

EMORY



GRADUATE TRAINING IN  
MOLECULAR AND SYSTEMS  
PHARMACOLOGY

*Student and Faculty Handbook*

**2014 – 2015**

*Note: The policies and regulations in this handbook are in immediate effect and supersede those in previous versions.*

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**APPENDICES:** Appendix I. MSP Rotation Mentor Selection Agreement; Appendix II. Student Laboratory Rotation Evaluation Form; Appendix III. Request for Assignment of Faculty Mentor; Appendix IV. GDBBS Dissertation Advisor Assignment Agreement; Appendix V. Student Annual Report; Appendix VI. Administrative Procedures for the Qualifying Examination; Appendix VII. Dissertation Committee; Appendix VIII. Dissertation Committee Meeting Summary & Progress Report; Appendix IX. Provisional Dissertation Approval Form; Appendix X. Preparing a Dissertation and Scheduling a Dissertation Defense in the MSP Program; Appendix XI. Requirements for Membership in the Training Faculty; Appendix XII. Division Affiliation Checklist; Appendix XIII. MSP Training Faculty Membership Questionnaire; Appendix XIV. MSP Specialty Track Form, Appendix XV. MSP Executive Committee

## **1. Goals**

The program in Molecular and Systems Pharmacology (MSP) prepares students for careers in biomedical research and scholarship. Students learn currently accepted facts and theories; plan, conduct and evaluate research; make an original contribution to knowledge; become skilled in oral and written communication; develop teaching skills; and become self-sufficient in education. The program also prepares students to teach in professional and graduate schools. Students are trained in the broad area of Pharmacology, but they can also select elective coursework and research projects for specialization in Molecular Pharmacology, Systems Pharmacology, Toxicology or Chemical Biology.

Graduate training is unlike other types of school, with less formal course work and more self-education. Much of graduate education occurs through individual interactions between students and their advisors in joint research. Graduate students do many of the same things that occupy professional scientists – reading scientific literature; planning, conducting, and analyzing research; and publishing papers. Scientific research can sometimes be discouraging, but the rewards include a sense of accomplishment and discovery, as well as entry into a rewarding and exciting profession.

## **2. Executive Committee**

The program is coordinated by an Executive Committee elected by the program faculty. This committee consists of the Director, seven faculty members, and two students. In addition, the Directors of the Pharmacological Sciences and Toxicology training grants have *ex officio* appointments on the committee. Members are elected for three-year terms, with staggered exit dates. At least one of the student representatives will have passed the qualifying exam. Elections for new positions are conducted yearly in April or May. Specific Faculty members of this committee are appointed by the committee to serve three-year terms as Director of Graduate Studies (DGS), Senior Student DGS (SSD), Recruiter, Qualifying Exam Committee Chair, Membership Committee Chair, Curriculum Committee Chair, and Communications Chair. The Program Director is elected directly by the membership. He/she chairs the Executive Committee and represents the Program on the Executive Committee of the Graduate Division of Biological and Biomedical Sciences (GDBBS). The Director of Graduate Studies acts as a temporary advisor for new students until the end of their second year, monitors student performance, and oversees selection of laboratory rotations, and research mentors. The Senior Student DGS oversees the selection of dissertation committees, documentation of dissertation committee meetings, admission to candidacy, progress toward degree, and other senior student issues.

## **3. Laboratory Research Rotations**

Each student must do research in at least three faculty laboratories during the first year, according to the MSP rotation schedule. The following options are available (note that all summer rotations entail at least six weeks of full time research):

- a) One of these laboratory rotations may be satisfied by six weeks full time research during the summer prior to matriculation. This can allow the student to complete the rotation schedule and begin dissertation research early.
- b) Students may request to do a fourth rotation during the summer after their first year.
- c) Students entering the program in Advanced Standing may petition to do fewer rotations.
- d) If a student is struggling to maintain satisfactory academic performance early in the first semester, the student may be advised to discontinue the Fall rotation in order to concentrate on academic work. This option should only be exercised when the student's academic progress is in jeopardy, and it must be approved by both the Director of Graduate Studies and the rotation mentor. The student may be allowed to complete a later rotation in the same laboratory, but mentors are not obligated to reserve a rotation place for a student who drops out of their lab during a previous rotation. If necessary, the third rotation will be completed during the summer after the first year.

The yearly schedule of rotations and associated deadlines will be established by the Director of Graduate Studies. For each rotation, students must indicate their preferred rotation mentors by submitting the Mentor Selection Agreement form (see Appendix I) to the MSP Program Administrator, Suite 300A Dental Building. Deadlines for submission will be established by the Director of Graduate Studies. Rotation choices are subject to MSP Executive Committee approval.

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 a mentor. The choice of mentor is not limited to those faculty members with whom the student has done a rotation, however. Rotations also allow faculty to observe and evaluate the aptitude of first-year students for research. Expectations for time spent in the laboratory should be clearly established between the faculty member and the student before beginning each rotation. In general, students are expected to be working on their projects when not attending class or studying.

A written report of the rotation must be submitted to the mentor and to the Director of Graduate Studies within one week of the completion of the rotation. The report should be in the format of a short manuscript, containing the usual sections of Summary, Introduction, Experimental Methods, Results, Discussion and References. The length of the report will vary depending on the productivity of the project, but should be between three and seven double-spaced pages (not including Figures and Tables). The mentor is expected to read the report and to give the student feedback on the quality of organization, grammar and writing style. Laboratory rotations are graded S/U, and are evaluated in a report by the rotation mentor to the Executive Committee (Appendix II).

#### 4. Courses

- a. **Academic Status** All students must meet the requirements of the Graduate School regarding total credit hours of course work. Most students will enter the MSP Program in **Full Standing**, and after completion of the first year of required coursework (minimum of 18 hour credits), they will move into **Advanced Standing**. Students who enter the program through the Medical Scientist Training Program (MSTP), as well as certain students who enter the program after

completing a Masters Degree in an appropriate field of study, will be admitted with Advanced Standing status.

All MSP Students must complete 36 credit hours in Advanced Standing, of which 12 hours must be of coursework at the 500-700 level, with a grade of B- or better, regardless of the status in which they entered the program. Both required and elective courses taken in Advanced Standing count towards the 12 hours. MSP Graduate Seminar credits are applied towards the 12-hour requirement. Up to 5 hours of Directed Study may count toward the 12 hours if approved in advance by the DGS. To request approval, the student must submit in writing to the DGS a description of the course of study, including a justification of the credit hours to be claimed, and the mechanism for examination and determining the grade. The document must be signed and dated by the GDBBS faculty member supervising the course of directed study. Departmental seminar series, even if taken for credit, do not count towards the 12 hours. The other 24 hours are typically earned by MSP students in Research, but may include additional coursework at the 500-700 level.

- b. **Required courses.** The training program consists of a required basic core curriculum, followed by more specialized courses. The following courses (or their equivalents) are required of all students:

<u>Course #</u>	<u>Course Title</u>	<u>Credit Hours</u>
IBS 555	Basic Biomedical and Biological Sciences I	6
IBS 531	Principles in Pharmacology	4
IBS 532	Principles in Pharmacology II	3
IBS 536	Drug Metabolism and Toxicology	2
IBS 537	Frontiers of Molecular Pharmacology	2
IBS 538	Design and Analysis of Experiments	4
JPE 600	Scholarly Integrity Core Class	0
MSP 501	Ethical Issues in Pharmacology*	1 (4 semesters)
MSP 570r	Introductory Graduate Seminar	2 (4 semesters)
MSP 597r	Laboratory Rotations	(S/U) Variable
MSP 790r	Advanced Graduate Seminar	1 (2 semesters)

\* 1 credit for two semesters of class, recorded in Fall Term

In addition to the standard curriculum encompassing Molecular Pharmacology and Systems Pharmacology, a specialized **Toxicology curriculum** is available to students who wish to prepare for careers in this area. Students in the Toxicology curriculum have the following additional requirements:

IBS 563	Human Toxicology	2
IBS 740	Molecular Toxicology	3

Students who wish to pursue the Toxicology Track should declare their intention by completing the MSP Specialty Track Form (Appendix XIV); this form is signed by the student, mentor and Senior Student DGS, and submitted to the Program Administrator. Upon completion of the requirements, the student should send a copy of the form, with a current transcript documenting the completed coursework, to the Senior Student DGS, who will verify that the requirements have been satisfied; the approved form will be

forwarded to the Program Administrator. The MSP Program recognizes the extra effort of completing the specialty track with a personalized plaque, which is awarded after the student's defense.

The Program places a high priority on raising and maintaining the awareness of ethical issues in students and faculty. MSP 501 is required for students in their first and second years, and students in the third year and beyond must attend at least one session of MSP 501, in each academic year. Faculty members are strongly encouraged to attend.

- c. **Exemptions from requirements.** Required courses may be waived for students who are admitted in Advanced Standing and/or who have passed equivalent courses with a grade of B or better. Students who enter in Advanced Standing may be advised not to waive certain required courses in order to prepare them for success in passing the Qualifying Exams. These decisions will be made on an individual basis by consultations between the student, the Director of Graduate Studies, and the Program Director.
- d. **Electives** In addition to the required coursework, students must complete electives to achieve the mandated number of hours of coursework in Advanced Standing (section 4a). Electives appropriate to the student's research area and course of study should be selected in consultation with the research mentor, the dissertation committee, and in some cases the Director of Graduate Studies. The requirement for 12 hours of coursework in Advanced Standing is a minimal one, and students are encouraged to enhance their training by taking advantage of additional electives relevant to their area of research.

Students in the toxicology curriculum might select from: Credit Hours

IBS 564	Neurotoxicology	2
IBS 717	Neuropharmacology	3
IBS 704	Molecular Mechanisms of Ion Channel Regulation	3
IBS 700	Macromolecular Structure and Function	4
NHS 582	Nutrition and Chronic Disease	2

Students interested in molecular therapeutics might select from:

IBS 701	Cell Surface Receptors	2
IBS 702	Molecular Mechanisms of Signal Transduction	3
IBS 704	Molecular Mechanisms of Ion Channel Regulation	3
IBS 750	Molecular Neurobiology	4
IBS 566	Drug Development: From Proposal to Prescriptions	4

Students interested in behavioral aspects of pharmacology might select from:

IBS 701	Cell Surface Receptors	2
IBS 717	Neuropharmacology	3
IBS 506	Basic Mechanisms of Neurological Disease	2
IBS 570	Essentials of Animal Experimentation	1
IBS 535	Behavioral Neuroendocrinology	3

- e. **Colloquia.** Many departments conduct colloquium series where well-known scientists describe their most recent research. Students are expected to attend these colloquia regularly in areas related to their research interests. Discussion of these presentations is valuable in obtaining breadth and experience in different areas of science.
- f. **Journal Clubs.** One of the most effective ways to learn research methods and approaches is to read and critique published work. Students are urged to organize informal journal clubs for this purpose. Faculty will be happy to help organize and participate in these activities; however, they are most effective when student-initiated.
- g. **Sample curricula.** Below are sample course curricula for typical students entering the program under different circumstances. Students are required by the Graduate School to maintain a minimum of 9 credit hours/semester. In year 2 until candidacy, the balance of hours not spent in coursework is brought up to 9 with Advanced Graduate Research (IBS 699r, MSP section). After attaining candidacy, students usually are engaged in full-time research and take 9 hours of Dissertation Research (MSP 799r) only, unless they choose to take additional elective courses to enhance their training. Note that hours from IBS 699r and MSP 799r do NOT count towards the 12 hours of course credits required in Advanced Standing.

**Typical student entering in full standing**

† denotes elective course

<b>Fall year 1</b>			<b>Spring Year 1</b>		
		<b>Credit Hrs.</b>			<b>Credit Hrs.</b>
IBS 555	Basic Biomed Biol Sci I	6	IBS 532	Princ Pharmacology II	3
IBS 531	Principles Pharmacology	4	IBS 536	Drug Metab Toxicology	2
MSP 570r	Intro Grad Seminar	2	MSP 570r	Intro Grad Seminar	2
MSP 597r	Lab Rotations	1	MSP 597r	Lab Rotations	2
MSP 501	Ethical Issues in Pharmacology	1	MSP 501	Ethical Issues in Pharmacology	
JPE 600 *	Scholarly Integrity Core	0			
<b>Fall year 2</b>			<b>Spring Year 2</b>		
MSP 570r	Intro Grad Seminar	2	IBS 537	Frontiers Mol Pharm	2
IBS 699r	Advanced Grad Research	6	IBS 538	Design Analysis Expts	4
			MSP 570r	Intro Grad Seminar	2
			IBS 699r	Advanced Grad Research	1
MSP 501	Ethical Issues in Pharmacology	1	MSP 501	Ethical Issues in Pharmacology	
<b>Fall year 3</b>			<b>Spring Year 3</b>		
IBS 702	Mol Mech Signal Trans	4†	MSP 790r	Advanced Grad Seminar	1
MSP 790r	Advanced Grad Seminar	1	IBS 699r	Advanced Grad Research	8
IBS 699r	Advanced Grad Research	4			

\* Ethics/JPE 600 is a one-day course given in late August before the start of Fall Term.

## 5. Grades

Grades in the Graduate School range from A (4.0) to C (2.0) and F (0); there is no D grade. Some courses are taken on a Satisfactory/Unsatisfactory (S/U) basis. Students must maintain an average of B (3.0) or better. A student with a semester GPA below 3.0 will be put on academic probation. Graduate Division of Biological and Biomedical Sciences (GDBBS) policy dictates that a grade of U or F in any course, or a semester GPA below 3.0 in any two semesters, will result in dismissal. If a student who is dismissed believes there were extenuating circumstances that adversely affected his/her performance, he/she may submit to the GDBBS Director a written appeal for consideration of reinstatement. The appeal should clearly outline the extenuating circumstances and must be submitted within one month of grades being recorded by the Office of the Registrar. All appeals will be reviewed by the GDBBS Executive Committee.

## 6. Selection of Research Mentor

Students are expected to select a research mentor and begin their dissertation research at the end of their third rotation, although it is possible to petition to do an additional rotation. Students entering in Advanced Standing may petition to choose their advisors immediately, or after optional rotations. Students should address requests for exceptions to the DGS.

Before deciding on a research advisor, students should discuss possible research projects with each of the program faculty whose work may be of interest to them. Once a choice has been made, the student and prospective advisor must complete the Request for Assignment form (Appendix III) and the GDBBS Dissertation Advisor Assignment Agreement form (Appendix IV) and submit them to the Director of Graduate Studies. The advisor is responsible for getting his or her Departmental Chairperson to sign the GDBBS form. The advisor must establish that he or she will most likely be able to provide sufficient funding to support the student's stipend and dissertation research to a successful completion. The DGS and Executive Committee will then evaluate the request, making every effort to accommodate the student's wishes. To ensure that the quality of mentoring and training is maintained, the Committee will normally approve the assignment of a maximum of two MSP students from any single matriculating class to any single mentor. If adequate justification can be presented, the Committee may waive this rule under exceptional circumstances.

Students who have not selected an advisor by the beginning of the Fall semester of the second year must submit a letter to the Director of Graduate Studies outlining the reason for requesting an extension. **Students who have not finalized their choice of research advisor by the end of the Fall semester of the second year may not continue in the program.**

On rare occasions, it may become advisable to reassign a student to a different advisor. In such a situation, the student and advisor should meet with the Program Director and/or other members of the Executive Committee. The Executive Committee will attempt to balance the wishes and concerns of all parties and decide on the best course of action. Since a student may lose substantial time when changing laboratories and research projects, reassignment of a different advisor should be viewed as a relatively extreme step.



## 7. Qualifying Examination

Students are required to demonstrate mastery of his or her field by passing a general qualifying examination before being admitted to candidacy for the Ph.D. The qualifying exam serves valuable purposes for both students and faculty. Students: 1) This is usually the last opportunity to engage in a broad-based review of the large body of information they have encountered before becoming highly focused on a particular research area. 2) In order to write and orally defend a research proposal, students must familiarize themselves with the literature in their area and give careful consideration to the design and interpretation of experiments that may form a central part of their doctoral research project. Thus, the examination serves as an early catalyst to launch students into a research project. Faculty: 1) The exam allows the faculty to judge whether students have mastered the fundamental information they should have learned during the first two years and, equally important, whether they can use that information appropriately. 2) The exam provides a logical mechanism for terminating students with a history of marginal performance.

The qualifying exam is usually given at the end of the second year and consists of two parts, a written exam and a research proposal. To be eligible to take the written exam, the student must have a grade point average of at least “B” (i.e. 3.0) for all courses taken during the first two years. Students admitted in Advanced Standing may request approval by the Executive Committee to take the qualifying exam early, without prejudice, and will be tested on the same material as other students. A student must pass the written exam in order to progress to Part II.

- a. **Written Examination.** Part I is designed to test the students’ general knowledge, and their abilities to analyze and critique scientific data. It is given after the end of the Spring Semester of the second year and is administered over two consecutive days. The exam consists of (1) a closed book exam of essay questions based on material to which the student has been exposed over the first two years of the program, including coursework, journal clubs, seminars and recommended readings (see **Appendix VI**); and (2) an exercise based on a scientific article that the students will be asked to read and analyze.
- b. **Oral Examination.** Part II consists of an oral defense of a written proposal for an original research project. A summary (title and 2-3 pages of double-spaced typewritten text) with additional supporting literature citations must be submitted to the Qualifying Exam Coordinator for approval two weeks following the written exam. This summary must state clearly the working hypothesis and goals of the proposed research, and include the proposed Specific Aims. Note that the aims as stated in the abstract may be modified in the full proposal. The topic of the proposal may be the same as or similar to the project which may ultimately form the student’s Ph.D. dissertation; however, it must be written by the student. The proposal will be developed during the grant-writing training provided within the IBS 537 course, currently scheduled for the Spring semester of the second year. It is expected that the research advisor may help to formulate the project, provide guidance, and be available to the student for discussion and verbal critique. However, the advisor should not assist in the writing or editing of the actual text. The student will select two MSP faculty members, other than his/her research advisor and subject to approval by the MSP Executive Committee, who will assist

in the development of the proposal during the IBS 537 course. The proposal will be improved through the process of the course, and may be altered as needed thereafter, but must be submitted to the exam committee no later than two weeks before the oral exam.

The proposal should follow the format and guidelines for the Research Training Plan of an individual NRSA grant application to the National Institutes of Health: [grants.nih.gov/grants](http://grants.nih.gov/grants). The site encourages its users to check it regularly for the most current version.

The student must defend the research proposal in an oral exam given by two members of the Executive Committee and two ad hoc examiners two-three weeks after submitting the proposal. The ad hoc examiners (who must be MSP faculty members, but NOT members of the Executive Committee) will be selected by the student in consultation with his/her research advisor. The oral exam typically lasts about an hour, and consists of a brief (five to ten minute) oral presentation of an overview of the proposal, followed by questions from the faculty. The purpose of the oral examination is to test the student's ability to formulate and defend a worthwhile research project and to test their knowledge and understanding of the subject area of the proposal, pertinent literature and methodological issues, as well as poise and creativity in the oral defense of ideas. **The proposal defense should be viewed only as a qualifying examination and is not intended to determine the suitability of the project for the student's doctoral dissertation.** The student will be questioned on specific aspects of the proposed studies as well as on more general aspects of the subject area. The student can also be questioned on subject areas in which weakness was demonstrated in Part I of the qualifying exam.

- c. **Preparation.*** Students should prepare carefully for the qualifying exam. Such preparation should include a review of relevant course work as well as practice in oral and written communication. Senior students who have taken the exam can advise on specific exercises which might be helpful. It may be useful to practice writing answers to essay questions to gain experience in organizing material and giving clear answers. Faculty and other students are usually willing to read such practice essays and make suggestions. Since many students will not previously have experienced an oral examination, a mock oral defense of the written proposal before other students can sometimes be very helpful. Faculty and other students are usually willing to help prepare for this important exam.
- d. **Grading.*** Each part of the exam is graded separately, and the specific procedures involved are described in detail in Appendix VI. A grade of 3.0 or better is required to pass each part. A student cannot take the oral exam unless he or she receives a grade of 3.0 or better on the written exam. Students must pass both parts of the qualifying exam to continue in the Ph.D. program. A student who fails may petition the Executive Committee to re-take all or part of the exam. The written petition must present compelling reasons why better performance can be expected on a repeat exam. If re-examination is approved, it will take place as soon as is practical. A repeat oral exam may require submission of a revised or rewritten proposal. The Examination Committee for the retake of the oral exam shall consist of the two Executive Committee members who served on the original Examination Committee, plus two ad hoc examiners. The student can choose to

invite one or both of the previous ad hoc members, OR two different faculty. The new ad hoc faculty member(s) of the committee can be any member of MSP, including Executive Committee members.

## **8. Dissertation Committee**

In consultation with the advisor, each student must select a dissertation committee to assist in formulating and evaluating the student's research project. The composition of the committee must be approved by the Program Director or Director of Graduate Studies. It must contain at least four members in good standing of the GDBBS faculty, including the research advisor, who chairs the committee. At least three of these four committee members must be MSP Program Faculty. If additional expertise and insight is deemed necessary, the student and advisor can elect to include additional committee members who can be of any academic affiliation. The initial meeting of the committee must be conducted within six months after passing Part II of the qualifying exam. This committee is the primary body responsible for reading and evaluating the doctoral dissertation and examining the student in the final public oral defense. The student documents the formation of the committee using the Laney Graduate School's Dissertation Committee Form (Appendix VII). Each member confirms agreement to serve on the committee by signing the form. The form is approved by the Program Director or the Senior Student DGS and submitted to the MSP Program Administrator, Dental 300A.

Students must meet with their dissertation committee at least once every six months. At least two weeks prior to each meeting, the student must inform the Senior Student DGS in writing as to the date, time and place of the meeting. The Senior Student DGS will forward this information to the Executive Committee. At least two weeks prior to the first meeting, the students will submit a formal written research proposal to the committee, based on pilot experiments and discussions with the advisor. Preliminary data should be included to support the feasibility of the project. The format for the written proposal should be the same as that for Part II of the qualifying exam. If appropriate, the qualifying examination proposal can be used as the foundation for the dissertation proposal, which will be the basis for discussion at the meeting. Reports must also be submitted to the committee at least one week before each subsequent meeting and should briefly (no more than two pages) summarize the progress made since the last meeting and significant changes in research direction. They should be accompanied by figures and figure legends summarizing new data collected to date. Any member(s) of the Executive Committee can attend these meetings to monitor the student's progress. During the week after each meeting, the student must submit a completed Dissertation Committee Meeting Summary and Progress Report form (see Appendix VIII), to members of the dissertation committee, the Senior Student DGS, and the Program Administrator. If a majority of the signing members of the Committee find that progress has been unsatisfactory, or other issues need to be addressed, the advisor should notify the Program Director in writing. The advisor shall have the tie-breaking vote in all such decisions.

## **9. Admission to Ph.D. Candidacy**

Students are expected to apply to the Graduate School to become a candidate for the Ph.D degree as soon as they are eligible. Admission to candidacy presupposes that all course and qualifying examination requirements have been met and that a plan of study and research covering the entire course of advanced study, including the designation of the

advisor, dissertation committee, and the title of the dissertation, has been approved. Application forms for Ph.D. candidacy are obtained from the Laney Graduate School web site: <http://www.gs.emory.edu/academics/policies/candidacy.html> Completed forms along with supporting transcripts of completed coursework (obtained from OPUS) must be submitted to GDBBS no later than the semester preceding the semester in which the Ph.D. degree is expected to be awarded.

## 10. Teaching Experience

The Teaching Assistant Training and Teaching Opportunity Program (TATTO) provide teacher training and experience for students in the GDBBS. Completion of the TATTO program is required for all Ph.D. students. The TATTO program involves four stages as outlined below:

- a. **Summer Teaching Workshop.** The multi-day required summer course takes place in mid-August. In most cases, students attend in the summer following their first year of graduate study; however, the timing may be adjusted in special circumstances.
- b. **Teaching Experience in a Division Program** At the core of the training program are the graduate seminar courses offered by each Program. Students present seminars to their peers under the supervision of the Program's faculty, thereby acquiring skill in lecturing, communicating research data, managing discussions, evaluating their peers, and using audiovisual equipment.
- c. **Teaching Assistantship** All students in the GDBBS are required to serve as a Teaching Assistant for one semester, usually during the year following participation in the summer workshop. 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. Supervising faculty submit an evaluation of the student's teaching performance to the Director of Graduate Studies.
- d. **Teaching Associateship.** The final stage of TATTO is tailored to the needs of individual students in consultation with the Director of Graduate Studies and the research advisor. Students in the program typically fulfill this requirement by mentoring, coaching or teaching first-year MSP students, mentoring an undergraduate or a first-year graduate student in a research laboratory, presenting their research at national meetings, or lecturing in undergraduate, graduate or professional courses.

## 11. Submission of Ph.D. Dissertation

When the candidate and advisor agree that the dissertation project is nearing completion, a meeting of the dissertation committee is held to discuss the acceptability of the completed research. If the committee agrees that the body of work is acceptable, the student may then begin to write the dissertation. It is expected that the student should have published in a refereed journal (as primary author), or submitted for publication,

two or more papers from the dissertation work. In rare cases, the committee may waive this requirement if it judges that the quality and content of the body of work equals that of multiple publications, and that the work represents a significant contribution to the field.

Directions for preparation of the dissertation are provided in Appendix X. The dissertation may be in one of two formats. The classic format includes the following sections: Abstract, Introduction, Methods, Results, Discussion and References. Each section can encompass one or more chapters as appropriate. In the alternative format, the work may be presented as a series of manuscripts (published or unpublished), each of which has its own Introduction, Methods, Results and Discussion Sections. In that case, each method must be fully described in the first chapter in which it is used. References should be collated and presented in a separate section. The alternative format should contain a general Introduction section and a general Discussion section. The dissertation committee should approve the format of the dissertation unanimously before it is written. Figures and other illustrations must be of publication quality.

After the dissertation has been read and approved by the dissertation advisor, the student must give a copy to all members of the dissertation committee. The dissertation must be complete at this time, including figures and references. No sooner than two weeks after distribution of the dissertation, the student must obtain the signature of each committee member on the Preliminary Dissertation Approval form (Appendix IX), certifying that the student has a defensible dissertation of high quality. The two-week period should give committee members enough time to read the dissertation thoroughly. If minor revisions are needed, members of the Committee should sign the form, and the mentor must verify that the required revisions have been made before the oral defense. In all other cases, the candidate must revise the dissertation to the committee's satisfaction before written provisional approval is granted. If there is substantial disagreement among committee members, a meeting of the committee should be called to obtain a resolution.

Once unanimous provisional approval has been given, the oral defense can be scheduled and announced. The cost of preparation of the dissertation is borne by the student.

## **12. Public Oral Defense of Ph.D. Dissertation**

As a final requirement, the candidate must orally defend the dissertation before the dissertation committee and other interested members of the University. The oral defense must be scheduled at least two weeks after signature of the provisional approval form. The candidate must identify an appropriate date and time and notify the dissertation committee and the Senior Student DGS in writing. The defense should be scheduled at a time when the Examining Committee can attend, and should not conflict with any classes or scientific meetings attended by large numbers of program faculty or students. At least two weeks before the defense, the student must submit a completed flyer for the announcement of the defense to the Program Administrator; a template is available upon request. The flyer will be used to notify the MSP Program membership through its email listserv, and it will be forwarded to GDBBS for inclusion in the division event announcements. Although most dissertation defenses require two hours or less, three hours should be scheduled to ensure sufficient time. A final copy of the revised dissertation should be available for interested program faculty, and should be submitted electronically to the Program Administrator at the time of notification.

In exceptional circumstances it may be necessary to schedule the defense in the absence of a committee member, or a member may be absent due to an emergency or unforeseen circumstance. In such cases, the oral defense can proceed if: i) a minimum of three committee members are present, including the thesis advisor and ii) approval of the Program Director or the Senior Student DGS is obtained. If a student has dual advisors, either of them can fulfill the role of advisor at the oral defense.

The dissertation mentor will chair the thesis defense. The public dissertation defense is a formal scientific seminar, and care should be taken to preserve the formality of the occasion. The atmosphere should be one that encourages critical questioning so that the student can demonstrate their expertise in an open forum. At no time should the student or members of the audience be led to believe that a pass is automatic. The advisor will outline the format of the defense and introduce the student and their research in a manner similar to other seminars. The advisor and the student should avoid personal comments as well as mention of subsequent parties at this time. Personal comments, congratulations and acknowledgements are more appropriate for the party following a successful completion of the oral defense. The defense begins with a 30-45 minute public oral presentation by the candidate. After the presentation, the committee, other members of the faculty, and the audience question the candidate on matters related to the dissertation research to assess the thoroughness of the candidate's knowledge and the quality of the work.

Following the public oral examination, the dissertation committee will continue the examination in private. The candidate is expected to be an authority in his or her research area, and successful defense of the dissertation requires the oral demonstration of that expertise. The success of the defense will be assessed by the committee. At no time should the advisor answer questions posed to the student. After the student has been dismissed, the student's performance will be discussed and evaluated by the committee. If the committee decides that the student has not met the criteria for a successful defense, the committee has discretion to decide on how to proceed. In most cases, all revisions to the dissertation are made prior to the defense. However, if additional revisions are required following the defense, final approval of the dissertation will be delayed until such revisions are approved.

Unanimous approval of the dissertation committee members who attended the oral defense must be obtained prior to submission of the dissertation to the Graduate School. The appropriate form is available on the Laney Graduate School web site. The student is responsible for providing the committee with the form. Committee members who are unable to attend the oral defense can sign the form (approve / disapprove) based on their assessment of the written document. If the committee is not unanimous, the acceptability of the dissertation project will be determined by the Executive Committee.

Students should follow Laney Graduate School guidelines for dissertation submission. Students are required to submit an electronic copy of their dissertation to MSP. If the student requests an electronic publication delay from Emory University, he/she will still be required to submit an electronic copy to MSP. The dissertation will be available to MSP students and faculty, just as the bound copies were in the past, but the MSP Program will not make the dissertation publicly available until the embargo is lifted.

### 13. Awarding of Degree

The Laney Graduate School has several deadlines which must be met during the semester in which the degree is to be awarded. These deadlines include: 1) last day to file application for degree; 2) last day for receipt of Degree Clearance Reports for Master's and Doctoral candidates (note: theses and dissertations must have final approval, and dissertations must be defended prior to this date); 3) degree candidate's theses and dissertations due in the Graduate School Office. These deadlines are published in the Academic Calendar of the Graduate School Bulletin.

When a student has completed all course requirements and has submitted and successfully defended his or her Ph.D. dissertation, the Director will submit the appropriate forms to the Dean of the Graduate School. Formal application for a degree must also be made by the student at the beginning of the semester in which the degree is to be conferred. The student must also be registered during this semester.

Under certain circumstances, students may be permitted to work for a terminal M.S. degree. A student who fails the Qualifying Examination, or who chooses not to complete the doctoral program, may petition the Executive Committee for permission to complete an M.S. If approved, the student must form a thesis committee consisting of a faculty advisor and at least two additional program faculty. A written thesis must be orally defended to this committee. The Executive Committee should be invited to the defense, but shall not be voting members of the examining committee. The format for writing and submission of M.S. theses are the same as those for doctoral dissertations, although less significant research contributions are expected for the M.S. degree.

### 14. Expectations of Performance

- a. *Expectations of Faculty for Students.* Students are expected to perform satisfactorily in required and elective course work, and to actively participate in classroom and seminar discussions. Students should continually develop their scientific independence and creativity by active pursuit of the current scientific literature and vigorous laboratory research. It is expected that each student will acquire and develop excellent written and oral communication skills, and his or her research results will be published in quality peer-reviewed journals.

Students are also expected to make continuing progress through the program. This includes selection of an advisor and dissertation committee in a timely fashion, holding regular dissertation committee meetings as required, and submission and defense of the dissertation soon after completion of laboratory research.

It is anticipated that most students will complete the graduate program in approximately five years. However, development as a scientist is usually not attained in a regular 40-hour work week. Students are encouraged to show a dedication and enthusiasm for their research projects, and to continually strive for the excellence and discipline that will make them highly competitive in science. Students should be familiar with the regulations governing University/student Relationships, and with the Graduate School Honor and Conduct Codes as published by the Graduate School.

- b. **Expectations of Students for Faculty.** Students may expect the faculty to give their time and expertise enthusiastically. This is done by presenting well prepared and current courses and by providing individual instruction and consultation in the laboratory. The faculty provides laboratory space, equipment, and supplies for the student's research. For students in their third and subsequent years, stipends are normally provided by faculty research grants. Faculty should serve as professional role models and encourage and advise students to fully develop their scientific talents. Faculty should also counsel students in determining the direction of their postdoctoral careers. Faculty are also expected to provide reasonable and clear guidelines for the graduate program and to administer Graduate School requirements at the Program level. Student grievances and appeals should be addressed directly to the Director of Graduate Studies, the Program Director, or members of the Executive Committee.
- c. **Poor Performance.** The Executive Committee will review the progress of students at the end of each academic year. All students must meet the Graduate School's definitions of good standing and due progress to remain in the program. The student's research project must also be progressing satisfactorily, as judged by the advisor and dissertation committee. Students who experience difficulties are encouraged to seek assistance as soon as possible from the Director, Director of Graduate Studies, Senior Student DGS, their advisors, or other faculty. Every effort will be made to assist students in meeting the required performance standards. However, a student who does not maintain adequate progress will be placed on probation and financial support may be withdrawn. The student will be informed in writing of the conditions of probation, and a time-table for elimination of probation established. A student who fails to meet the conditions of probation will be terminated from the program. Such decisions may be appealed to the Graduate School.

## **15. Student – Faculty Communication**

Students usually have questions and suggestions about many aspects of the graduate program that can help the faculty to maintain a high quality training program. Student feedback about all aspects of the program, and particularly about courses, is very important in helping the faculty recognize strengths and weaknesses. Student/faculty communication is strongly encouraged, and students are urged to make their views known to the faculty. Although faculty try to request feedback, they will often assume that there are no problems in the current program when they do not hear from students.

Many of the problems (academic and otherwise) that students encounter occur early in graduate school. The Director of Graduate Studies has responsibility as the formal academic advisor to first-year students until they have selected a dissertation mentor. The MSP program provides students with an additional confidential, comfortable and informal forum in which they have the opportunity to discuss their progress, problems or concerns in the early stages of graduate school: a faculty counselor. In October of their first year students select their counselor, who will be a member of the MSP Program. While counselors should be available for meetings (with suitable notice) at any time, students and counselors must meet by mutual arrangement by October and again by February of the first year.



In later years, the student's dissertation advisor or members of his or her dissertation committee are usually in the best position to discuss research or personal problems. The Program Director, the Senior Student DGS, members of the MSP Executive Committee, or the Program Administrator are obvious resources concerning procedure and policy questions. However, all faculty attempt to be readily available to meet with students. If a faculty member cannot see a student immediately, he or she will make an appointment at the earliest available time. Students are encouraged to use the faculty as a resource.

## **16. Counseling Services**

Emory University provides free personal counseling services under strict rules of confidentiality for all registered students. The counseling center staff is comprised of medical doctors, registered psychologists and social workers. To make a counseling appointment, please call the Counseling Center at 727-7450. The office is located in the same building as the GDBBS offices, 1462 Clifton Road, Suite 235

The Emory Law School also provides a free legal service help line for students. You can reach them at 727-6516.

## **17. Financial Support and Vacation Allowance**

Stipends and tuition fellowships, awarded to students on the basis of academic merit, are intended to cover basic living expenses and tuition. With the exception of special awards, such as the Woodruff Fellowship, stipend levels are set by the GDBBS based upon the availability of funds from Graduate School and university sources. The faculty also encourages and assists students in obtaining individual stipend support from extramural sources, such as federal agencies and private foundations. Students are supported by the GDBBS for an initial period of training. Additional support will be provided by research advisors, training grants, or other sources. Financial support is normally provided only to full-time students working toward the Ph.D. degree.

Stipends and tuition fellowships are awarded to allow students to devote full time to the graduate program and complete the requirements for the Ph.D. degree in as short a time as is consistent with adequate training and research progress. Additional employment is strongly discouraged. Such outside employment inevitably causes a serious distraction from the educational process. Graduate education and research are by necessity largely self-motivated processes, and the distractions of outside employment can interfere with the ability of students to prepare satisfactorily for their future professional careers. If additional income is absolutely necessary, students are encouraged to consider the possibility of low-interest student loans and should consult with the financial aid office. If a student feels strongly that outside employment is necessary while in the graduate program, the student **must** discuss the need with his or her advisor and the Director of the Program. If outside employment is approved, the student must not allow it to interfere with high standards of performance in academic courses and in research.

All students receiving a stipend have the same vacation allowance as for University staff: students may take the University holidays (Christmas Day, etc) and an additional ten working days, per year. Vacation days should be arranged in advance with the advisor or with the Director of Graduate Studies for students who have not yet chosen an advisor.

Spring and Fall Breaks are NOT holidays for graduate students; if classes are cancelled, the student should spend the extra time in lab.

## **18. Leaving the Program**

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. 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, law school or business school. 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. GDBBS holds forums on career choices and also has other resources for career development. For information see the GDBBS web site.

## **19. University Requirements**

Every effort has been made to make this document as accurate and complete as possible. Formal University requirements are detailed in the current Laney Graduate School Handbook and the Graduate Division (GDBBS) Handbook and are in addition to those detailed in this document. Policies are subject to change without notice. Students should be aware that the LGS and GDBBS handbooks reflect minimum requirements for students, and programs may have additional or more stringent requirements.

**MSP ROTATION MENTOR SELECTION AGREEMENT**

Rotation dates: \_\_\_\_\_ to \_\_\_\_\_

1. We have discussed possible rotation projects.
2. There are space and appropriate resources available in the lab during this period.
3. Mentor will devote the time necessary to provide a quality learning experience for this student.
4. Mentor agrees to:
  - d.* Read the written rotation report and to give the student feedback on the quality of organization, grammar and writing style.
  - e.* Attend the student’s oral presentation of the rotation, as well as any seminar presentations by the student during the rotation period.
5. Student agrees to:
  - Conduct research under the supervision of Mentor.
  - Provide a research report in the required format.
6. All rotation agreements are subject to approval by the MSP Executive Committee.
7. We have discussed the lab safety procedures and protocols used in the lab to comply with all \_\_\_\_\_ safety and other regulatory requirements (including any specific expectations, standard \_\_\_\_\_ operating procedures for the lab, and any biological or chemical agent-specific information).

---

Student (print name) \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

---

Rotation Mentor (print name) \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

Office Phone Number: \_\_\_\_\_ Lab Phone Number: \_\_\_\_\_

Mentor E-mail: \_\_\_\_\_

Other students who will be rotating in this lab during this period:

Name	Program	Rotation Dates

***Return signed form to the MSP Program Office, Suite 300A Dental Building.***

*Appendix II.*

**PROGRAM IN MOLECULAR AND SYTEMS PHARMACOLOGY  
STUDENT LABORATORY ROTATION EVALUATION FORM**

MSP Program guidelines indicate that student performance in laboratory rotations is graded on an S/U basis. To allow the Executive Committee to monitor student performance, faculty advisors must complete this form within four weeks of the end of the rotation.

Student Name: \_\_\_\_\_

Faculty Name: \_\_\_\_\_ Date: \_\_\_\_\_

**GRADE:** (circle one)      **S**      or      **U**

On each of the following scales, place a mark at the point that best represents your evaluation of the student's performance.

Time and effort in the lab:      \_\_\_\_\_  
little or none      never stopped

Intellectual involvement:      \_\_\_\_\_  
little or none      best ever

Ability to grasp principles and concepts:      \_\_\_\_\_  
poor      best ever

Seeks advice:      \_\_\_\_\_  
never      always

Follows advice:      \_\_\_\_\_  
never      always

Technical ability:      \_\_\_\_\_  
poor      excellent

Quality of output:      \_\_\_\_\_  
poor      excellent

Interaction with other lab members:      \_\_\_\_\_  
some problems      gets along well

**MSP Program – Student Laboratory Rotation Evaluation Form**

Please check here to certify that you have read the written rotation report, and that you have provided the student with a critique on organization, writing style and grammar.

Additional comments:

Confidential comments: (not to be communicated to the student)

Signature \_\_\_\_\_ Date \_\_\_\_\_

**Please submit form to MSP Office: [msp@emory.edu](mailto:msp@emory.edu)**

*Appendix III.*

**REQUEST FOR ASSIGNMENT OF FACULTY MENTOR  
FOR MSP STUDENT DISSERTATION RESEARCH**

The student and faculty member named below formally request that the Executive Committee of the graduate program in Molecular and Systems Pharmacology consider the appointment of the faculty member as the student's dissertation mentor.

- 1) Mentor agrees to assume the responsibility for the intellectual and financial support of the student, under the guidelines established by the GDBBS.
- 2) Mentor agrees to submit and grade questions for the MSP Qualifying Exam Part I, if asked.
- 3) Mentor agrees to participate in the MSP grants course when this student is taking the course.
- 4) Mentor agrees to attend oral presentations given by the student in MSP-sponsored functions.

Student Name: \_\_\_\_\_ Faculty Name: \_\_\_\_\_

\_\_\_\_\_  
Signature    Date    Signature    Date

**Mentor:** Program guidelines indicate that this agreement must be approved by the MSP Executive Committee. To allow the Committee to make an informed decision, please complete the following information: (print or type, attach additional sheets as needed.)

- 1) How many students are you currently supervising?

Name	Program Expected	Expected Graduation Date

- 2) Do you expect that any other Division students will join your laboratory in the next year? (If yes, give names and programs)
  
- 3) Please attach a brief description of your current funding situation (sources, P.I., expiry dates).

\_\_\_\_\_  
Signature of MSP Director of Graduate Studies    Date

*Please return signed form to the MSP Program Office 300A Dental Building, with other Mentor Agreement paperwork.*

Appendix IV.

**Graduate Division of Biological and Biomedical Sciences (GDBBS)  
Dissertation Advisor Assignment Agreement**

This agreement is required for all Dissertation Advisor assignments in the GDBBS

**Graduate Program:** MSP **Official Lab Start Date:** \_\_\_\_\_

As a GDBBS student, I agree to abide by all the rules and regulations governing my training, as outlined in the Laney Graduate School Handbook, the GDBBS Policy Manual, and the Program Guidelines. ***I have reviewed and understand these regulations.***

**Student:** \_\_\_\_\_  
(Type or print name) Signature Date

---

In preparation to direct the dissertation of a GDBBS student, I have reviewed and understand the regulations as outlined in the Laney Graduate School Handbook, the GDBBS Policy Manual, and the Program Guidelines. ***I agree to abide by these guidelines and to be responsible for the stipend and tuition charges that are required.*** Stipend levels are set and announced each spring. Supplements are awarded to students who obtain individual fellowship awards paying most, or all, of their stipend, and to Division Scholars, Woodruff, Diversity, and Laney Fellowships. ***I certify that I am aware of any stipend supplement awarded to this student.***

**Advisor:** \_\_\_\_\_  
(Type or print name) Signature Date

**Co-Advisor:** \_\_\_\_\_  
(If applicable) (Type or print name) Signature Date

---

As Chair of the Department, ***I approve of this assignment and certify that the above faculty member (or the department when necessary) has sufficient funds to support the research and stipend for this student.*** I agree to assure compliance with all regulations as outlined in the Laney Graduate School Handbook, the GDBBS Policy Manual (including the GDBBS Stipend Reserve Regulations), and the Program Guidelines.

**Chair:** \_\_\_\_\_  
(Type or print name) Signature Date

---

***The Executive Committee of the Program approves of this assignment and certifies that we expect that the cosigners will comply with all of the relevant regulations*** (including the GDBBS Stipend Reserve Regulations) as outlined in the Laney Graduate School Handbook, the GDBBS Policy Manual, and the Program Guidelines. The committee agrees to work with the student and advisor to enable an optimal training relationship.

**Program Director or DGS:** \_\_\_\_\_  
(Type or print name) Signature Date

Revised 8/14/14

## STUDENT ANNUAL REPORT

The MSP Program requires that all students submit a formal Annual Report at the end of each academic year. This report provides an annual check to make sure that each student is continuing to make appropriate progress in all aspects of their training. This report must be submitted by every student to the MSP Program Administrator **on or before May 31** of each calendar year. Student name and report year should appear on each page.

The report will include the following items (if not applicable, simply state N/A; do not delete headings):

- 1) Name
- 2) Today's date
- 3) Year entered into MSP Program
- 4) Advisor
- 5) Courses taken this academic year, with grades (if available)
- 6) Most recent cumulative GPA
- 7) Research rotations done (first year students only)
- 8) A list of publications and patents (include submitted and in press; do not attach copies)
- 9) A list of abstracts presented at national or regional meetings (do not attach copies)
- 10) Presentations made locally
- 11) Fellowships or grants awarded or continuing
- 12) Activities fulfilling TATTO Teaching Associateship (see MSP Handbook)
- 13) Research progress (3-4 paragraphs)
- 14) Dates of dissertation committee meetings during the year; and dates that reports were filed
- 15) Anticipated date of next dissertation committee meeting
- 16) Anticipated Ph.D. completion time
- 17) Goals after completing Ph.D.
- 18) Names of three people you would ask for recommendations for jobs or fellowships

Check this box if you would like to request a **confidential** meeting with the MSP Executive Committee to discuss your progress or any aspect of your training.

**Filing of the report is required to maintain adequate progress in the program.**

Advisors will be required to send a follow up report, stating any potential problems they may perceive, with a copy to the student.

Submit report to [msp@emory.edu](mailto:msp@emory.edu).



## *Appendix VI.*

### **ADMINISTRATIVE PROCEDURES FOR THE QUALIFYING EXAMINATION**

The Qualifying Exam Committee Chair will organize and chair a committee to administer the qualifying exam. The committee should consist of faculty who teach in graduate courses and reflect the breadth of the program, and at least one student who has advanced to Candidacy.

**Notification.** The chairman of the committee will notify in writing those students who are to take the qualifying exam and their advisors. Letters will be sent at least one month before the written exam and will also include a tentative date(s) for the oral exam. The letter will describe the procedures to be followed, and the required performance standards.

**Written Exam.** The committee will solicit essay questions from faculty. Questions should be accompanied by an outline of an adequate answer, which will be distributed to faculty readers. The committee should ensure that questions are based on material to which the students were exposed during the first two years. Relevant course syllabi will be available for determining the suitability of questions.

**Grading of the Written Exam.** Written exams will be coded so that graders will not know the identity of the students. At least two graders for each question will be recruited by the committee; a question's author will be one of its two graders, when possible. Each question will receive a numerical score based on a continuous scale from 0 to 4.0, with 4.0 being the highest possible score. The final grade for each question will be determined by averaging the scores from each grader. For each student, the grade for the one question with the lowest score will be discarded, and the scores for the remaining questions averaged to determine the final grade. Students will receive written notification of their average grade on each question as well as their final grade. **The minimum passing grade is 3.0.**

## **Dissertation Committee**

By the end of the first two semesters (or equivalent) of full-time graduate studies, a student usually will have made arrangements with one faculty member to serve as dissertation advisor. A Dissertation Committee is selected after the student passes the qualifying exams. The first committee meeting should take place no later than six months after the Part II exam. The committee is selected by the dissertation advisor and student; it includes the dissertation advisor, who serves as chairperson, and at least three other faculty members.

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 dissertation, and administering the final oral examination (dissertation defense). As such, this committee is vital to the progress of the student. It should be chosen as soon as possible, and committee meetings should be held regularly (at least every six months). The committee members are there to help you, so it is very important that they be consulted and made aware of your progress on a regular basis.

Committee members from outside of Emory University are subject to approval from the Laney Graduate School (LGS). The mentor will supply to LGS the proposed member's full CV and a letter stating why he or she will be of value to this committee.

The Dissertation Committee Form is required by the Laney Graduate School and may be found on their web site:

<http://www.gs.emory.edu/uploads/Academic%20Affairs/DissCmtee%20Form%20Fill.pdf>

The form should be completed, approved, and submitted to the MSP Program Office, before the first meeting is held. All signatures must be original; copies of the form will not be accepted.

**PROGRAM IN MOLECULAR AND SYSTEMS PHARMACOLOGY**

**DISSERTATION COMMITTEE MEETING  
SUMMARY AND PROGRESS REPORT**

This form summarizes and documents the outcome of dissertation committee meetings. Students must complete the narrative section of the report **within a week** following each meeting. The report must be approved by the student's advisor, and copies distributed by the student to the dissertation committee, Senior Student DGS, and the MSP Office.

\_\_\_\_\_  
Student Name and Signature Date

Committee members (including advisor): please sign, date and check appropriate box:

Name	Signature	Date	Progress	
			Satisfactory	Unsatisfactory
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

\* If a majority of the signees check Unsatisfactory, the advisor must notify the Program Director in writing. The advisor holds the tie-breaking vote.

Next committee meeting by: \_\_\_\_\_

Narrative Comments: (e.g. goals met; goals set; changes in research direction; experiments required to complete research; anticipated timetable for completion or research and/or writing; concern of the committee, etc.). Attach additional pages for narrative comments.

\_\_\_\_\_  
Senior Student DGS's Signature Date

***Please return signed form to the MSP Office, Suite 300A Dental Building.***

**PROGRAM IN MOLECULAR AND SYSTEMS PHARMACOLOGY**

**Provisional Dissertation Approval Form**

This form must be submitted to the Senior Student DGS by the candidate at least two weeks before the dissertation defense is scheduled.

**STUDENT NAME:** \_\_\_\_\_

**TITLE OF DISSERTATION:** \_\_\_\_\_

**DATE OF FINAL COMMITTEE MEETING:** \_\_\_\_\_

<b>DISSERTATION DEFENSE</b>	<b>DATE</b>	<b>TIME:</b>	<b>PLACE:</b>
_____	_____	_____	_____

*The signatories below agree that the dissertation is in a form suitable for oral defense*

Student: \_\_\_\_\_

(type or print)	Signature	Date
_____	_____	_____

Mentor: \_\_\_\_\_

(type or print)	Signature	Date
_____	_____	_____

Dissertation Committee members sign below:	Are minor revisions needed before the defense?
1) _____	_____
2) _____	_____
3) _____	_____
4) _____	_____
5) _____	_____

**Signature of Senior Student DGS** \_\_\_\_\_

**Please return signed form to the MSP Office, Suite 300A Dental Building.**

## PREPARING A DISSERTATION AND SCHEDULING A DISSERTATION DEFENSE IN THE MSP PROGRAM

### **Guidelines for preparation of the Dissertation:**

Before beginning to write the dissertation, students should obtain an information packet from the GDBBS office. This packet includes: a checklist for submission of the dissertation, graduate school instructions and requirements for preparation of the dissertation, and various necessary forms.

The following program guidelines have been developed in order to minimize confusion among students, their mentors and committee members as to the acceptable format of the document. They are entirely consistent with Graduate School requirements, many of which are incorporated into the guidelines:

### **Document and page order**

Use the following order: Circulation agreement, approval sheet, abstract cover page, abstract, dissertation cover page, acknowledgements (optional), table of contents, list of figures, list of abbreviations, body of the dissertation.

### **Figures and figure legends**

Each figure should be drawn on a separate page, which should be placed immediately following the page on which it is first mentioned in the text. Figure legends should begin with the figure number and an appropriate title. Numbering should contain the Chapter number and the sequence of citation (e.g. Fig 4.1 or IV-1). The legend can be typed on the same page, or it can be typed on a separate page preceding the figure. The same legend position should be used throughout the dissertation.

### **Tables and Table legends**

Follow the same rules as for figures with the following modifications: Table legends should be on the same page as the Table, and can be placed above or below the Table. If desired, the table number and title may be typed above the Table, and the rest of the legend can be typed below it. Follow the same convention throughout the dissertation.

### **Abbreviations**

All abbreviations should be defined in parentheses at the place of their first use in the text (or in the appropriate figure or Table legend), and should also be listed alphabetically in the List of Abbreviations. The abbreviations of some important biochemical compounds, e.g. ATP, NADH, DNA, and amino acids in proteins, need not be defined. Simple chemical formulae (e.g. NO) may also be used without definition.

### **References**

Follow the formats of one of the following two journals: *Molecular Pharmacology*; *Annual Reviews in Pharmacology and Toxicology*. Templates for these styles can be found in the Endnote software program.

## **Dissertation Defense-Information and Timeline for Scheduling**

1. Obtain approval from the dissertation committee as to the content and format of the dissertation. Inform the Senior Student DGS that approval has been given.
2. Read the Graduate School and MSP Program guidelines and regulations for preparation and submission of a dissertation.
3. Write the dissertation. Give it to your advisor for comments. Revise the dissertation if necessary. Get approval from your advisor to distribute the dissertation to your committee.
4. Distribute the dissertation to the committee. Make any revisions suggested by the committee. At least two weeks after distributing the dissertation, get the committee members to sign the Provisional Dissertation Approval Form.
5. ALL OF THE FOLLOWING MUST BE DONE AT LEAST TWO WEEKS BEFORE THE DEFENSE:
  - i. Set a date for the defense that can be attended by all members of the dissertation committee. You must avoid conflict with classes, national meetings attended by a large number of Program faculty or students (e.g. Experimental Biology or Neuroscience).
  - ii. Reserve an appropriate room for the defense. It is recommended that the defense be held on the main Emory campus, to encourage maximum attendance by faculty and students.
  - iii. The Provisional Dissertation Approval Form is signed by the Senior Student DGS, and the form is submitted to the Program Administrator.
  - iv. Obtain a template of the formal announcement and flyer from the Program Administrator. Use this to enter your information as indicated. Get your mentor to proof it, and then forward it to the Program Administrator for distribution. The completed flyer should be submitted at least two weeks prior to the defense. It will not be sent until the Provisional Dissertation Approval Form is received by the Program Administrator.
  - v. Submit minor corrections to the dissertation, if any, to members of the dissertation committee.
  - vi. Submit a final electronic copy of the revised dissertation with the Program Administrator, for interested faculty and students to read.
6. At the defense, bring copies of the signatures page of your dissertation and the form “**REPORT OF COMPLETION OF REQUIREMENTS FOR DOCTORAL DEGREE**” for the committee to sign. A copy of the form is on the Laney Graduate School web site.

## *Appendix XI.*

### **REQUIREMENTS FOR MEMBERSHIP IN THE TRAINING FACULTY**

Consistent with GDBBS policies, there are three types of membership in the MSP Program. New members are usually expected to qualify for Full Membership, but their status may be changed later under certain circumstances.

- 1) Full Members must be tenure track faculty at Emory University in good standing. They have full rights and privileges, including the right to serve in any GDBBS function and to act as Dissertation Advisors. All Dissertations must be directed by a Full Member, even if the research is being done in the laboratory of an Associate or Adjunct member.
- 2) Associate Members must be faculty at Emory University. These faculty members may only serve as a Dissertation Co-Advisor. This category may include Research Track faculty; faculty who may not take a student because of indebtedness to the Stipend Reserve Fund; or those who have been judged to be non-participatory during the annual Program Review of participation. Research Track faculty may apply for full membership if sufficient justification is provided.
- 3) Adjunct Members will be faculty or staff of another institution and must have credentials similar to those of our Full Members. They may only serve on the University or GDBBS committees ex officio, and they may only serve as Dissertation Co-Advisors.

**Requirements for Maintaining Membership.** Full members of the MSP training faculty must participate in the teaching and/or service functions of the program, be active in research, and document these activities as follows:

*Teaching.* Submit and grade qualifying exam questions. Attend graduate seminar and submit papers for student presentations. Teach in a graduate IBS or MSP course, either as principal instructor, guest or team lecturer, course director, or seminar director. Supervision of students in laboratory rotations, dissertation research, or directed study does not satisfy this requirement. Training faculty must maintain an average of 3 contact hours per year, averaged over 3 years, to satisfy their teaching obligation. Course or seminar directors will be credited with contact hours equivalent to the number of credit hours for the course(s) they direct.

*Service.* Serve on the Executive Committee or as a member of a standing committee or subcommittee. Attend the Program retreat and Program recruiting activities. Serve on student dissertation committees.

*Research.* Faculty must be actively engaged in research, and have the resources to support graduate student stipends and research activities. This requirement can be satisfied by current research funding or by funding for at least 2 of the previous 4 years at a level sufficient to support graduate student research.

*Documentation.* Return a yearly questionnaire documenting program participation. Expectations of Associate or Adjunct members are lower, but they must also document their participation yearly. The questionnaire is a requirement for continued program membership.

**Faculty Evaluation** – Training faculty activities will be reviewed by the membership committee. Failure of a full faculty member to meet the requirements of the program will result in a one-year probationary period, in which the member will not be eligible to host MSP students for laboratory rotations nor serve as a research advisor for new students. Those individuals who have not satisfied the maintenance requirements after one year on probation will be moved to Associate member status. To be reinstated to full membership, faculty on probation or Associate members must document that they have satisfied the requirements for membership. Any decision regarding membership status may be appealed to the Executive Committee.

## **APPLICATION FOR MEMBERSHIP OF THE TRAINING FACULTY**

Applications for membership of the training faculty will be considered by the membership committee, who will make a recommendation to the Executive Committee for final decision. Denial of membership may be appealed directly to the Executive Committee. Current requirements for membership include:

- 1) Currently hold a tenured or tenure-track or research track position of Assistant Professor or higher as primary or secondary appointment at Emory University.
- 2) A history of publications in biomedical research that are either directly related, or complementary, to the study of pharmacology and toxicology.
- 3) Research funding and lab space sufficient to support graduate student research or the potential to obtain such funding, as evidenced by pending applications.

Applicants wishing to join the MSP faculty should submit a letter of application to the Chair of the Membership Committee. The letter should specify that the applicant is seeking Full Membership in the MSP Program and describe the applicant's specific interest in MSP. It should also specify how the applicant plans to participate in the teaching and training mission of the Program. Some examples of program participation can be found in *Appendices XI and XIII*. Attach the following documents to the application:

- Curriculum Vitae, including current and past grant support
- NIH Biosketch
- Information on past experience in training doctoral students or postdoctoral fellows including current position and current position and current institutional affiliation of present and former trainees (use training grant table format/form supplied)
- Publication records of past and present trainees from work performed with the candidate for Program appointment (hi-light names on C.V.)
- A list of planned or ongoing collaborative efforts with other MSP and GDBBS faculty
- A one-page research description, including references to two recent publications
- A one-sentence summary of major research efforts
- A letter from the candidate to the GDBBS Director indicating his/her desire to become a training faculty member within the Division and willingness to meet the teaching commitments of the Division
- A letter of support from the Chairperson of the department in which the candidate holds his/her primary appointment

Following receipt of the application, the Membership Chair will distribute it to the MSP Membership Committee. If the Committee agrees that the applicant is an appropriate candidate for membership in the MSP Faculty, the Membership Chair will arrange for the candidate to present a research seminar advertised to the MSP Program. The seminar can be in one of the established departmental programs at Emory University, or it can be a special seminar convened for this express purpose. The seminar will help the Program evaluate the candidate's suitability to the program, and will also serve as a vehicle to initiate and foster scientific interactions between the candidate and the program faculty. Following a vote of the current MSP Faculty, the membership committee will make a recommendation to the Executive Committee as to whether to offer membership to the candidate.

After consideration by the Program Executive Committee, the Program Director will forward the request for appointment to the GDBBS office with a recommendation for approval. If the request meets GDBBS requirements, the Division Director will request the Dean of the Laney Graduate School to appoint the candidate as a member of the graduate faculty in the Division of Biological and Biomedical Sciences, affiliated with the MSP Program.



**MSP TRAINING FACULTY MEMBERSHIP ANNUAL QUESTIONNAIRE**

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Last Name (Print)	First Name	Department
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Signature	Date
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It is the expectation of the MSP program that faculty make consistent and meaningful contributions to the goals of the program. The major areas of involvement include (1) mentoring a rotating or thesis program student, (2) teaching in MSP-related courses, (3) attending MSP events, such as retreats and symposia, (4) contributing papers and participating in the weekly MSP student seminars, (5) serving on MSP student thesis committees, (6) serving on the MSP Executive Committee or subcommittees, (7) participating in the student recruitment functions of the program, and (8) submitting questions to and grading the qualifying examination. While it is recognized that different program faculty have differing interests and skills related to these areas, membership in the program obligates participating faculty to contribute meaningfully in more than one of these areas. While serving as a student's dissertation advisor is meritorious, this act in and of itself is not deemed to be sufficient for continued membership in the program. In addition to the above requirements for program participation, program guidelines indicate that faculty must be actively engaged in research, and have the resources to support graduate student stipends and research activities.

To ensure faculty commitment, active involvement in the program by participating faculty is assessed by the membership committee on a yearly basis. This is done by review of this form that allows each faculty member to detail their specific past year contributions to the program in the aforementioned areas. Faculty members who have not made significant contributions to the functions of the MSP program in a prior year will be contacted by an MSP executive committee member and are expected to work with that member to increase their involvement with the program in the upcoming year. If the deficiency continues, the faculty member will be placed on probationary status as detailed in Appendix XI.

Please respond to the following:

In the past year have you:

Mentored a rotation MSP student in your laboratory?	Yes	No
Mentored the thesis research of an MSP student?	Yes	No

## TRAINING FACULTY MEMBERSHIP (continued)

Please respond to the following:

In the past year have you:

Attended an MSP program retreat or symposium? Yes No

Served on an MSP student thesis committee? Yes No

Participated in MSP student seminars? Yes No

If yes, # contributed articles \_\_\_\_\_ # sessions attended \_\_\_\_\_

Participated in MSP Ethics workshops? Yes No

If yes, # sessions presented \_\_\_\_\_ # sessions attended \_\_\_\_\_

Served on the MSP Executive Committee/subcommittees? \_\_\_\_\_ Yes No

Participated in MSP student recruitment activities? Yes No

Participated in the MSP qualifying examinations? Yes No

If yes, contributed exam questions \_\_\_\_\_ graded exam answers \_\_\_\_\_

In the past 3 years have you:

Taught in the MSP curriculum Yes No

Course(s) \_\_\_\_\_ # lectures (total, 3 yrs) \_\_\_\_\_

### **OTHER ACTIVITIES**

If you feel that your recent participation in the program is not adequately described by the above data, please describe other activities or services you have performed in the past three years that have contributed to the MSP Program:

### **RESEARCH SUPPORT**

Please append an NIH Biosketch including your current research support (and pending applications, if you so wish).

### **MSP STUDENT PROGRESS**

For each MSP student currently in your laboratory, on a separate page, please write a short account (2 sentences – 1 paragraph) summarizing the student's progress in the past year. If you are dissatisfied with the student's performance or progress, please explain and indicate whether you would like to meet with the Executive Committee for a confidential discussion.

**MSP SPECIALTY TRACK FORM**

This form documents the student’s intent to pursue a specialty track, along with the standard MSP curriculum. It will also document the MSP Program’s approval, after the requirements have been met.

Specialty track to be pursued: \_\_\_\_\_

Today’s Date: \_\_\_\_\_

Requirements:

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Student:	_____	_____
	Print Name	Signature

Mentor:	_____	_____
	Print Name	Signature

SSD:	_____	_____
	Print Name	Signature

**Submit form to the MSP Program Office, Suite 300A Dental Building.  
Student should keep a copy.**

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Upon completion of the requirements, the student will ask the SSD to review the transcript and confirm that all conditions for the specialty track are met.

_____	_____
Senior Student DGS	DATE

**Submit form to the MSP Program Office, Suite 300A Dental Building.**

*Appendix XV.*

**MSP EXECUTIVE COMMITTEE**

<b>Position</b>	<b>Name</b>	<b>Term Ends</b>
Director	Randy Hall	2016
Director of Graduate Studies	Rita Nahta	2017
Senior Student DGS	Roy Sutliff	2015
Recruitment Chair	Chris Doering	2016
Membership Chair	Hyunsuk Shim	2017
Examination Chair	Andy Jenkins	2015
Communications Chair	Eric Ortlund	2016
Curriculum Chair	Mike Davis	2016
Pharmacology Training Grant PI	Edward T. Morgan (ex officio)	
Toxicology Training Grant PI	Gary Miller (ex officio)	
Student Member	Lauren Shapiro	2015
Student Member	Russell Goetze	2016