP Oral Qualifying Examination* form from the [IMP website](#) to present to their committee at the qualifying examination. This form, which includes the signatures of each committee member, should be turned into the Program Administrator immediately following the exam. In the case a student fails the exam, they will have 4 weeks to complete a successful reexamination. The examining committee will provide guidance on the areas the student needs to strengthen. All attempts will be made to maintain the same committee for the retake. However, if faculty availability makes a

timely re-take impossible, the DGS may choose to substitute one member. A second failure results in dismissal from the program.

## **E. DISSERTATION COMMITTEES**

Students must select their dissertation committee before their first Research In Progress (RIP) presentation. (Spring of 2nd year for PhDs/G1 year for MD/PhDs).

The duties of the committee include assisting the student in creating and executing an original, publishable research project, assisting in the preparation of an acceptable written dissertation and administering the final oral examination (the dissertation defense). As such, this committee is vital to the progress of the student.

The overall dissertation committee must meet the following criteria:

1. Include 5 members total, including your advisor.
2. At least 3 members from the IMP program and at least 4 members of the GDBBS. Your mentor, if in IMP, counts as 1. If your mentor is not in IMP at the time you form your committee, then at least 3 of the other faculty must be IMP members.
3. At least 1 member who has been in the IMP program for at least 5 years and graduated at least 1 IMP student. You may contact the Program Administrator for a list of current faculty who fulfill this.
4. At least 4 members must be present together to hold a meeting.
5. If the student would like to include one member outside of Emory, they will need to follow the steps described on the LGS Dissertation Committee form for including an “outside reader”. The IMP program will allow one outside reader on a committee.

Students must submit the [LGS Dissertation Committee](#) form to the LGS to formalize their committee selection before their first RIP. Students can access the form and instructions through the [IMP website](#).

Guidelines for choosing members of Dissertation Committees are included in [Appendix 2](#).

After the student and advisor have agreed upon a candidate list of members for the dissertation committee, we recommend students discuss the list with the DGS for post-qualifying students before extending invitations to serve on the student’s committee and completing the LGS form.

## **F. COMMITTEE MEETINGS**

In years 2 and 3, students must hold committee meetings at least once per calendar year. Beginning in year 4, students must hold committee meetings every 6 months. However, the committee may recommend more frequent meetings as needed to more closely monitor a student’s progress. At least 4 of the 5 committee members must be in attendance at each meeting. If a member misses the meeting, the student and member must meet individually the week before or after the meeting so the member may review progress, make recommendations, and sign the *IMP Committee Meeting Summary and*

*Progress Report.* A student must have at least 3 committee meetings prior to the dissertation defense.

At least 1 week before each meeting, students will provide a 3-page maximum summary report detailing their progress. This report should briefly remind the committee of the aims of the project, summarize the progress made since the last meeting, and summarize the next steps the student intends to take. This report needs to be submitted to each committee member no less than 1-week before the student's meeting.

Students must incorporate the IMP Committee Meeting IDP Slides as part of their presentation to their committee at every committee meeting. Templates for these slides can be found on the [IMP website](#).

At the end of the meeting, the student should briefly summarize the committee's feedback on the *IMP Committee Meeting Summary and Progress Report* form. Then, each member should review the summary to ensure the student correctly captured the important steps and sign the form.

Finally, students should submit (1) the progress report, (2) the slides presented at the committee meeting, and (3) the signed Committee Meeting form to the Program Administrator within the week following their committee meeting. This form is required as documentation of each meeting and is available on the IMP website.

## **G. DISSERTATION PROPOSAL**

In spring of Year 2 (G1 for MD/PhD students), a student's committee is formed and should attend the first RIP. The first committee meeting should then happen no later than July 1 following the first RIP. Failure to meet this deadline could jeopardize the student's stipend support.

The first meeting will involve the presentation of a dissertation proposal. The proposal should be a written grant in NIH format describing the student's proposed research. The grant should adhere to the format and instructions for NIH F award applications following the guidelines students are taught in the Hypothesis Design & Scientific Writing course. Students are encouraged to submit the proposal (or something similar) to the appropriate NIH funding agency for F award support. The student's dissertation advisor is expected to aid in the design and editing of the dissertation proposal. Thus, the proposal should be written by the student with scientific input and editorial advice from the dissertation advisor. The presentation of the proposal signals the start of a collaborative interaction between the student, advisor, and committee to foster the student's independent research program and track its progress.

At least 2 weeks prior to the meeting, students should send their committee their written proposal. For the first meeting, this is in lieu of the summary report (See above in Committee Meetings.)

Each student should prepare an oral slide presentation of their proposal. This presentation should provide a brief overview of the field of interest, followed by a presentation of each specific aim, hypotheses, preliminary results, and approach(s) to be used. Additionally, the slide presentation must also include the IDP slides mentioned above and available on the [IMP website](#).

At the meeting, students must provide and have signed by the committee the *IMP Evaluation of Dissertation Proposal Form* and the *IMP Committee Meeting Summary and Progress Report*. Student can print these from the [IMP website](#).

Once approved by the committee, the student should submit the completed *IMP Evaluation of Dissertation Proposal Form* and *IMP Committee Meeting Summary and Progress Report* to the Program Administrator. Additionally, students should submit an electronic version of their proposal to the Program Administrator to be kept on file for reference, if needed, by the Program or dissertation committee.

## **H. CANDIDACY**

All students are required to follow the Laney Graduate School requirements for candidacy. Most IMP students will reach candidacy by the end of their second year.

To be eligible for candidacy, the student must meet the following requirements:

1. Complete all program requirements for candidacy: coursework and other training required by the degree program, including program required JPE training
2. Complete qualifying examinations required by the degree program
3. Select Dissertation Committee and submit LGS Dissertation Committee Form
4. Complete TATTO 600, TATTO 605, and JPE 600
5. Resolve any Incomplete (I) or In Progress (IP) grades
6. Be in good standing with a minimum cumulative 3.0 GPA
7. Have earned at least 54 credit hours at the 500 level or above

Further details, including penalties for not meeting the LGS deadline, can be found at on the [LGS website](#).

This policy is effective starting Fall 2017 (including students who participated in Early Start in Summer 2017). For students who entered their program prior to Fall 2017 they must reach candidacy no later than August 1 before their fifth year of study.

## **I. REVIEW OF THE LITERATURE**

Third year students (G2 MD/PhD students) are required to write a 30-page (double spaced) review/overview of the literature critical to the chosen area of research. This review will constitute the first, introductory chapter of the student's dissertation. The student and advisor are strongly encouraged to submit this review for publication. Reviews are due by December 1 of the third year for PhD students and December 1 of the second year for MD/PhD students. Students should submit an electronic copy to the Program Administrator no later than December 1 to ensure completion of this program requirement.



## V. AWARDING OF THE PHD DEGREE

Students must complete their degree in accordance with the timelines and requirements of the Laney Graduate School. Please see the [LGS handbook](#) and [degree completion page](#) for current details.

The format of the dissertation must be approved by the dissertation committee before the student begins writing. A copy of the dissertation in final form must be submitted to all members of the committee at least two weeks before the defense. Before distribution to the dissertation committee, the dissertation must be edited and approved by the dissertation advisor. The written dissertation must conform to Laney Graduate School Guidelines found on the [LGS website](#), but in general will consist of an original account of the background, approach, experiments, and conclusions of the dissertation research. Published papers written by the student may be reformatted as chapters in the dissertation, but an original introductory chapter (review of the literature) and concluding chapter must be added. The final chapter (~10 pages) should not simply summarize the conclusions made in the dissertation, but provide a scholarly discussion how these conclusions advance the field of study. The dissertation must indicate which figures and tables are based on data generated by the PhD candidate.

Publications are an important part of the training and success of IMP students. It is expected that students will have multiple publications (two first-author publications, review article from introduction chapter, and additional collaborative works) accepted in peer-reviewed journals at the time of their dissertation defense. However, the number of accepted papers only serves as a guideline for signaling students' progress for defense and should not be considered the sole requirement to secure permission to defend. Students at this point must convince their committee and the IMP Program that they are operating at the independent level of a postdoc. In extenuating circumstances, a student and advisor may petition the IMP Executive Committee for permission to defend with less than 2 papers, however it is unlikely that this will be permitted for students who have not successfully published a single first author peer-reviewed scientific report.

The final oral examination (dissertation defense) is scheduled by the student with the approval of the dissertation committee. The examination is administered by the committee, with the advisor serving as chairperson. The examination is public and anyone attending may ask questions. After the public presentation, the audience is dismissed and the dissertation committee will further question the candidate. The success of the defense is determined by majority vote of the dissertation committee.

Student should ensure they have met all requirements of the Laney Graduate School, the GDBBS, and the IMP program. They should refer to the "Planning for Graduation" checklist available on the IMP Student Timeline on the [IMP website](#).

Please note, it is the student's responsibility to provide programs for the audience on the day of the defense. It is the advisor's responsibility to plan/provide a celebration following the defense if the student and advisor determine they would like to do this.

See [Appendix 3](#) for guidelines on presentations for the oral dissertation defense.

## VI. TERMINAL MASTERS DEGREE

In the event that a student chooses not to complete the requirements for a PhD the student may apply for a Masters Degree. The student should discuss this decision with

the DGS before making any concrete plans. Award of the Masters Degree will require that: (1) the student successfully completes 2 years of course work; (2) passes the qualifying examination; and (3) completes a written thesis that is approved by the student's thesis committee (formerly dissertation committee). The student is required to defend the thesis in a final oral examination that will be comprehensive in scope. The examination is public and anyone attending may ask questions. The student is expected to achieve a high degree of expertise in the area of Immunology and Molecular Pathogenesis. However, the scope and depth of the Master's thesis is expected to be significantly less than that of the PhD dissertation.

## **VII. OTHER ACTIVITIES AND INFORMATION**

### **A. PROGRAM SEMINARS**

IMP Program seminars given by faculty, invited speakers, and students are held each Tuesday at 4 pm in the Whitehead Auditorium (unless otherwise notified via IMP Listserv) throughout the academic year. Students may meet with guest speakers at lunches and dinners associated with the seminar, and students are encouraged to participate in the scientific discussions. Additionally, there will be one student-invited speaker each year. The rising 4<sup>th</sup> year students will be responsible for coordinating this speaker's visit.

#### **1. Student Invited Speaker**

In the spring or summer of the third year, students in that cohort will meet with the seminar director to discuss who they would like to invite for the next year's series. Students will submit a list of 5-6 potential invitees to the seminar director. This list will be reviewed by a sub-committee of the IMP Executive Committee for final approval before any invitations are sent. The purpose of this review and approval process is to ensure guests on the list are in the best interest of the Program as a whole and to expedite the invitation process so students can move through their list without having to re-group and seek approval before each invitation is issued.

#### **2. Research In Progress Seminars (RIP)**

As mentioned above, the Tuesday seminar series includes student presentations. These are referred to as Research in Progress or RIP seminars. In these seminars, students present their ongoing research to other IMP predoctoral students, postdoctoral fellows, and faculty.

Guidelines for RIP are as follow:

1. The first RIP for each student will be in the Spring of the 2nd year (G1 for MD-PhD students).
2. RIP seminars will begin at the start of the fall semester each academic year.
3. Students will select a date for their RIP from blocks of dates allotted for their cohort.
  - a. Students will pick dates most appropriate for attendance by their advisor and committee members.

- b. Students must send their RIP title to the Program Administrator no later than 1 month before their talk. This allows the Program Administrator to maintain the program website calendar and prepare announcements for each month's presenters.
- c. Any changes to the RIP schedule must be arranged by the student with another student within their class year. This change must be made no later than four weeks before their scheduled RIP, have the approval of the DGS, and include notification of any change provided to the IMP Program Administrator.
- d. Students within their last year of the Program are required to present an RIP.

### **3. Grading for Seminar Series**

The IMP Seminar Series is a required course throughout students' time in the Program. As such, students should refer to the syllabus for the current academic year to ensure they are meeting course requirements and are knowledgeable about grading procedures. The syllabus will be distributed by one of the DGSs on the student listserv prior to the start of the academic year. Students should direct any questions about course requirements and grading to their DGS.

### **B. MEMBERSHIP OF PROFESSIONAL SOCIETIES**

It is recommended that students join at least one professional society. Many have trainee membership categories that do not cost more than \$50 per annum in dues. However several offer additional sources of travel funding or funding that can be applied for to travel to other labs to learn specific techniques. Additionally several of these societies hold annual meetings students can attend to present their research to a wider audience within their chosen field of research.

Some of the more popular societies joined by IMP students are:

- American Association of Immunologists: <http://www.aai.org/>
- American Society for Microbiology: <http://www.asm.org/>
- American Society for Virology: <http://www.asv.org/>
- American Society of Transplantation: <https://www.myast.org/>

### **C. REGIONAL AND SCIENTIFIC MEETINGS**

Students should visit the [Professional Development Support Funds](#) webpage for guidelines on how to apply for Professional Development Support funds from the Laney Graduate School. Students should read all of the information so they understand the policies and procedures. Students may still apply for additional funds through the [Graduate Student Council website](#). The IMP Program and GDBBS do not provide travel funds.

When the application for funds has been completed bring it and all required documents to the Division Business Manager (located in the Dental Building, suite 314) by the 15th of each month. Do not take this to the Laney Graduate School. Any application received after the 15th will not be reviewed until the following month. Students will be notified about the approval of their application via email by the end of the month in which they

submit their application (i.e., students who submit by October 15th will be notified by October 30th). Inform the Division Business Manager if you have not received notification by the first day of the following month (i.e., students who submitted by October 15th and who have not heard by November 1st). Once the application is approved the Division Business Manager will send the student an email with guidelines for submitting their reimbursement upon returning from travel.

Please note the following so that the application for funding is not held up: Students must book airfare through Emory's travel site. The Graduate Division strongly encourages all students to book their travel arrangements early. Please contact the Division Business Manager if a Smartkey is required in order to process the arrangements through Emory's travel site. The student must obtain all required signatures on the application before turning it in to the Division Business Manager. There is a maximum dollar limit per year and per student career. The Laney Graduate School will keep up with the amount that has been awarded. The Division recommends that students keep up with their amount as well. The application will be updated occasionally so students should download a new application from the site each time they apply for funds.

#### **D. F-GRANT APPLICATIONS**

As part of IMP training, students will take the "Hypothesis Design and Scientific Writing" course in the spring semester of the second year. As part of this course students will write an F proposal that should be submitted to NIH. More information on F grants can be found on the NIH website:

F30 for MD / PhD students

<https://grants.nih.gov/grants/guide/pa-files/PA-16-305.html>

F31 for PhD students

<https://grants.nih.gov/grants/guide/pa-files/PA-16-309.html>

It will require a substantial amount of input from the student's advisor in preparing this application and students are encouraged to include this as a consideration when choosing which laboratory to join.

#### **E. IMP LISTSERVS-**

The IMP Program maintains 4 listservs for email communication to targeted audiences. These are described below.

- [IMPFACULTY-L@listserv.cc.emory.edu](mailto:IMPFACULTY-L@listserv.cc.emory.edu) is for the faculty only (and some admin assistants). All members of the listserv may post to it.
- [IMPSTUDENT-L@listserv.cc.emory.edu](mailto:IMPSTUDENT-L@listserv.cc.emory.edu) is mainly for the students. A few faculty are also members, such as the DGS's, so students should not assume that posts there are invisible to the faculty. All members of the listserv may post to it.
- [IMPPROGRAM-L@listserv.cc.emory.edu](mailto:IMPPROGRAM-L@listserv.cc.emory.edu) is a superset of the IMPFACULTY-L and the IMPSTUDENT-L listservs, and should be used for communications that are the same to both faculty and students. All members of the listserv may post to it.

- [IMMSEM-L@listserv.cc.emory.edu](mailto:IMMSEM-L@listserv.cc.emory.edu) is mainly for seminar & defense announcements, and includes all faculty, students, admin assistants and anyone who has asked to be on it because items posted there are of interest to them. Posting privileges are limited to the Program Administrator, Director, DGS, & Seminar Director at this time.

Additionally, students will be on a cohort-specific listserv on which the Program Administrator, Director, and DGS will send cohort-specific information.

## **F. NON-IMP TRAINING ACTIVITIES**

Over the course of a student's tenure as a graduate student, opportunities may arise for a student to participate in training or professional development activities that are not part of the standard IMP curriculum and that require a substantial time commitment. Examples include serving as a Teaching Assistant beyond the requirements of the TATTO program (for credit or pay), undertaking an internship, or even registering for elective courses.

Because each of these activities may have an effect upon a student's progress towards their PhD and even affect time to graduation, a student must have the approval of both their advisor and the appropriate DGS before committing to any training activity that involves a substantial commitment of time. In order for the DGS to approve a non-IMP training activity, the student must have had a documented committee meeting showing satisfactory progress within the last year (if in years 2 or 3) or within the last 6 months (if in years 4-6), or must present documentation of one scheduled in the upcoming month. In addition, the student must be in good academic standing according to the guidelines in the GDBBS Handbook. Finally, if a student wishes to repeat an activity more than two times, a strong rationale must be provided.

Furthermore, upon completion of the activity, the student must submit the Non-IMP Training Report Cover Page and brief report (no more than 1 page) describing how the activity contributed to their training or professional development to the Program Administrator. This cover page is available on the IMP website. The advisor may be asked for a written evaluation of the effects of the activity on the student's progress as well.

## **G. VACATION POLICY**

Graduate study is a full-time endeavor. Students receive a stipend and are expected to be actively attending classes or conducting research and working toward the degree year-round, including the period between terms. The time between terms (including Fall and Spring Break) is considered an active part of the training period and is not considered a vacation or holiday. Students will continue to receive stipends during vacations and official University holidays. Students on training grants and fellowships may receive leave for the same vacations and holidays available to individuals in comparable training positions at Emory. Unauthorized absences may result in an unsatisfactory research grade for the term (i.e., in fall, spring, or summer), and could thereby lead to probation. Students who are funded by research projects are allowed up to two weeks of vacation each year, in addition to official University holidays. Students who wish to take vacation must let their advisor know of their plans at least two weeks before the planned absence. Students who wish to take additional periods of times off must get approval from their Program's Director of Graduate Studies and their Dissertation Advisor.

## **H. PARENTAL ACCOMMODATION POLICY**

LGS Parental Accommodation Policy is for students with substantial parenting responsibility as a result of childbirth, care of newborn, or a newly adopted child. This policy guarantees PhD students a minimal level of accommodation during the transition of parenthood. For more information on the policy, eligibility requirements, and application procedure, [consult the LGS Handbook](#).

## **I. FINANCIAL SUPPORT**

Stipends and tuition scholarships are intended to cover basic living expenses and tuition. With the exception of special awards, such as the Woodruff, Laney and Centennial Fellowships, stipend levels are set by the GDBBS. The faculty also encourage and assist students in obtaining individual stipend support from extramural sources, such as federal agencies and private foundations. Students are supported by the GDBBS for the first 21 months of training. Additional support will be provided by research advisors, training grants, or other sources.

## **J. EMPLOYMENT POLICY**

Doctoral education demands full-time effort. Students receive stipends and tuition fellowships in order to allow them to commit the necessary time to their studies and research. Unrelated employment serves as a distraction and interferes with the ability of students to meet degree requirements in a timely manner. For these reasons, employment not directly related to students' degree requirements and professional development goals is strongly discouraged.

If additional income is absolutely necessary while a student is enrolled in the degree program, they must receive prior approval from their advisor and the Program Director/Director of Graduate Studies. The Program Director/Director of Graduate Studies has the prerogative to bring the request to the program's Executive Committee for discussion. Requests to work more than 10 hours a week require written approval from the Dean of the Laney Graduate School. Students who wish to request permission to seek employment should allow 30 days for review. In the rare cases in which approval is granted, students must ensure that employment does not interfere with research performance, progress toward degree, or any program requirements, including seminar attendance.

## **K. GDBBS, LGS, AND SELECTED UNIVERSITY POLICIES**

IMP students are responsible for knowing and abiding by policies outlined in the [GDBBS and LGS Handbooks](#). Students should also review and abide by these selected [University Policies](#) that specifically pertain to areas that may be of interest to graduate students. While every effort has been made to make these guidelines as accurate and complete as possible, University policies may be subject to change without notice, and students must keep themselves up-to-date on these policies.

## **L. IMP WEBSITE**

The [IMP website](#) contains information regarding seminars, program forms, students, faculty and their research.

## **M. HEALTH RESOURCES AND SUPPORT SERVICES**

Graduate school can be a stressful time on your body and mind. Be sure you are taking care of yourself. The Student Health Services is located at 1525 Clifton Rd. on the 2nd floor. They can be reached at (404) 727-7551 (press 1).

Additionally, the Student Counseling Center is located at 1462 Clifton Rd. on the 2nd floor. They can be reached at (404) 727-7450. A certain number of counseling sessions are free for fully registered Emory students. You can also call the Emory HELPLINE at (404) 727-4357. It is open every night during the school year from 8:30pm-1:00am.

You can also find a variety of student support services available to you by visiting [this GDBBS resource](#) and this [LGS resource](#).

## **N. OFFICE OF ACCESSIBILITY SERVICES (OAS)**

As noted on the [Office of Accessibility Services website](#), “Emory provides all persons an equal opportunity to participate in and benefit from programs and services afforded to others. The Office of Accessibility Services (OAS), part of the Office of Equity and Inclusion, assists qualified students, faculty and staff with obtaining a variety of services and ensures that all matters of equal access, reasonable accommodation, and compliance are properly addressed.” OAS “is committed to providing access to campus resources and opportunities to allow students with disabilities to obtain a quality educational experience.”

Qualified students need to register with OAS and make a request for services. Confidentiality is honored and maintained.

## **APPENDIX 1 – CHOOSING A DISSERTATION ADVISOR**

One of the most important decisions you will make as a graduate student is your choice of an advisor. The dissertation advisor has the primary responsibility for direction of course and research activities necessary for a graduate degree in Immunology and Molecular Pathogenesis. The following criteria should be considered when evaluating potential advisors.

### **A. LIKELY PRODUCTIVITY LEADING TO PUBLICATIONS**

What is the laboratory's track record for publication? Are these publications in quality journals?

No competitive degree in an experimental science should be awarded without one or more full-length publications resulting from research.

### **B. SUPPORT FOR THE RESEARCH**

Is there a research grant, i.e., peer-reviewed funding, which can facilitate the purchase of necessary materials and services needed? How committed are funds toward other people and projects? An important measure of the quality and importance of the research effort is that external review by scientists knowledgeable in the field has led to the competitive award of money to support the project area. Such grants also reflect the judgment that training and past production of the principal investigator warrant the grant. Remember that after your second year, your stipend will derive from the grants of your advisor.

### **C. NATURE, SCOPE AND TRAINING TO BE PROVIDED BY THE DISSERTATION PROJECT**

How certain are positive, publishable results? Is it likely that a breadth of techniques can be learned such that future development and versatility of the student is well served?

The best training for a modern scientist must provide a breadth of research experiences that significantly augment formal lecture and laboratory courses. It can be argued that a good research problem would be sufficiently open-ended as to allow several aspects of a major question to be approached by diverse methodology. A student should discuss research projects with each of several potential mentors to see what may be of mutual interest.

### **D. SENIORITY OF ADVISOR AND LABORATORY ENVIRONMENT**

What is the depth and breadth of the advisor's training and research experience? How versatile and technique-wise are associate (technician, post-doc, student) personnel in a given research group?

In general, a more established faculty member may have a larger laboratory group and potential collaborators. These must often be relied upon to teach particular techniques. The senior faculty person may be committed to a range of duties that interfere with bench supervision. Such supervision is more likely with younger faculty. Hence, if frequent or constant need for direction is desirable, one should be clear that it can be provided. The long-range value of a faculty advisor is also based in part on outside contacts and knowledge of postdoctoral and job connections. A student should meet the lab personnel of the potential advisor for a sense of the type of supervision provided and whether there appears to be a desirable ambiance in a group.



## **E. AREA OF RESEARCH**

How interesting is the subject area to you? What are its ultimate directions and goals?

## **F. COMMUNICATION**

Can you communicate well with the advisor? Are clear expectations made of lab members, time in lab, protocol for lab meetings and lab notebooks, etc?

## **G. STUDENT MENTORING RECORD**

Does the P.I. have a positive track record of working with students either in the IMP program or other graduate programs? Does the P.I. have a reputation for supporting student's career goals?

Students may also find the [LGS Mentoring Guide](#) helpful not only as they consider who they would like as their advisor, but also throughout their time working with their advisor.

Students may also take advantage of the [Atlanta Society of Mentors- Student Chapter](#) to discuss mentoring issues and needs and develop their own mentor toolbox.

## **APPENDIX 2 – CHOOSING A DISSERTATION COMMITTEE**

Overall, you want to choose people who are available, reasonable, and with whom you feel you could work well. Each advisor will have a different level of investment into how a student forms his/her committee. So consult with your advisor first for feedback and advice. Then, consider people from both the perspective of those who will enhance your science/project AND those who will invest in your personal and professional development. You do not have to “meet” all the criteria below, but these are some elements to consider as you form your committee.

### **A. FOR SCIENTIFIC INPUT, CONSIDER INCLUDING:**

1. An expert in your field specifically
2. An expert in your field more broadly
3. Someone up to date and interested in cutting edge methods and technology
4. Someone whose lab has some kind of expertise that will benefit your project

### **B. FOR YOUR PERSONAL AND PROFESSIONAL DEVELOPMENT, CONSIDER INCLUDING:**

1. Someone you rotated with or have interacted with in the past who seemed to have a personal interest in you and could be your advocate/ally if or when needed
2. Someone you feel comfortable talking to outside of committee meetings
3. Someone who is available for meetings (versus someone who is always traveling or spread thin with administrative responsibilities)
4. Someone who has a good track record of working with students.
5. At least some members familiar with program guidelines and requirements to help keep you on track

## **APPENDIX 3 – GUIDELINES FOR ORAL DISSERTATION DEFENSE PRESENTATIONS**

The oral dissertation defense is many things. It's a cause for celebration. It's part of a long and venerable tradition. But most of all, it's the time for the candidate to justify why they are deserving of the designation of PhD.

There are many groups in the audience of the oral presentation — family, friends, peers with expertise overlapping your research topics (and some not), and the examination committee. Sections of your dissertation defense can address each of these groups — it's perfectly OK for you to take a few minutes to explain yourself to non-experts — but the only audience that matters in the end is your examination committee, and the only responsibility you have that really matters is to convince them you have developed sufficient depth of knowledge and skills in the practice of biomedical science to be worthy of the designation of PhD.

## **APPENDIX 4 — NEXT STEPS**

The question of what direction a student's career will take following completion of the Ph.D. should arise early and become increasingly important as training progresses. It is never too early to consider career options. To aid in planning for the next steps of a student's career, students should include slides related to their IDP, short term and long-term career goals at each committee meeting to be reviewed and discussed with their dissertation committee. Templates for these slides are available on the [IMP website](#). Students receiving a Ph.D. usually take a postdoctoral research position to acquire additional techniques and expertise to further prepare for an independent research career. Such postdoctoral training is usually essential for a career in academic research. Some students take permanent positions in industrial or government laboratories immediately after receiving the Ph.D. degree, while others enter additional advanced degree programs such as medical school, or seek careers in administration of science funding or policy, or editorial positions in scientific journals. Career objectives can best be realized through careful planning. All members of the faculty stand ready to advise students on career options, and students are encouraged to seek this advice at any time during their training.

Students can learn more about career planning and professional development opportunities by visiting this [LGS website](#).