Microbiology and Molecular Genetics (MMG)
Program Requirements and Guidelines

2017-2018

8/8/17
# Table of Contents - Click below to navigate

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMG Leadership</td>
<td>3</td>
</tr>
<tr>
<td>Goal of the Program</td>
<td>3</td>
</tr>
<tr>
<td>Organization</td>
<td>3</td>
</tr>
<tr>
<td>Election Procedures for Faculty</td>
<td>4</td>
</tr>
<tr>
<td>Election Procedures for Students</td>
<td>4</td>
</tr>
<tr>
<td>Course Requirements: Fall Semester Year 1</td>
<td>5</td>
</tr>
<tr>
<td>Jones Program in Ethics (JPE)</td>
<td>5</td>
</tr>
<tr>
<td>Course Requirements: Spring Semester Year 1</td>
<td>5</td>
</tr>
<tr>
<td>Course Requirements: Fall Semester Year 2</td>
<td>6</td>
</tr>
<tr>
<td>Teaching Assistant Training and Teaching Opportunity (TATTO)</td>
<td>6</td>
</tr>
<tr>
<td>Course Requirements: Spring Semester Year 2</td>
<td>6</td>
</tr>
<tr>
<td>Suggested Fall Electives</td>
<td>6</td>
</tr>
<tr>
<td>Suggested Spring Electives</td>
<td>6</td>
</tr>
<tr>
<td>Directed Study</td>
<td>7</td>
</tr>
<tr>
<td>Additional Elective Options</td>
<td>7</td>
</tr>
<tr>
<td>MD-PhD Requirements</td>
<td>7</td>
</tr>
<tr>
<td>Seminars, Journals, and Research Clubs</td>
<td>8</td>
</tr>
<tr>
<td>Laboratory Rotations</td>
<td>8</td>
</tr>
<tr>
<td>Mentors</td>
<td>9</td>
</tr>
<tr>
<td>Choosing a Mentor</td>
<td>9</td>
</tr>
<tr>
<td>Additional Teaching Requirements</td>
<td>10</td>
</tr>
<tr>
<td>Thesis Committees</td>
<td>10</td>
</tr>
<tr>
<td>Qualifying Examination</td>
<td>10</td>
</tr>
<tr>
<td>MMG Thesis Research Proposal</td>
<td>11</td>
</tr>
<tr>
<td>Thesis Committee Meetings</td>
<td>12</td>
</tr>
<tr>
<td>Navigating Graduate School</td>
<td>13</td>
</tr>
<tr>
<td>Dissertation &amp; Final Defense</td>
<td>14</td>
</tr>
<tr>
<td>Master's Thesis</td>
<td>16</td>
</tr>
<tr>
<td>Review of Student Progress</td>
<td>16</td>
</tr>
<tr>
<td>Transferring Programs</td>
<td>16</td>
</tr>
<tr>
<td>Attendance at Scientific Meetings</td>
<td>16</td>
</tr>
<tr>
<td>Graduate Student Vacation Policy</td>
<td>17</td>
</tr>
<tr>
<td>Graduate Student Sick Day Policy</td>
<td>17</td>
</tr>
<tr>
<td>Graduate Student Family Accommodation &amp; Leaves of Absence</td>
<td>17</td>
</tr>
<tr>
<td>Admission to Candidacy</td>
<td>17</td>
</tr>
</tbody>
</table>
MMG Leadership

**Director:** Joanna Goldberg

**Director of Graduate Studies:** Charlie Moran

**Seminar Directors:** Cassandra Quave & Jens Wrammert

**Web Advisor:** John Steel

**Recruiters:**
- Anice Lowen (Head Recruiter)
- Graeme Conn (Co-Recruiter)
- Shonna McBride (Co-Recruiter)
- Bernardo Mainou (Co-Recruiter)

**Executive Committee:**
- Graeme Conn- Co-Recruiter
- Joanna Goldberg- Director
- Bo Liang- At-Large Member
- Elizabeth Littauer- Student Representative
- Anice Lowen- Head Recruiter
- Bernardo Mainou- Co-Recruiter
- Shonna McBride- Co-Recruiter
- Charles Moran- Director of Graduate Studies
- Cassandra Quave- Seminar Director
- John Steel- Web Advisor
- David Steinhauer- At-Large Member
- David Weiss- At-Large Member
- Jens Wrammert- Seminar Director
- Elizabeth Wright- Curriculum Review Chair

**Program Administrator:** Emily Morran

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**Goal of the Program**

The MMG program will provide training in the study of microorganisms as well as in the use of microbial models to investigate basic problems in molecular genetics. Students will take a common curriculum during the first two years. For more advanced training, students will choose among elective courses. The program will offer the Ph.D. degree in Microbiology and Molecular Genetics through the Graduate Division of Biological and Biomedical Sciences (GDBBS) of the James T. Laney Graduate School (LGS).

**Organization**

The MMG program is led by a Program Director. The Director is responsible for the overall administration of the program and will assure student performance to the University in the conferring of degrees achieved within the program. The Director will serve with the assistance of an Executive Committee. The Director shall chair the Executive Committee, which includes presenting and overseeing subsequent votes on any program decisions or changes under consideration by the committee. The Program
Director may advise the DGS in student matters, if asked, and may advise the Head Recruiter in recruitment decisions, if asked. S/he shall oversee the appointments of any new faculty members as well as faculty compliance with program expectations and communicate those expectations if/when needed. S/he shall oversee the program budget. Finally, the Program Director is the program’s liaison to the GDBBS.

The Executive Committee:

- Evaluates the credentials of prospective faculty members and decides on offers of positions.
- Makes recommendations to the Director regarding the operation of the program and the development of policies within the program.
- Makes recommendations to the Director concerning the curriculum of the program, including the development of new courses for the program.
- Makes recommendations on student issues and needs that arise.

The Executive Committee will meet as often as necessary to handle programmatic issues.

Each position in the Executive Committee will be held for 3 years. Members’ positions will be up for election on a rotating basis such that multiple positions are up for election each year.

**Election Procedures for Faculty**

Open positions will be announced on the faculty listserv each spring/summer. Faculty will have one week to nominate themselves or others. At the close of one week, the Program Administrator will announce nominations and share a hidden electronic ballot. Voting will be open for one week. The Program Administrator will oversee the vote & report results to the Program Director. The Program Director will announce results following the close of the voting week.

**Election Procedures for Students**

The current Student Representative will solicit candidates from the post-candidacy students at least one month prior to the end of the term. If more than one student is interested, the current student rep will conduct a vote of the current student body using a hidden poll and announce the outcome to the students and Program Administrator following the vote.

The Program Administrator is the point of contact to assist all faculty and students within the program. For more information regarding the specific roles and responsibilities of each Executive Committee position, please contact the Program Administrator.
Course Requirements
The following (or their equivalents) are required of all PhD students in the MMG Program:

Fall Semester Year 1
IBS 504 Intro Prokaryotic Genetics 6 credit hours
*IBS 555 Basic Biomedical and Biological Sciences I 6 credit hours
*or IBS 542 Concepts of Immunology 4 credit hours
IBS 545R Introduction to Faculty Research 1 credit hour
MMG 570R Introductory Graduate Seminar 1 credit hour
MMG 597R Laboratory Rotations 1 credit hour
MMG 792R Colloquium in Microbiology 1 credit hour
**JPE 600 Jones Program in Ethics 0 credit

*The summer prior to the start of Year 1, incoming students will consult with the DGS to determine which course, IBS 555 or IBS 542, is a better fit based on their background and research interests.

**The Jones Program in Ethics (JPE) is a comprehensive program to educate doctoral students in all disciplines in the ethical pursuit of scholarly research. Training will take place both within interdisciplinary forums and also within the student’s graduate program.

There are three elements to the program:

1. JPE 600, a one-day core course in scholarly integrity, supported by the Laney Graduate School in collaboration with the Emory Center for Ethics, will be required of all incoming graduate students.

2. Program-based training in ethics and the responsible conduct of research takes place within existing courses. Additionally, MMG and Immunology and Molecular Pathogenesis (IMP) students will attend faculty-led ethics seminars arranged by the MMG & IMP Directors. Six seminars will be presented in the fall of each year. For the 2017 academic year, the programmatic ethics seminars will take place on Mondays and Wednesdays at 4:00 PM in the Whitehead Auditorium. All first year students are required to attend. This initial series is required towards Candidacy eligibility. All fifth year students are required to attend post-candidacy. Second & sixth year students must attend any lectures they missed in the previous year.

3. Students must attend a minimum of four topical public workshops, training sessions, or lectures offered by the graduate school before they graduate. These are not required to reach Candidacy, but students are encouraged to attend them early in their graduate school career. These are announced on the LGS listserv and will appear on the student’s transcript as a JPE 610 course.

For more information on JPE visit:
http://www.gs.emory.edu/professional-development/jpe/index.html
Spring Semester Year 1
IBS 513 Virology 5 credit hours
MMG 570R Introductory Graduate Seminar 1 credit hour
MMG 792R Colloquium in Microbiology 1 credit hour
MMG 597R Laboratory Rotations 1 credit hour

Choose one additional course from the Elective Course list.

In the 2nd year students must take a minimum of 2 courses from the Elective Course list.

Fall Semester Year 2
MMG 790R Advanced Graduate Seminar 1 credit hour
MMG 792R Colloquium in Microbiology 1 credit hour
IBS 522R Hypothesis Design and Scientific Writing 4 credit hours
IBS ____ An Elective from the Fall list (see below) credit hours vary
*IBS 699R Advanced Grad Research credit hours vary
**TATTO 600 Teaching Graduate School Workshop 2 credit hours
**TATTO 605 Teaching Assistantship 2 credit hours

*Between course work and Advanced Grad Research a minimum of 9 credit hours are required per semester to remain a full-time student. Register for Advanced Grad Research last to determine how many credit hours will remain in order to fulfill the 9 credit hour requirement.

**Teaching Assistant Training and Teaching Opportunity (TATTO) is a Laney Graduate School teaching requirement that must be fulfilled before students are allowed to graduate. (see page 9 below for more info.) The requirement is usually fulfilled in the fall of your second year by passing TATTO 600 and TATTO 605 (TATTO 605, the actual teaching assignment, can be taken in the fall or spring).

All students must contact Monica Taylor (monica.taylor@emory.edu) in the GDBBS office to be registered for TATTO 600 and TATTO 605. TATTO 600 and TATTO 605 does not count toward your 9 credit hours.

Spring Semester Year 2
MMG 790R Advanced Graduate Seminar 1 credit hour
MMG 792R Colloquium in Microbiology 1 credit hour
IBS ____ Choose an Elective from the Spring list credit hours vary
*IBS 699R Advanced Grad Research credit hours vary

*Between course work and Advanced Grad Research a minimum of 9 credit hours are required per semester to remain a full-time student. Register for Advanced Grad Research last to determine how many credit hours will remain in order to fulfill the 9 credit hour requirement.

Elective Courses Suggested for Fall
IBS 515 Current Topics in Molecular Genetics 2 credit hours
IBS 542 Concepts of Immunology 4 credit hours
IBS 560 Model Genetic Systems 4 credit hours
IBS 568 Principles of Anti-Infectives 4 credit hours
IBS 777R Annual Reviews of Immunology 2 credit hours
MMG 797R Directed Study (see requirements below) credits vary
**Elective Courses Suggested for Spring**

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>IBS 556</td>
<td>Basic Biomedical and Biological Sciences II</td>
<td>6</td>
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<tr>
<td>IBS 725</td>
<td>Prokaryotic Gene Expression</td>
<td>6</td>
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<tr>
<td>IBS 727</td>
<td>Genetics of Bacterial Pathogenicity</td>
<td>6</td>
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<tr>
<td>IBS 742</td>
<td>Regulation of Cell Growth</td>
<td>6</td>
</tr>
<tr>
<td>MMG 797R</td>
<td>Directed Study (see requirements below)</td>
<td>credits vary</td>
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</tbody>
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**Directed Study**

The purpose of Directed Study (MMG 797R) is to allow advanced students, already into their research projects, the opportunity of specialized training in areas not represented by the current courses offered by either our program or other programs. An outline of the directed study must be submitted to the DGS or the curriculum committee for approval prior to registration. Only three to five credit hours of Directed Study can be counted towards Candidacy.

**Additional Elective Options**

Many MMG students take advantage of courses offered in the Rollins School of Public Health graduate programs. These include courses in Epidemiology, Global Health, and Biostatistics. There are also opportunities to take elective courses at Georgia Tech. For more information, contact the DGS or the Program Administrator. Please note that any courses taken outside of GDBBS must be approved by the course instructor and the program DGS before a student can enroll. Students must also discuss elective courses with their mentor to ensure the course will benefit their research and training trajectory.

**MD/PhD Requirements**

**Spring of M2 Year**

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>IBS 513</td>
<td>Virology</td>
<td>5</td>
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<tr>
<td>MMG 792R</td>
<td>Colloquium in Microbiology</td>
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</tbody>
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Laboratory Rotations through the MD-PhD Program

MD-PhD students should email a copy of their Dissertation Advisor Assignment Agreement form to the MMG Program Administrator as soon as they affiliate with a lab but no later than September 1 of their G1 Year.

**Fall of G1 Year**

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<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>IBS 504</td>
<td>Intro Prokaryotic Genetics</td>
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<tr>
<td>IBS 522R</td>
<td>Hypothesis Design and Scientific Writing</td>
<td>4</td>
</tr>
<tr>
<td>MMG 790R</td>
<td>Advanced Graduate Seminar</td>
<td>1</td>
</tr>
<tr>
<td>MMG 792R</td>
<td>Colloquium in Microbiology</td>
<td>1</td>
</tr>
<tr>
<td>*IBS 699R</td>
<td>Advanced Grad Research</td>
<td>credit hours vary</td>
</tr>
<tr>
<td>**JPE 600</td>
<td>Jones Program in Ethics</td>
<td>0</td>
</tr>
<tr>
<td>***TATTO 600</td>
<td>Teaching Graduate School Workshop</td>
<td>2</td>
</tr>
<tr>
<td>***TATTO 605</td>
<td>Teaching Assistantship</td>
<td>2</td>
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*Between course work and Advanced Grad Research a minimum of 9 credit hours are required per semester to remain a full-time student. Register for Advanced Grad Research last to determine how many credit hours will remain in order to fulfill the 9 credit hour requirement.*
Seminars, Journals, and Research Clubs
All students will attend the weekly MMG seminar series (MMG 570 or MMG 790R). In addition, there are weekly programs of invited speakers for the Department of Microbiology and Immunology, the Graduate Program in Immunology and Molecular Pathogenesis, the Program in Genetics and Molecular Biology, the Infectious Disease Division and Grand Rounds at the CDC, all of which often include topics of interest to training program students. Often, seminar topics at Emory are chosen to correlate with the advanced courses being offered. For example, in IBS 504, there is generally at least one visiting speaker lecture in the course as well as presenting public seminars. Additionally, there are less formal research/journal clubs. Students attend seminar every Monday and are required to present their research at least twice before graduating.

For student Research in Progress Seminars, two students will give a 30-minute presentation of their research during the regularly scheduled seminar time. Each student must do at least 2 oral presentations before graduating. If a student gives an oral presentation at the yearly GDBBS Symposium, this talk will count towards the 2 oral presentation requirement.

The Seminar Directors and Program Administrator will advise each student when they are due to present.

Laboratory Rotations
At the start of the first semester, students take IBS 545R (Introduction to Faculty Research) in which Program faculty briefly describe their research and lab. These presentations allow students to begin thinking about where they would like to rotate and who they may want on their thesis committee.

Students are required to perform at least three rotations during the first year and the rotations should follow the dates indicated on the Laboratory Rotation Agreement Form. (All forms available on the program website under “Resources” → “Forms & Documents”.) Some students may decide to start in the summer before the first semester or do an additional rotation during the summer after their second semester.

There are two major reasons for the rotations: familiarization with a diversity of techniques and scientific approaches and the selection of the lab in which to perform your thesis research. A Laboratory Rotation Agreement Form must be completed for each rotation. Additionally, the student submits a brief written report of the research they performed, by the end of the rotation, to their rotation mentor, the DGS, and the Program Administrator. The DGS will also collect statements from faculty rotation mentors. These statements will indicate how the student met or did not meet the expectations. The statements will also include a suggested grade. If the grade is less than an “A”, the mentor will need to document where the student was deficient and what steps were made prior to the end of the rotation to address the needed changes. If the suggested grade is less than an “A”, the DGS will meet with the student to discuss the
situation prior to issuing the final grade. The combination of the student's written report and the mentor's statement will provide the foundation for the rotation grade.

The *Laboratory Rotation Agreement Form* can be found on the MMG website under “Resources” and “Forms and Documents”.

**Mentors**

During the first year lab rotation period the Director of Graduate Studies (DGS) serves as the official advisor for all students until the student chooses a thesis mentor. The DGS meets with the students at the beginning of fall semester to discuss coursework, rotations, and other first year issues and obligations, and will be available along with the MMG Student Rep to help guide students and assist with any problems that might arise.

Most students select a thesis mentor within two weeks of completing the third rotation. This faculty member then becomes the major advisor for the student. However the DGS will maintain contact with students until they pass their qualifying exam.

The *GDBBS Mentor Agreement Form* must be completed and submitted to the Program Administrator to formalize your mentor agreement. This form is due by Friday, April 13, 2018. If a student is not ready to affiliate with a lab and needs to complete an additional summer rotation, it is recommended that the student confer with the DGS prior to organizing any summer rotations and dates. Then, s/he should submit a *Laboratory Rotation Agreement Form* by Friday, April 13, 2018 and promptly begin a summer rotation. Dates for the summer rotation should be worked out in consultation with the DGS.

Note: Students who choose a thesis mentor at the CDC must have a co-advisor who has an Emory University faculty appointment.

**Choosing a Mentor**

The most important decision a student will make in graduate school is the selection of a research mentor. This relationship will be the foundation of the student’s training and future career endeavors and should not be entered into lightly. The Program encourages students and faculty to consider the following before making these agreements:

1) Is this a positive and enjoyable interpersonal match?
2) Do we have a clear understanding of how we will communicate? (frequency of one-on-one meetings & lab meetings, expectations at meetings, shared understanding of how lab notebooks are kept, preferred method of communication outside of regularly scheduled meetings- ie: phone, text, email, pop-in vs. schedule, etc.)
3) Do we share an enthusiasm for the area of research and proposed project?
4) For students: Does this faculty member have a positive record of student training?
5) For faculty: Does this student's mode of and response to learning match my training style?
6) For students: Do I feel supported by this faculty member?
7) For faculty: Has this student shown respect for my lab & decisions?
8) Do I feel confident we can resolve conflicts that will arise?
The laboratory rotations provide the obvious opportunity to consider many of these questions. Additionally, students are encouraged to:

- Read all papers from the lab they are considering
- Talk with current students
- Talk with the DGS
- Schedule meetings with potential mentors to discuss questions important to each of you before establishing the relationship.

### Additional Teaching Requirements

The Laney Graduate School has a formal requirement for training in teaching. Graduate students from all programs are required to take a brief intensive course, TATTO 600, during the summer leading up to their second year. This course instructs them in teaching techniques and the students are required to give a brief presentation to a heterogeneous group. Following TATTO 600, students complete one semester of a teaching assistantship, TATTO 605. This is usually completed either the fall or spring semester of the second year. Monica Taylor in the main GDBBS office organizes TATTO 600 and 605 for all Division students. Additional requirements for training in teaching are met within the program. These include IBS 792R (Colloquium in Microbiology), required of all MMG students for two years.

### Thesis Committee

The Thesis Committee consists of five faculty members, including the advisor; at least three of the faculty members must be associated with MMG. The constitution of this committee must be approved by the DGS. To formalize the committee selection, students must submit the *LGS Dissertation Committee Form* to the Program Administrator no later than March 15 of Year 2 in conjunction with the Abstract Submission Date (see “Qualifying Examination” info below for more on the Abstract.)

This committee will oversee the student’s qualifying examination. Following the qualifying examination, the MMG program recommends that the first committee meeting be held within one year of passing the qualifying examination but no later than the end of the summer term following the student’s third year. This is the latest deadline allowed by the GDBBS. Beginning in Year 4, students should meet with their committee every 6 months. See more information about committee meetings below.

### Qualifying Examination

In preparation for Qualifying Exams, **the Thesis Committee should be selected well in advance of the Abstract Submission date of March 15** for Qualifying Exam Abstracts. Then the student must submit the *LGS Dissertation Committee Form* no later than March 15 to formalize their committee selection.

The Qualifying Examination Committee consists of the Thesis Committee plus the Director of Graduate Studies. For students in the lab of the DGS, the alternate DGS will serve on the committee.

By the end of May in the second year (G1 Year for MD-PhDs), students are expected to have passed an examination based on a research proposal which might serve for their thesis work. The research proposal should follow the NIH proposal guidelines (See MMG Thesis Research Proposal section below for more details). The primary purpose of this examination is to give the students the opportunity to develop an original and significant scientific proposal and to defend it before a group of scientists who have
relevant expertise. The examination is used as a teaching device and is one of the methods used to follow a student’s academic progress. Recommendations for improving a student’s progress are expected to result from each examination. In preparation for this milestone:

1) By March 15 of the second year (G1 Year for MD-PhDs), the student must organize their thesis committee composed of five faculty members, of which at least three are associated with the MMG program, and submit to them a 200-300 word written abstract that concisely states the problem, an original testable hypothesis, and an outline of experiments to test the hypothesis. A specific goal of this exercise is to train students to think concisely and to write meaningful short abstracts.

2) The student is responsible for organizing the examination date with the committee and the DGS (generally late April or early May). The full research proposal (see section below regarding the Thesis Research Proposal) should be submitted to the examining committee and DGS at least 2 weeks prior the oral examination. Please contact the Program Administrator for assistance in obtaining a room for the exam, if needed. At the exam, the student should supply each committee member with a copy of the first page of the Qualifying Exam Form.

3) The Examining Committee will question the student on the proposal during the oral examination with three rounds of discussion. The first round of questions is aimed at the technical details of the student’s proposed research. The second round pursues more fundamental and quantitative areas concerned with the proposition and is oriented toward challenging the student’s intellect. The third round concerns more peripheral areas that test the student’s overall background. The student is expected to use the blackboard effectively to present a hypothetical working model; PowerPoint presentations are not permitted.

4) Immediately after the oral exam, the committee evaluates the student’s performance, determines whether a need exists to retake an additional exam and makes written recommendations pertaining to future training on their copy of the first page of the Qualifying Exam Form. Students are also encouraged to speak with the faculty examiners after receiving their written comments.

5) The final step in the qualifying exam process is for the student to write a summary of specific action items and committee feedback in conjunction with his/her advisor. This summary statement of the feedback is then approved by signatures from each committee member on the second page of the Qualifying Exam Form. Students must submit all pages of the Qualifying Exam Form to the Program Administrator within one week of the exam to document this program milestone.

**MMG Thesis Research Proposal**

The proposal should follow standard NIH guidelines for an F31 Proposal, and contain a title page (title of your proposal and your name), abstract/summary (no more than 30 lines of text), Specific Aims page, Research Strategy section, and Bibliography/Literature Cited section.

The body of the proposal will consist of the Specific Aims page and the Research Strategy.
Specific Aims - ideally two or three major goals of the research project. This should be a brief introduction and hypothesis of the project and two or three explicit aims of the proposal - do not to exceed one page!

Research Strategy – consists of three sections, not to exceed six pages total.

1) Significance (1-2 pages suggested) – Why is the research important and why should it be funded.

2) Preliminary Results (about 1 page suggested) – This section outlines experimental data that provide the basis for the proposed experiments. Ideally, the students should have some results of their own to present here; however, it is not unusual for students to have little or no solid data at this stage. Therefore, this section can include results from others in the PI's lab, or results from other labs that may be directly relevant to the proposed experiments.

3) Approach – (about 4 pages suggested) This section describes experimental design and methods - This section should restate each Specific Aim individually and address rationale and design for the proposed experiments, techniques to be utilized, anticipated or possible results, and pitfalls and alternatives for the proposed studies. The examining committee is likely to focus their oral discussion primarily on this section.

Despite the page limits, the use of models, figures, graphs, tables, or flowcharts is encouraged when appropriate to supplement, summarize, or clarify specific topics that are addressed in the text.

There are no page limits to the Literature Cited section.

Thesis Committee Meetings
The MMG program recommends that the first committee meeting be held within one year of passing the qualifying examination but no later than the end of the summer term following the student’s third year. This is the latest deadline allowed by the Division. Beginning in Year 4, students should meet with their committee every 6 months.

At least one week prior to the committee meeting the student must send all committee members the location of the committee meeting and a one-page progress report highlighting what will be discussed at the meeting. The objectives of the meeting are:

   1. Discuss career development
   2. Evaluate the progress of the student
   3. Review short-term goals accomplished
   4. Evaluate next short-term goals
   5. Determine whether student is on track to graduate in a timely manner

At the meeting, the student must incorporate the MMG Thesis Committee Meeting Slides (available on the program website under “Resources” → “Forms & Documents”). These slides can be inserted wherever the student feels is most appropriate and are designed to ensure discussion about the student’s career goals and objectives.
On the *MMG Thesis Committee Meeting Form*, after each meeting, the student will summarize the comments and feedback given by the committee and develop an action plan in conjunction with his or her mentor. **Within one week of the meeting**, all committee members must sign off on this summary and action plan on the *MMG Thesis Committee Meeting Form*.

Additionally, **within 1 week of the meeting**, the student must submit his or her 1 page progress report, presentation slides, and *MMG Thesis Committee Meeting Form* to the Program Administrator to be maintained in the student’s file. This packet is the documentation of the student’s meeting as well as confirmation of the student’s adequate progress in the program.

**Navigating Graduate School**

MMG provides an environment for scientific training and the development of professional skills, including clear communication, collaboration, and conflict management. When professionals are working closely together on projects, disagreements will arise from time to time. When such disagreements occur, MMG hopes to create a framework for students and their mentors to find a path to work together towards an outcome that is mutually beneficial. MMG recommends faculty and students follow these steps to resolve conflict:

**Step 1:** Always begin by attempting to resolve the issue amongst yourselves
*Think about the environment, timing, and communication style to set up the conversation for the best possible outcome.

*Use communication that is clear and calm. See the two articles below for some great insight & practical tips on effective communication.

http://www.sciencemag.org/careers/2008/06/mastering-your-phd-better-communication-your-supervisor

https://sharepoint.washington.edu/phys/grad/Forms/phd_MentorCommunicationCWD.pdf

*Steps 2-4 can happen in any order or concurrently as needed for your situation.*

**Step 2:** Talk to your MMG support team

DGS: The MMG DGS will give you the program perspective on the matter- what the program expects of a faculty member and a graduate student in your specific situation. The DGS can be a sounding board or an advocate depending on your situation. Sometimes it is helpful to bring the DGS into the meeting to mediate the interactions between the mentor and the student.

Program Director: If the DGS is unavailable, you can also see the Program Director for virtually the same support as you would have from the DGS.

Program Administrator (applicable to students): The PA is a point of contact to all other resources in your program, the Division, and the University. She can act as a sounding board or a safe space to confidentially vent about your situation. She can also help you determine if your situation should be conveyed to other supervising entities (ie: DGS,
GDBBS staff, etc.).

Student Representative (applicable to students): Your student representative can provide peer support and context for your situation. He or she can help you think through how to communicate with the faculty member, share his or her own experiences and advice & offer a supportive, listening ear.

**Step 3: Utilize the student’s committee**

If a conflict arises between a student and his or her research mentor, the committee can serve as advocates for both the student and the mentor. When used well, they can be an effective team for navigating disagreements & developing beneficial solutions. They are often the group most well versed with the science AND the personalities of the mentor and student. Both students & mentors should be able to contact members of the committee for feedback on the situation. Ask them how they would resolve it. If necessary, schedule a committee meeting. Ultimately, the committee has the responsibility of advising the student towards his/her dissertation & defense and can intervene when either the student or mentor is making choices detrimental to this final goal.

**Step 4: Utilize GDBBS staff**

Contact Monica Taylor in the GDBBS. As Director of Student Development, Monica has a wealth of experience on behalf of faculty and students. She is a fantastic listener and well versed in the resources on campus as well as the Graduate School policies and Division policies that may pertain to your situation.

Finally, here are a few additional resources for faculty and students that can help in challenging situations:

http://www.icre.pitt.edu/mentoring/challenges_solutions.html

http://www.ohsu.edu/xd/education/schools/school-of-medicine/faculty/mentoring/mentoring-best-practices/index.cfm

http://www.emory.edu/CAMPUS_LIFE/initiatives/programs_and_resources/ombudsperson.html

http://www.emorycaresforyou.emory.edu/index.html

**Dissertation & Final Defense**

Students should refer to the LGS handbook and website for important information regarding dissertation completion time, forms, and due dates each semester.

Each student will be expected to submit a written dissertation in compliance with the rules and deadlines of the Laney Graduate School. To receive the Ph.D. degree, the student is expected to have completed an original contribution to research, as demonstrated by publications in leading peer-reviewed journals. Generally, a minimum of one first author paper should be published by the student in a top quality journal indexed in PubMed (society journal or higher), though most students will be expected to exceed these standards.
Approximately six months prior to the anticipated defense, the student will meet with the committee to outline progress, publications and anticipated publications, and plans for completing the thesis research. At this time the committee either approves of the plan, or outlines further recommendations or requirements for the student. When the plan is approved, the student will move towards completion of manuscripts to be submitted and the formal written thesis.

At this point, in preparation for the defense and graduation, it is recommended that the student refer to the “Planning for Graduation” checklist located at the bottom of the MMG Student Timeline. This document is available on the program website under “Resources” → “Forms and Documents”.

The dissertation should be made available in final form to the committee at least 2 weeks prior to the public, oral defense.

The dissertation and its presentation should demonstrate that he/she has learned to plan, design and interpret experiments independently.

In anticipation of the public defense, the student must submit a Defense Flyer and Program to the Program Administrator to be distributed on the seminar listserv and posted on the program website calendar. These public announcements must go out at least 2 weeks prior to the public defense. Templates for these items are available on the program website under “Resources” → “Forms & Documents”.

Following the oral defense, the dissertation committee examines the student further regarding the research and decides on the final acceptance of the dissertation. Approval of the dissertation by the Thesis Committee should be unanimous. In the event of serious disagreement, the Executive Committee of the Program will review the opinions of the committee members.

The dissertation form should contain:

A) An inclusive (5-10 page) introduction to provide an overall focus for the manuscript(s)

B) The published or to-be-published manuscript(s) (for multi-author manuscripts, the actual contribution of the student to the paper should be summarized)

C) Other unpublished results which can be included as a separate chapter

D) A summary and conclusion section (5-10 pages) in which the contribution of the research to the field is discussed and which also includes a discussion of future directions for research

E) References

Other papers by the students on other topics may be included as an appendix.

Your dissertation must meet all Laney Graduate School requirements (see the Graduate School website for specific requirements):

http://www.gs.emory.edu/academics/policies/completion.html.
Master's Thesis
In certain instances it may be necessary for graduate students to complete their course of study with a terminal Master’s degree. The mentor and student together will request to have the student switched to a terminal Master’s track by contacting the Director and DGS. If the program approves, the Director or DGS will inform the GDBBS office by contacting the Program Administrator and Monica Taylor. To be eligible to receive a Master's degree, the student must perform a research project and complete an acceptable Master’s Thesis. The organization of the thesis is similar to that of the traditional Ph.D. dissertation, which would include, in order, the following sections: Introduction, Materials and Methods, Results, Discussion and Literature Cited. The student will defend the thesis at a closed meeting with his or her committee. The committee will determine if the body of work completed & presented is sufficient to constitute a Master’s thesis and warrant a Master’s degree. After graduating with a Master’s degree, the student may return to the program but will need to re-apply for admission.

Review of Student Progress
Students receiving a grade below a “B” are reviewed by the Executive Committee to determine whether they should continue in the program and to suggest appropriate remedial assistance.

Throughout the year, the DGS and Director will meet to review the progress of all students in the program. For first year students, this is based on grades. For second year students, this is based on successful passage of the Qualifying Examination. For other students, this is based on the Thesis Committee reports from meetings. If any students are in jeopardy of not progressing towards their degree the Executive Committee will meet to come to a consensus.

Transferring Programs
Students currently enrolled in other Programs within the Graduate Division of Biological and Biomedical Sciences should send a letter to the Director explaining their reasons for requesting a transfer. Each request will be considered by the Executive Committee, which may require that a transferring student take one or both parts of the Qualifying Examination, as well as specific courses.

Attendance at Scientific Meetings
When they have reached an appropriate stage in their research, trainees are encouraged to present their results at both local and national meetings. Attendance at such meetings should help in meeting others engaged in their field of research and to explore future job opportunities. It will also provide them with important experience in communication and presentations skills as they listen to a variety of presentations by others of current research.

If students would like to receive Professional Development Support Funds for attending and presenting at a conference they should refer to the Laney Graduate School PDS Funds Handbook found here: http://www.gs.emory.edu/professional_development/pds_funds/index.html Students may direct questions about PDS Funds to Margie Varnado in the GDBBS office.
**Graduate Student Vacation Policy**
In addition to those Emory Faculty/Staff-approved holidays, graduate students in the MMG program are entitled to 10 days of paid vacation per year (September 1 - August 31). Students should work these days out with their current advisor in whose lab they are working.

**Graduate Student Sick Leave Policy**
Students accrue 8 hours of sick leave per month. Thus, over a 12-month period (September 1 - August 31) students are eligible for 12 days of sick leave. Unused sick leave is transferable to the next year. Students need to inform their advisor of the sick leave as well as instructors for any courses they are currently taking.

**Graduate Student Family Accommodation & Leaves of Absence**
Graduate students may request a family accommodation or unpaid leave of absence. These will be evaluated using guidelines established by the Laney Graduate School, and require final approval of the Dean of the Laney Graduate School.

Although overseen and regulated by the Graduate School, any family accommodation or leave of absence should be worked out between the student and his/her advisor. The DGS may assist the student and advisor in making these arrangements, if needed. Finally, the student and mentor should notify the Program by contacting the Program Administrator, and, if not yet informed, the DGS.

As stated above, the student and advisor **must** follow the Laney Graduate School policies & procedures to officially document & request the arrangement. To find out more, please consult the Laney Graduate School Handbook.

**Admission to Candidacy**
All students are required to follow the Laney Graduate School requirements for candidacy. Most MMG 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 http://www.gs.emory.edu/academics/policies/candidacy.html, or in the LGS handbook, http://gs.emory.edu/handbook/academic-affairs/phd/candidacy.html.

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.