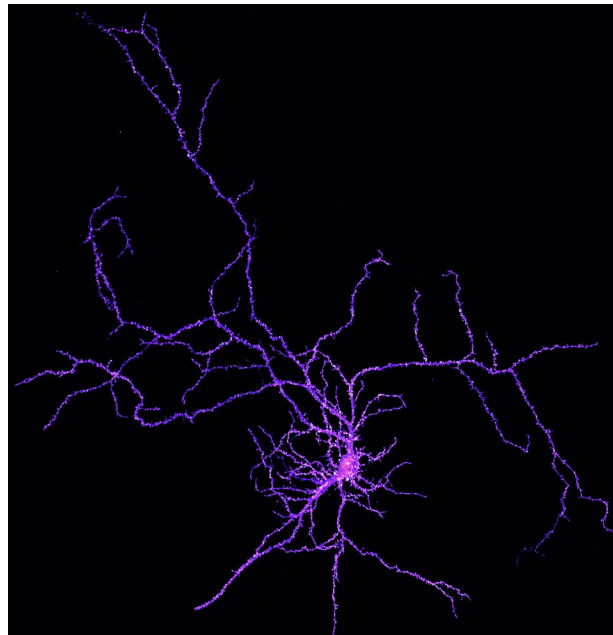




UNIVERSITY *of* MARYLAND
SCHOOL OF MEDICINE

GRADUATE PROGRAM IN LIFE SCIENCES



**Program in Neuroscience
Ph.D. Student Handbook
August 2022**

Program in Neuroscience

Ph.D. Student Handbook

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Purpose of this document

These guidelines are intended to supplement the regulations already given by the Graduate School of the University of Maryland, Baltimore and the Graduate Program in Life Sciences. We encourage you to study these regulations, which are described in the most recent graduate catalog and on their websites <http://www.graduate.umaryland.edu> and <https://lifesciences.umaryland.edu/>

Additional program-specific regulations and expectations are described in these Guidelines, and are designed to answer most questions you may have regarding our program and the course of study. If after reviewing these Guidelines you have any further questions, we encourage you to discuss them with us.

I. Welcome

Welcome to PIN - the Program in Neuroscience at the University of Maryland, Baltimore!

PIN is a doctoral degree-granting program. For more than two decades our prestigious program's major mission has been to prepare its graduate students and postdoctoral fellows with the training necessary to excel as neuroscientists in academic, industrial and governmental settings. PIN has 65 graduate students, 78 postdoctoral fellows working with over 115 neuroscientists in the Medical, Dental, and Nursing, and the Maryland Psychiatric Research Center.

PIN provides a hub of excellence for campus neuroscience. We provide monthly seminars from internationally recognized neuroscientists, the Neuroscience Journal Club in addition to many department-sponsored neuroscience seminars. We offer regular networking opportunities culminating in the Annual PIN Retreat held in a beautiful off-campus setting.

PIN offers a broad perspective into the field while tailoring mentoring to each trainee's individual interests and talents. Research is increasingly interdisciplinary and interactive. PIN mentoring is, in turn, highly engaged and interactive, with a keen eye on developing students for next-generation neuroscience. We are truly excited – and proud - that you chose to join PIN! We look forward to your successes in deepening our understanding of the brain.

II. Faculty

We have over 100 faculty members in the Program in Neuroscience. Our faculty members are affiliated with 15 departments and 4 schools:

Anatomy and Neurobiology
Anesthesiology
Biochemistry and Molecular Biology
Department of Neural and Pain Science (Dental School)
Epidemiology
Neurology
Neurosurgery
Ophthalmology and Visual Sciences
Pain and Translational Symptom Science (School of Nursing)
Pediatrics
Pharmacology
Physical Therapy and Rehabilitation Science
Physiology
Psychiatry
Radiology

These departments and schools contribute to the Program in Neuroscience by offering courses and sponsoring seminars in the Neurosciences as well as providing the space and intellectual atmosphere for students to carry out their research. The range of research interests within the faculty allow students to select from a broad array of research topics.

<http://lifesciences.umaryland.edu/neuroscience/Research-Focus-Groups/>

III. Overview of Training for PhD students:

Year 1 Fall

- Meet with Advisory Committee to discuss courses and rotations
- Complete Core Course (GPLS 601) with a grade of B or better
- Complete Current Topics in Neuroscience (GPLS 691) with a grade of B- or better
- Attend Professors' Rounds, Program in Neuroscience Journal Club, PIN seminars

Year 1 Winter

- Complete 1st Laboratory Rotation (GPLS 609) (*required forms*)

Year 1 Spring

- Meet with Advisory Committee, bring completed Individual Development Plan (*required form*)
- Complete Advanced Neuroscience Investigation (GPLS 655) with a grade of B- or better
- Complete 1 credit of Journal Club (GPLS 629)
- Complete 2nd Laboratory Rotation (GPLS 609) (*required forms*)
- Attend Program in Neuroscience Journal Club, PIN seminars

Year 1 Summer

- Complete 3rd Laboratory Rotation (GPLS 609) (*required forms*)
- Complete one Rotation Presentation (June)

Year 2 Fall

- Attend Program in Neuroscience Journal Club, PIN seminars
- Meet with Advisory Committee to discuss courses, rotations and choice of mentor
- Choose a mentor with funding in whose laboratory you can do your thesis research
- Encouraged to take an elective, as per Advisory Committee recommendations
- Complete Proseminar (GPLS 737) with a grade of B- or better
- Complete Biostatistics (GPLS 621) with a grade of B- or better
- Notify the Neuroscience Director of Graduate Education of your mentor choice

Year 2 Winter

- Pass Qualifying Examination

- Apply to Graduate School for Admission to Candidacy (*required form*)

Year 2 Spring

- Complete Ethics course (CIPP 907)
- Encouraged to take an elective, as per Advisory Committee recommendations
- Complete Individual Development Plan with your mentor/committee

Year 3

- Choose a Dissertation Committee
- Submit an NRSA or a grant to a private foundation
- Submit written Thesis Proposal (can use document from NRSA/grant submission) to mentor and dissertation committee
- Publicly present thesis proposal (GPLS 608)
- Submit Thesis proposal form (*required form*)

Years 3-5

- Attend Program in Neuroscience Journal Club, PIN seminars
- Submit Nomination of Members for the Final Doctoral Examination Committee Form (*required form*)
- Meet with Dissertation Committee at least twice a year to discuss progress
- Complete Individual Development Plan once a year with committee (*required form*)
- Continue dissertation research
- Complete 1 credit of Journal Club Course (GPLS 629)
- Complete at least 12 credits of Doctoral Thesis Research (GPLS 899)
- Publish at least one 1st author article in a scientific journal
- Complete research
- Write dissertation - consult Graduate School's instructions for preparing dissertation

Semester of Thesis Defense

- Register for Seminar in Neuroscience (GPLS 608)
- Submit Application for Diploma to **Graduate School**
- Submit dissertation to Dissertation Committee.
- Pass final oral exam by Dissertation Committee
- Schedule public defense
- Submit Certification of Completion of Doctoral Dissertation (*required form*)
- Submit online Announcement of Defense (*required form - online*)
- Publicly present defense

IV. Program of Study

A. First Two Years

1. Registration and Advising

Upon entering the Program in Neuroscience, each student is assigned a three-person Advisory committee, at least one of whom is a member of the Program Training Committee (Appendix 8). The Advisory Committee meets with the student within the first few weeks of matriculation and at least once per semester thereafter and consults and approves course selections, research areas and laboratory rotations. Students are responsible for arranging a meeting with their Advisory Committee **at the end of each semester** (no later than November 1st and April 1st for the Fall and Spring semesters, respectively), to review their scholastic performance and to discuss their coursework and laboratory rotations for the coming semester.

The **student is responsible** for submitting to the Program Director of Graduate Education and the Program Manager written summaries of the committee's meetings with the student. These reports are evaluated by the Director of Graduate Education and appended to the student's official file. (Appendix 7- Pre-Candidacy Advisory Committee Meeting Record) **Registration for courses and for laboratory rotations is contingent on timely submission of these reports.**

2. Coursework

a. Required Courses for PhD students

Program in Neuroscience students receive a broad-based education which is then tailored to the individual student's research interests through a wide variety of electives. The following courses are required of all Program in Neuroscience students:

1. **Mechanisms in Biomedical Sciences (GPLS 601) (Fall 1) 8 Credits**
2. **Current Topics in Neuroscience (GPLS 691) (Fall 1) 1 Credit**
3. **Professor's Rounds (1st year) Mandatory during the first year of study (not for credit)**
4. **GPLS 609 Laboratory Rotations (Start Winter 1 or Summer before matriculation)**
5. **Rotation Presentations** Students will pick 1 of their 3 rotation projects to present at the end of the rotation period.
6. **GPLS 655 Advanced Neuroscience Investigation (Spring 1) 8 credits**
7. **GPLS 630 Biostatistics (Fall 2) 3 credits**
8. **GPLS 737 Proseminar (Fall 2) 2 credits**
9. **GPLS 629 Neuroscience Journal Club (Fall 2 and beyond) 1 Credit/ 2x**

10. **Research Ethics (CIPP 907) (Spring 2) 1 credit**
11. **Neuroscience Seminar (GPLS 608) in semester of thesis proposal**
12. **Neuroscience Seminar (GPLS 608) in semester of thesis defense**

All students must attain a grade of B- or better in all required courses. A student receiving a grade of C or less in a required course must retake that course or equivalent. Students who fail to maintain a 3.0 average overall are placed on academic probation. Students having two semesters with a cumulative GPA less than 3.0 may not take the Qualifying Exam, are subject to dismissal from the Graduate School, and are ineligible to be awarded a Master's degree. Students must receive at least a B (not a B-) cumulative in Mechanisms in Biomedical Sciences: From Genes to Disease (GPLS 601) in order to continue in the program.

Courses meet either annually or biannually and virtually all students satisfy their course requirements within the first year and a half. Occasionally, a student will take a specialized course in later years for educational enrichment, but, after qualifying exams, the bulk of time is spent in laboratory research. Students may take a maximum of 10 credits per Fall and Spring semester.

Neuroscience Seminars (GPLS 608) – Thesis Proposal/Thesis Defense

A minimum of two semesters of GPLS 608 for credit is required of each student. Credit will be awarded when a student presents her/his thesis proposal, and dissertation defense. To receive credit, the student must coordinate her/his presentation with the Mentor and Thesis Committee and Program Director of Graduate Education.

b. Descriptions of Required Courses

FALL 1

Mechanisms in Biomedical Sciences: From Genes to Disease (GPLS 601- 8 Credits)

Also known as the GPILS Core Course, this class is a comprehensive overview of current knowledge in cellular, molecular, and structural biology. This modular course provides all of the background necessary for subsequent specialized studies in biomedical research in a concentrated program during the Fall semester. These are separated into three sections that are taken as a cohesive course: Molecular Biology and Genetics; Molecular Structure and Function; Cellular Structure and Function.

Current topics and techniques in neuroscience (GPLS 691 – 1 Credit)

This 1 credit course is taught in parallel with the GPILS Core Course. Sessions are focused on current topics and techniques in neuroscience. The techniques addressed will

center around current molecular, genetics, circuit, non-neuronal, behavioral, and imaging tools in neuroscience. Diversity and bias in neuroscience are covered to educate students on these current topics. Translational neuroscience is covered with a focus on neuroimaging and treatment development. Additionally, students are exposed to the NIH Brain Initiative and dissemination of neuroscience research through social media. This course will provide students with an overview of modern neuroscience topics, techniques, and major neuroscience initiatives in the 21st century, while introducing them to current literature in neuroscience and critical thinking through discussion based classes.

Neuroscience Journal Club (GPLS 629 – 1 Credit)

Prior to advancing to candidacy, students are required to attend all journal club meetings. Journal Clubs are presented by Program students, faculty and postdocs. Students receive credit for GPLS 629 for presenting a paper at the Program in Neuroscience Journal Club. A minimum of two semesters of GPLS 629 for credit (i.e., including presentations) are required from each student. Students give their first journal club presentation during the 2nd year of the program. The second presentation may be given after advancing to candidacy. Students must select a faculty member, approved by the Journal club Director of Graduate Education, to assist them in preparing their presentation. Students are required to notify the members of their Advisory Committee or their Thesis Committee of the time, date, and title. Invited speakers will be asked to suggest one or more of their manuscripts that are relevant to their talk. These manuscripts will be presented by one of the students at the Tuesday Journal Club preceding the Thursday seminar; **this presentation may be used to fulfill the requirement for Journal Club presentations (GPLS 629)**. The faculty host of the speaker will act as the mentor for the student giving the Journal Club presentation. The grading system for the Journal Club is P/F.

SPRING 1

Advanced Neuroscience Investigation (GPLS 655 – 8 credits)

An interactive course designed to instill basic tenets of neuroscience while developing critical thinking, problem solving ability and experimental design skills required for high performance in the research laboratory setting.

Research Ethics (CIPP 907 – 1 credit)

The ethical conduct of science is increasingly under the spotlight from the public, media, and national regulatory bodies. The National Institute of Health recently released a notice requiring "...all trainees, fellows, participants, and scholars receiving support through any NIH training, career development award (individual or institutional), research education grant, and dissertation research grant must receive instruction in responsible conduct of research".

In this course, various aspects of research ethics will be examined, including data collection and ownership, issues in the use of human and animal subjects, responsibilities of authorship, identifying and handling conflicts of interest, scientific misconduct, the peer review system, collaborative research in academia and industry, mentor/mentee relationships, contemporary ethical issues, and the role of the scientist as a responsible

member of society. Each session has a readings list assigned and involves in depth small group discussions of relevant cases with faculty in small group discussions. Postdoctoral fellows, and students not needing the credit, may sign up for the course informally, but will still be expected to participate fully in order to receive a letter of course completion. Grading will be based on group participation and leadership of at least one group discussion.

Laboratory Rotations (GPLS 609-1 Credit)

An important feature of our training program is laboratory rotations. The primary purpose of these rotations is to aid in the selection of a suitable mentor and lab in which to conduct your thesis research (see **Choice of Mentor**). The rotations should expose the student to diverse aspects of neuroscience research. Students should consider lab rotations which prepare them to test specific hypotheses and/or predictions and to develop critical thinking skills as well as exposing them to new and novel techniques. Each trainee is expected to complete three laboratory rotations before choosing a mentor for thesis research.

Students are not permitted to do laboratory rotations during the Year 1 Fall semester, because of the course load. However, students are strongly encouraged to visit the laboratories of Program faculty during this semester.

To better inform rotation-level students about the research opportunities available in the PIN labs, there are a series of Professor's Rounds in the Fall 1 semester. The scheduling for these rounds is done in advance, and is emailed to all first-year students. Each session has 2 faculty presenters and lasts about one hour, each giving an informal "chalk talk" about their laboratory research. Students in their first year are required to attend these presentations.

In addition to the PIN Professor's Rounds, there are also the Membrane Professors' Rounds in the Fall, which PIN students are encouraged to attend. A list of faculty in the Program in Neuroscience may be found at <https://lifesciences.umaryland.edu/neuroscience/Graduate-Program-Faculty/#Neuroscience>

The student's Advisory Committee is responsible for guiding the student into appropriate rotations. Prior to beginning a rotation, the students must receive approval from the proposed mentor, his/her Advisory Committee and the Program Director of Graduate Education (Laboratory Rotation Proposal Form). You should meet with the laboratory mentor to determine if there is room for you in the laboratory, to identify a likely project and its hypothesis, and to clarify expectations about your time commitment and his/her flexibility. The Laboratory Rotation Proposal Form (included in this packet) assists you in establishing

these goals. This form should be turned into the Program Manager once the signatures have been received. Each rotation typically lasts 8 to 12 weeks; longer rotations must be approved by the Training Committee (or the Director of Graduate Education).

Students are required to do one 10- 15 minute presentation discussing the outcomes of one of their rotation projects. Presentations should include a brief synopsis of the overarching research topic and question and significance (i.e., background), a statement of the hypothesis or predictions tested, and a discussion of the findings. Students should be prepared to answer questions posed by the audience. Faculty will provide useful feedback following these presentations (an example form included in this packet – Appendix 3)

Additionally, both the student and the mentor must complete an evaluation form (both included in the rotation packet – Appendix 3). Feedback from the mentor and the presentation will result in a pass/fail grade for the rotation.

**A student must receive prior approval from his/her Advisory Committee and the Program Director of Graduate Education to begin thesis work with a mentor after completing only two laboratory rotations.*

** Students who have had extensive, documented research experience prior to joining the Program in Neuroscience may receive partial credit toward the Laboratory Rotations requirements, subject to approval by their Advisory Committee and the Training Committee.*

FALL 2

Biostatistics (GPLS 630 – 3 credits)

This course covers most of the basic types of analysis procedures used for continuous and discrete variables. These topics include statistical inference (p -values, confidence intervals, and hypothesis tests), t-tests, chi-square tests, power calculations, nonparametric methods, simple and multiple linear regression, ANOVA, logistic regression, and survival analysis.

Proseminar in Hypothesis Testing and Experimental Design (GPLS 737- 2 credits)

This course is designed to promote strengths in critical thinking, experimental design and development of testable hypotheses. Skills in both written and oral scientific communication are emphasized. The course format consists of a series of two-hour sessions once per week. Each student does three presentations during the term: a critical analysis of a scientific paper, including identification of hypothesis, predictions, and alternative hypotheses; a proposal based on a previous research experience; and a research project based on a hypothetical data set. For the second and third presentations, students write proposals in the format of NIH predoctoral fellowship applications. Students revise their proposals after receiving oral and written critiques by faculty and students. This course is intended for neuroscience-oriented PhD students in various programs who are about to complete their course work.

c. Electives

(not every elective is offered every semester/year)

Please check the Graduate School's course catalog for electives offered:

https://surfs.umaryland.edu/SIMS/bwckschd.p_disp_dyn_sched

d. Miscellaneous

Credit for Previous Courses or Research

Students who received a B or better grade in equivalent courses at other schools or programs may request a waiver from the Training Committee from attending similar courses. Students who have had extensive, documented research experience prior to joining the Program in Neuroscience may receive partial credit toward the Laboratory Rotations requirements, subject to approval by their Advisory Committee and the Training Committee.

MD/PhD students at UMB may be credited for laboratory rotations performed at UMB prior to entering the Program in Neuroscience.

Master of Science Degree

The Program in Neuroscience does not have a Master's program and does not admit students who wish to obtain an M.S. degree. Master's degrees are not awarded at an intermediary point in the program. However, if a student leaves the program after the second year for compelling reasons or is asked to leave the program, the Training Committee may consider recommending the awarding of a terminal M.S. degree. This will not be considered unless the student has completed two years of coursework and laboratory rotations (totaling 30 credit hours) and is in good academic standing.

3. Choice of Mentor

The most critical decision a graduate student makes in the first 2 years of study is their selection of a mentor.

When choosing a mentor, students should consider the following:

- Does the mentor have sufficient funds to support the student for 2 years?
- Do the student and mentor have compatible styles in terms of work ethic, communication, management and creative freedom?
- Is the laboratory an environment where the student will be able to learn and grow?

Some students choose a laboratory based on the project without considering the mentor that heads the project. Some students choose a laboratory based on the mentor without considering whether the project inspires them as a scientist. The most successful students consider both the project and the mentor before selecting a laboratory to join.

IV. Program of Study (continued)

B. Qualifying Examination

Context:

Graduate students in the Program in Neuroscience at the University of Maryland, Baltimore are expected to develop a number of skills as they prepare to embark on their thesis research. These include the ability to synthesize and critically evaluate data described in scientific literature, formulate clearly testable hypotheses, design experiments to test these hypotheses and evaluate results from proposed experiments. These skills will be developed through didactic course-work and participation in journal clubs and seminar series and laboratory rotations.

Purpose of the qualifying exam:

1) To establish that students have acquired academic tools necessary to a) formulate a testable hypothesis that addresses a particular problem in neurobiology, b) formulate a series of experiments designed to test the hypothesis, c) discuss potential outcomes of the proposed experiments particularly those relevant to the acceptance or rejection of the hypothesis, d) discuss future directions for their proposed line of investigation. 2) To establish that students have obtained a solid foundation in the principles of neuroscience.

Mechanism:

The exam will consist of two parts: written and oral. The written portion will be in the form of a written proposal concerning a set of specific aims that may be in the area of the student's interests but that is entirely distinct from ongoing research in the student's thesis lab or rotation labs. The oral portion will consist of an examination based on, but not restricted to, the written document during which students will be given the opportunity to clarify and/or expand upon issues raised in the written portion of the exam.

A student on academic probation (i.e. GPA less than 3.0) will not be permitted to sit for the Qualifying exam unless the GPA is above 3.0 at the end of the Fall semester.

Evaluation and outcomes:

This will be a two-stage process. Following completion of the written portion of the exam, it will be evaluated by the examiners. If the written portion is judged satisfactory, the student will proceed to schedule the oral exam (for a later date). If the written is judged unsatisfactory the student will have the opportunity to rewrite and resubmit the written exam for re-evaluation. Students will be evaluated on their performance on both the written and oral components of the exam. Students will be advanced to candidacy if 3 out of 4 members of the examining committee judge that the overall performance of the student was adequate. If less than 3 out of 4 members of the committee feel that the

overall performance of the student was adequate, students will have to re-take both written and oral portions of the exam. Under these circumstances, students will be assigned a committee of 3 faculty members who will work with the student to address deficiencies identified in the exam process. Students will be given 3 months in which to address deficiencies and re-take their exam. Students must pass this second attempt to remain in the program.

Transparency:

The dissertation research advisor for the student is allowed to attend the oral qualifying exam but cannot participate in any way. The purpose of this is to allow the mentor to observe the strengths and weaknesses in the student's performance so that appropriate mentorship moving forward for the student may be implemented.

Admission to Candidacy

Admission to candidacy means that the student has completed and successfully passed the Qualifying Examination and the course requirements of the Program in Neuroscience and is now ready to begin thesis research leading to thesis proposal and dissertation defense. Students must submit the Application for Admission to Candidacy (required form, Appendix 4) to their faculty mentor and program Director of Graduate Education for signature, and, subsequently, to the Program Manager, who will then keep a copy in the student's file and forward the original to the Graduate School for final review. A copy of the student's transcript delineating all course work taken by the student in fulfillment of degree requirements must accompany each copy of the application for admission to candidacy.

Doctoral students are expected to complete their degree requirements in a timely manner. The Graduate School requires that the thesis defense takes place within four years of admission to candidacy.

Following successful completion of the Qualifying Exam and Admission to Candidacy:

It is expected that by the middle of Fall semester of their second year in graduate school, students will have chosen a lab in which to complete their thesis research.

By the end of the Spring of their second year, students should have assembled a thesis committee and already have had one committee meeting.

Through the Spring of their 2nd year and Fall of their 3rd year, students are expected to have developed a potential thesis project with their mentor and thesis committee to the point that they are able to generate an NRSA-style proposal. Students are expected to submit such a proposal to either the NIH or another funding institution by the Spring of their third year in graduate school.

Students are expected to present their thesis proposal as a written document and an oral presentation by the end of their 3rd year in order to remain in good standing in the program. It is understood that this proposal is not binding and that the goals of the research project may be modified in consultation with the thesis committee and the mentor as data is generated.

IV. Program of Study (continued)

C. Thesis Years

1. Typical Year two, three and four curriculum:

FALL SEMESTER	Credit	SPRING SEMESTER	Credit
Research Credit (GPLS 899)	3	Research Credit (GPLS 899)	3
Neuroscience Seminars (thesis proposal presentation) (GPLS 608)	1	Neuroscience Seminars (thesis defense) (GPLS 608)	1

2. Doctoral Dissertation

Students must demonstrate the ability to do independent research by presentation of an original dissertation on a topic approved by the thesis committee and the PIN Training committee in both written and oral formats. During the preparation of the dissertation, all candidates for the doctoral degree must register for a minimum of 12 credit hours of doctoral dissertation research (GPLS 899) at the University of Maryland, Baltimore.

A Ph.D. student must establish and maintain a professional relationship with a member of the Graduate Faculty with the appropriate knowledge and expertise to serve as his or her research adviser. If no appropriate Graduate Faculty member is available or no appropriate Graduate Faculty member agrees to be the student's research adviser, the student cannot continue in the Ph.D. program.

Doctoral students are expected to complete their degree requirements within 5 – 5.5 years from admission into the program. Students must be admitted to candidacy within two years of admission to the doctoral program, and submit an approved thesis proposal at least two full sequential semesters or sessions (Spring, Summer, or Fall)

before graduating. All degree requirements, including the doctoral dissertation and final doctoral examination, must be completed within four years of admission to candidacy and no more than nine years after admission into the doctoral program. Failure to complete all requirements within the time allotted requires another application for admission to the Graduate School with the usual requisites as decided by the program Training Committee. The Graduate School grants extensions of time only under the most unusual circumstances.

3. Dissertation Committee

A **Dissertation Committee** is formed after a student passes the Qualifying Exam, and selects a mentor in whose laboratory the dissertation research will take place. The Dissertation Committee, formed in consultation with the mentor and student, is the formal supervisory body that oversees the progress of the dissertation. It has the responsibility to act as a resource for the student and mentor, providing recommendations, advice and guidance and monitoring the student's progress.

The Dissertation Committee consists of **5 voting members** who hold the doctoral degree. Three must be Program in Neuroscience faculty members, and at least three must be Regular members of the Graduate Faculty. One committee member must fulfill the criteria for being an external member. This individual must be from a program, department or discipline separate from that of the candidate and must hold a doctoral degree. The external member may be from within the university or may be a scholar from another institution. Students **are encouraged** (*but not required*) to include a scientist from another institution on their Dissertation Committee. The committee must be approved by the Director of Graduate Education, and, once approved, changes in Committee membership must be requested in writing. Two committee members are designated as readers. When the dissertation is completed to the satisfaction of this committee (at least 14 days before the defense), the adviser and both readers sign the form (Certification of Completion of the Doctoral Dissertation, Appendix 5) saying that the dissertation is ready for defense.

To take full advantage of the Dissertation Committee's expertise, students are required to provide the committee a progress report **at least every 6 months**. The student and mentor can provide this report during meetings with individual Dissertation Committee members; however, students must convene the entire Dissertation Committee **at least once a year** to present their progress in a seminar format. In addition, the student has the option of meeting with the Dissertation Committee members individually, or as a group in the absence of the Mentor, should the need arise.

The student's mentor is responsible for submitting to the Director of Graduate Education a written summary of the Dissertation Committee's meeting with the student. If the student's progress is found inadequate, a request to meet with the student and mentor to discuss the student's progress and suggest remedial actions may be made.

3. NRSA/similar grant Submission

Students in the Program of Neuroscience are **required** to apply for an individual National Research Service Award (NRSA) or other similar award by their 3rd year, ideally before proposing their thesis. The same document prepared for NRSA (or similar grant) submission can be used as the written thesis proposal due to the dissertation committee before public proposal (see **Dissertation Proposal** below). NRSA submission deadlines are April 8th, August 8th and December 8th. Please check websites of other grant awarding organizations for pertinent deadlines.

4. Dissertation Proposal

As part of the requirements of the doctorate, students present and defend a dissertation proposal. It is strongly recommended that **defense of the dissertation proposal take place approximately one year after the student begins working with an approved Dissertation Mentor**. However, the defense **must** take place **at least 12 months before** the Dissertation Defense.

The **defense** of the dissertation proposal consists of **four parts**:

1. A research proposal written in the format of an NIH grant submitted to the Dissertation Committee.
2. An oral defense of the proposal to the Dissertation Committee, which convenes at least two weeks after submission of the proposal. If the committee approves the proposal, a formal, public, dissertation proposal presentation is held.
3. The public defense seminar describes the general hypothesis being tested, the data generated so far and the proposed experiments remaining to be conducted to bring closure to the project. All members of the student's dissertation committee (minimum allowed: all but 1 member) must be present in order for the public proposal to be valid.
4. The Thesis Proposal form is completed by the thesis chair and signed by committee members following the public proposal. (Appendix 5)

If the dissertation proposal defense is successful, the student proceeds with the dissertation work. If it is unsuccessful, the proposal must be revised and defended again. If it is not successfully revised, the student is dismissed from the program.

Successful defense of the proposal is a requisite for meeting the Program's academic requirements. All students are encouraged to submit an NRSA or other appropriate grant within a year of passing their qualifying exam, but are expected to have submitted one by the end of the Spring semester their third year. If the student has not, the mentor needs to provide a written explanation for this delay.

5. Requirements for Ph.D. and Dissertation Defense

A student's progress in the dissertation-research years is monitored during regular meetings (at least once every semester) with their Dissertation Committee. The Dissertation Committee also serves as the "Final Doctoral Examining Committee."

As part of their role as the Examining Committee, the Dissertation Committee is responsible for deciding when the dissertation is ready for defense. This decision is based on a detailed evaluation of the student's research progress-- including all tables, figures and data analyses--and on a closed-door seminar presented by the student. The Dissertation Committee will determine if additional research or training is required, or whether the student is ready to defend her/his dissertation. Students may schedule their formal, Public Dissertation *only after receiving written approval* from the Dissertation Committee and the Program Director of Graduate Education.

The Dissertation is a scholarly document that consists of an Introduction, several chapters presenting research results and a Discussion. The Introduction includes a thorough review of the literature and a general justification for the current research. Students are strongly encouraged to publish their data in peer reviewed journals prior to the final preparation of the dissertation. Published manuscripts can serve as the framework for data chapters when appropriate. Each chapter should include an introduction and justification for that particular experiment, unique methods, results and a discussion. A comprehensive discussion should review the findings presented in the chapters, integrate them with each other and place them in the larger context of the existing literature. Questions left unanswered or identified for future exploration should be elucidated. Methods that are common to many or all experiments can be collated into one chapter entitled **General Methods**. References should be made to the primary literature (not reviews or books); references should be numbered, and can appear at the end of each chapter, or as a single list at the end of the Dissertation.

In accordance with Graduate School guidelines, the Dissertation Committee must receive the final doctoral dissertation at least two weeks before the Public Dissertation Defense. In accordance with Graduate School guidelines, at least ten working days before the Public Dissertation Defense, students must file a form entitled "Certification of Completion of the Doctoral Dissertation" (Appendix 5) in company with the "Announcement of Doctoral Dissertation Defense" (Appendix 5, completed online).

The Public Dissertation Defense before the Graduate Faculty is a one-hour seminar open to the public that summarizes the dissertation research. All members of the student's dissertation committee must be present in order for the public defense to be valid. Following the defense, the Examining Committee meets in private for further discussion with the student and to deliberate and vote on whether the student has successfully completed the requirements for a dissertation defense. The normal rules established by the Graduate School of UMB governing grading of the dissertation defense apply. A successful defense merits the awarding of the Ph.D.

The candidate may take the final oral defense only twice. A failure on the second attempt means the Ph.D. degree is forfeited.

Students and mentors are encouraged to consult the Graduate School's detailed instructions for dissertation preparations and defense.

<https://www.graduate.umaryland.edu/Current-Students/Information-for-Graduating-Students/>

V. Advising and Tracking of Student Progress

It is the responsibility of the student to advance toward the PhD degree in a timely fashion. To help the student achieve this goal, advice and counseling will be provided to the student as follows:

Advisory Committee

During the **first and second years**, each student is assigned a three-person Advisory committee, at least one of whom is a member of the Program Training Committee (Appendix 9). The Advisory Committee meets with the student within the first few weeks of matriculation and at least once per semester thereafter and consults and approves course selections, research areas and laboratory rotations.. Students are responsible for arranging a meeting with their Advisory Committee **at the end of each semester** (no later than November 1st and April 1st for the Fall and Spring semesters, respectively), to review their scholastic performance and to discuss their coursework and laboratory rotations for the coming semester. A brief report (see Appendix 7- Pre-Candidacy Advisory Committee Meeting Record) from each meeting prepared by the **student** will be sent to the PIN Director of Graduate Education and the Program Manager. Additionally, the NIH requires that each student completes an Individual Development Plan (IDP) with their committee annually (Appendix 7).

The **student is responsible** for submitting to the Program Director of Graduate Education and the Program Manager written summaries of the committee's meetings with the student. These reports are evaluated by the Director of Graduate Education and appended to the student's official file. (Appendix 7- Pre-Candidacy Advisory Committee Meeting Record) **Registration for courses and for laboratory rotations is contingent on timely submission of these reports.**

Dissertation Committee

Upon successful completion of the qualifying exam a student will be advanced to candidacy and, in consultation with their chosen research mentor, form their thesis committee. This committee will meet semi-annually as arranged by the student. Committee meetings must have quorum to be valid – i.e. all members (minimum allowed- all but 1 member) must be present. (Brief reports of these meetings will be

submitted to the PIN Director of Graduate Education and the Program Manager by the thesis mentor (Appendix 7.) Additionally, the NIH requires each student completes an Individual Development Plan (IDP) with their committee annually (Appendix 7).

It is **optional** for the dissertation research advisory to hold a private meeting with other dissertation committee members to discuss the student's progress immediately prior to the dissertation committee meeting. It is **strongly suggested** that the students hold a private meeting (dissertation research advisor not in attendance) with the dissertation committee immediately after the dissertation committee meeting.

VI. Other Important Information

A. Student Attendance

Program in Neuroscience students are full-time graduate assistants. Every student is entitled to a two-week vacation per year, to be arranged with and approved by the chairperson of the student's advisory or thesis committee. Students in the Program in Neuroscience are responsible for being familiar with the pertinent rules and regulations stipulated by the University of Maryland Graduate School and this document.

The Program in Neuroscience mandates a number of activities deemed critical to the professional development of our students, including, but not limited to, participation in journal clubs, seminars, and professional development courses. All students are required to attend the monthly Neuroscience Seminar Series throughout their graduate studies. Students are expected to attend all activities designated by the Training Committee as mandatory. Students who are unable to attend a particular activity are required to receive prior approval from the PIN Director of Graduate Education. **Failure to attend three mandatory activities in a given semester will be considered as a failure to meet academic standards and will result in a recommendation to the Graduate School to place the student on academic probation. Students who do not satisfy the probationary terms dictated by the Graduate School may be dismissed from the Program.**

B. Graduate Student Association (GSA)

You are encouraged to participate in several programs for incoming graduate students and current graduate students offered by the GSA. For more information regarding the GSA and the names of the Program in Neuroscience representatives, please consult the GSA web site.

The GSA also offers special services for graduate students, including grants for lab supplies, travel fellowships, and use of laptop computers. If you are interested in becoming an active member or representative in the GSA, please contact the Program Manager for more information.

C. Student Training Committee

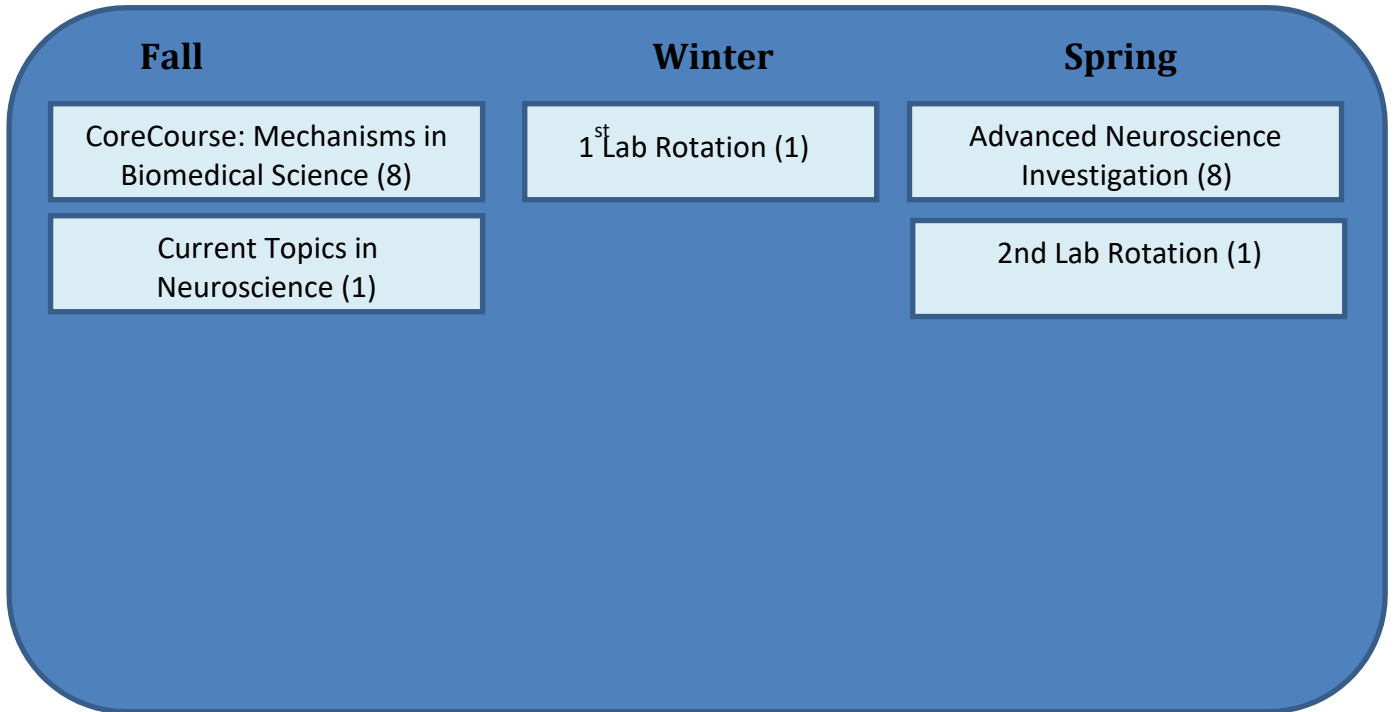
The Student Training Committee's mission is to bridge the gap between faculty and students. It is designed to give students a forum to provide feedback on their training and the training of new generations of PIN students that can turn into actionable improvements. All students above 1st year are welcome to join in meetings, which are once a semester. The program coordinator and director of Graduate Education are also typically present.

Appendix 1:

Flow charts for PhD students

Typical Course of Study for PIN PhD Students

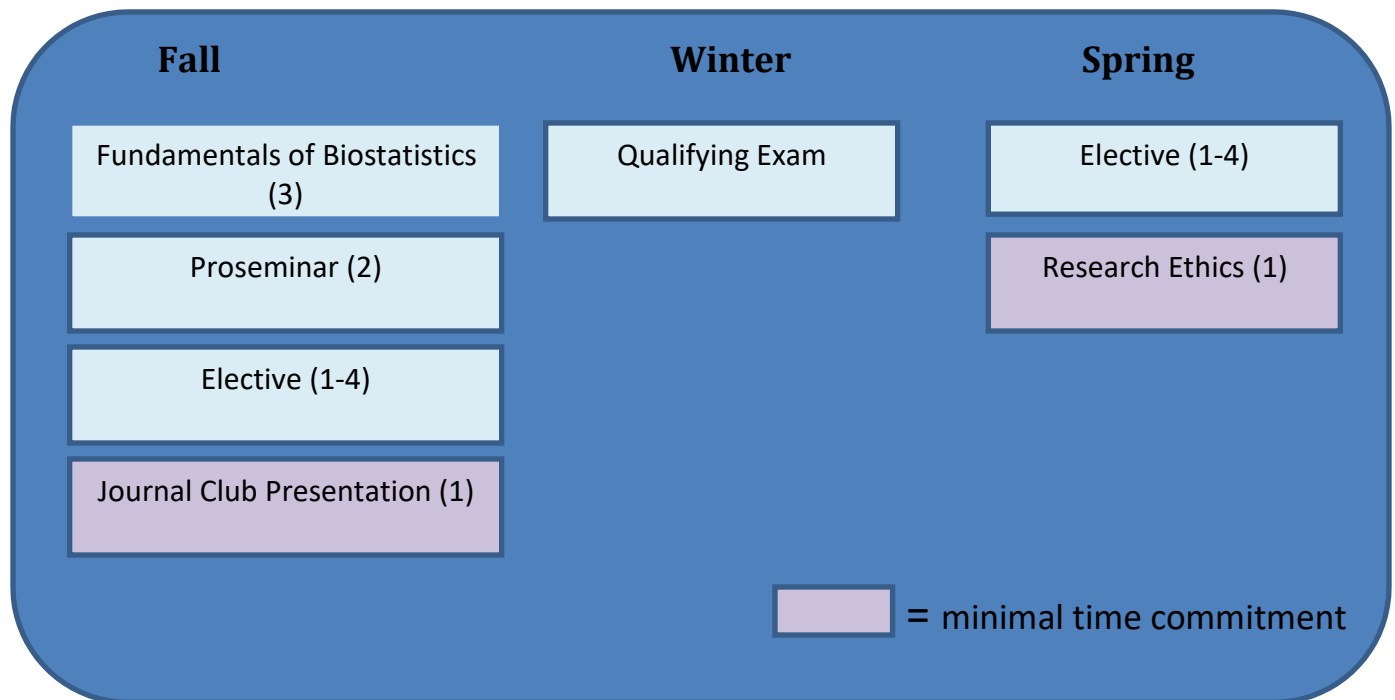
Year 1



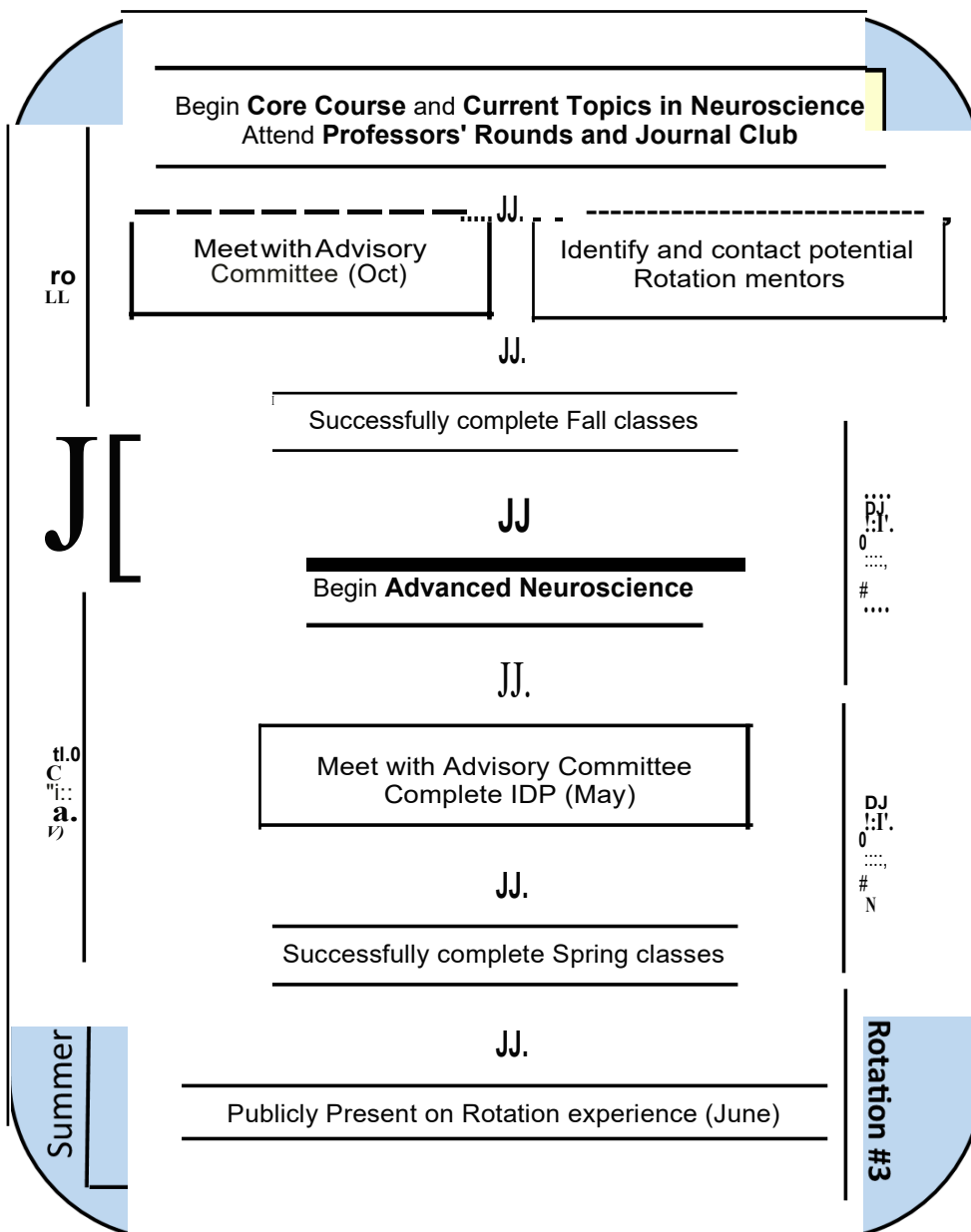
Summer

3rd Lab Rotation and Presentation (1)

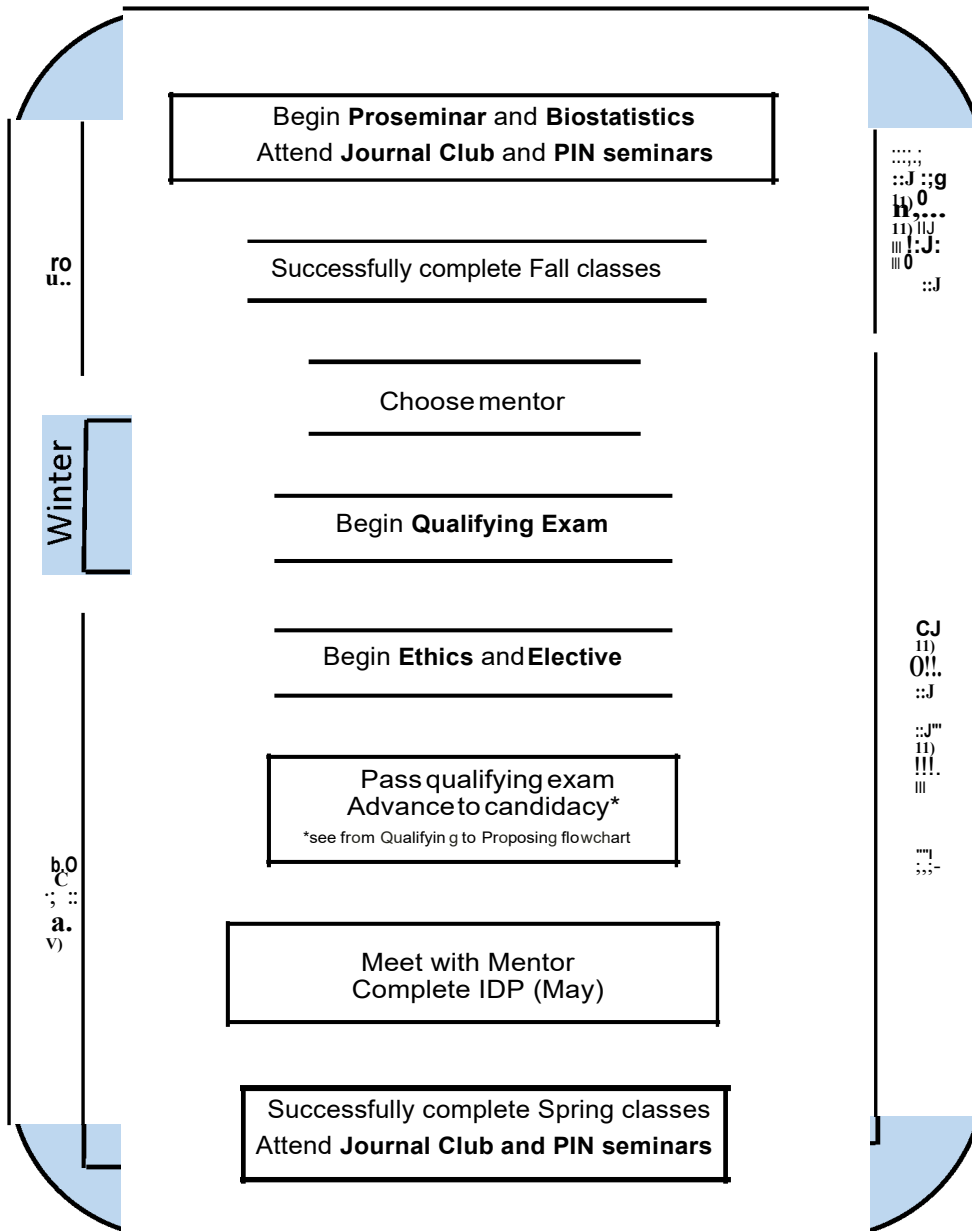
Year 2



1st year of Graduate School

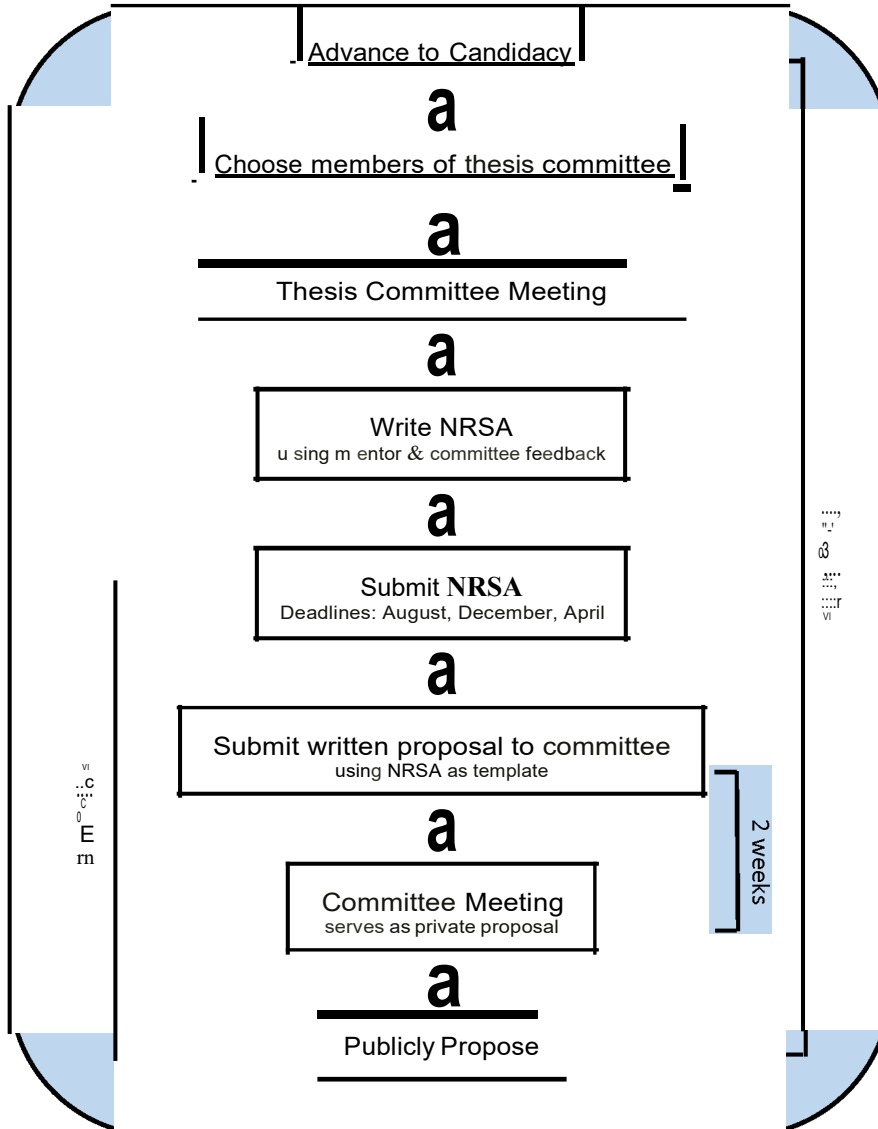


Year 2 of Graduate School



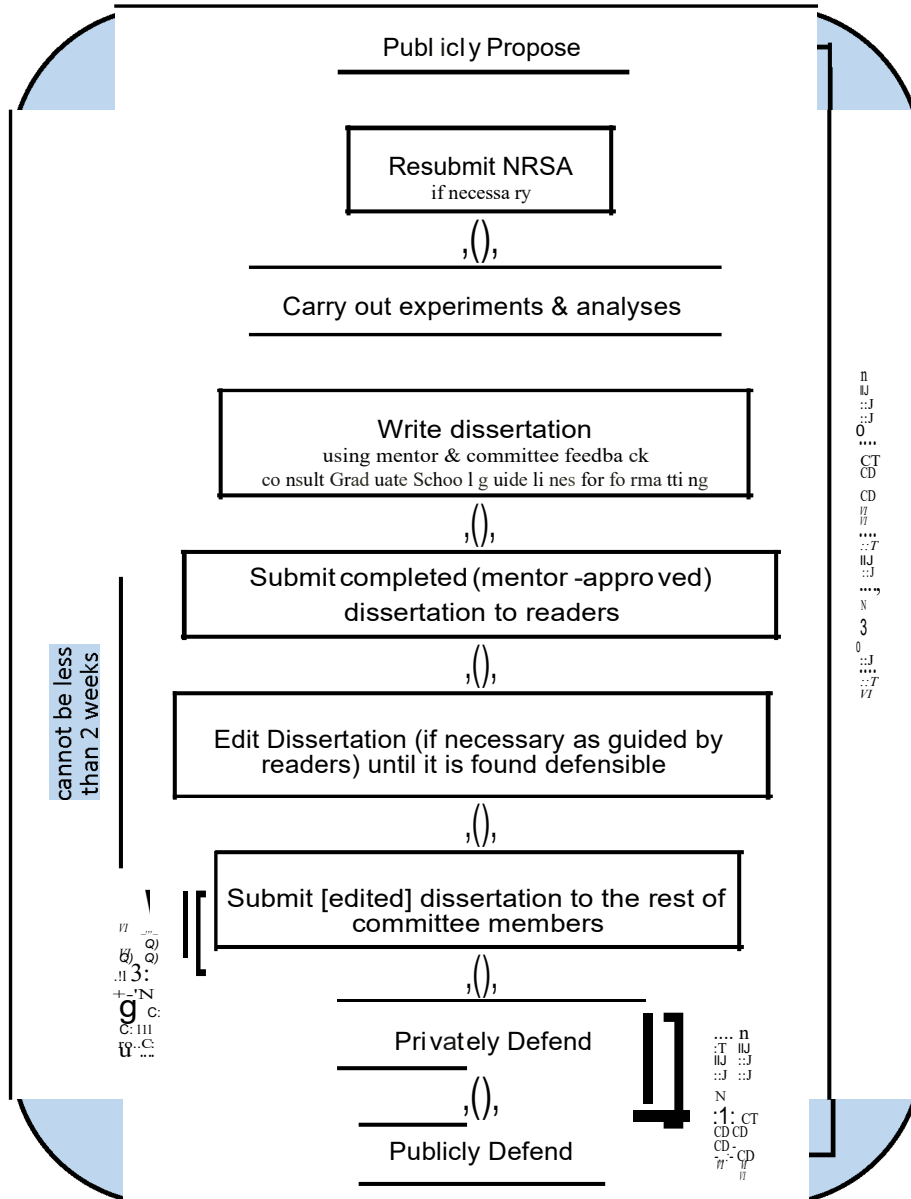
From Qualifying to Proposing

Continue to attend Journal Club and PIN seminars



From Proposing to Defending

Continue to attend Journal Club and PIN seminars



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Appendix 2:



Summary of Requirements for PhD students

Summary of Requirements

PIN Ph.D. Students

Year 1 Fall

- Meet with Advisory Committee to discuss courses and rotations
- Complete Core Course (GPLS 601) with a grade of B or better
- Complete Current Topics in Neuroscience (GPLS 691) with a grade of B- or better
- Attend Program in Neuroscience Professors' Rounds, Journal Club, PIN seminars

Year 1 Winter

- Complete 1st Laboratory Rotation (GPILS 609) (*required forms*)

Year 1 Spring

- Meet with Advisory Committee, bring completed Individual Development Plan (*required form*)
- Complete Advanced Neuroscience Investigation (GPLS 655) with a grade of B- or better
- Complete 1 credit of Journal Club (GPLS 629)
- Complete 2nd Laboratory Rotation (GPLS 609) (*required forms*)
- Attend Program in Neuroscience Journal Club, PIN seminars

Year 1 Summer

- Complete 3rd Laboratory Rotation (GPLS 609) (*required forms*)
- Complete one Rotation Presentation (June)

Year 2 Fall

- Attend Program in Neuroscience Journal Club, PIN seminars
- Meet with Advisory Committee to discuss courses, rotations and choice of mentor
- Choose a mentor with funding in whose laboratory you can do your thesis research
- Strongly encouraged to take an elective, as per Advisory Committee recommendations
- Complete Proseminar (GPLS 737) with a grade of B- or better
- Complete Biostatistics (GPLS 621) with a grade of B- or better
- Notify the Neuroscience Director of Graduate Education of your mentor choice

Year 2 Winter

- Pass Qualifying Examination
- Apply to Graduate School for Admission to Candidacy (*required form*)

Year 2 Spring

- Complete Ethics course (CIPP 907)
- Strongly encouraged to take an elective, as per Advisory Committee recommendations

Year 3

- Choose a Dissertation Committee
- Submit an NRSA or a grant to a private foundation
- Submit written Thesis Proposal (can use document from NRSA/grant submission) to mentor and dissertation committee
- Publicly present thesis proposal (GPLS 608)
- Submit Thesis proposal form (*required form*)

Years 3-5

- Attend Program in Neuroscience Journal Club, PIN seminars
- Submit Nomination of Members for the Final Doctoral Examination Committee Form (*required form*)
- Meet with Dissertation Committee at least twice a year to discuss progress
- Complete Individual Development Plan once a year with committee (*required form*)
- Continue dissertation research
- Complete 1 credit of Journal Club Course (GPLS 629)
- Complete at least 12 credits of Doctoral Thesis Research (GPLS 899)
- Publish at least one 1st author article in a scientific journal
- Complete research
- Write dissertation - consult Graduate School's instructions for preparing dissertation

Semester of Thesis Defense

- Register for Seminar in Neuroscience (GPLS 608)
- Submit Application for Diploma to **Graduate School**
- Submit dissertation to Dissertation Committee.
- Pass final oral exam by Dissertation Committee
- Schedule public defense
- Submit Certification of Completion of Doctoral Dissertation (*required form*)
- Submit online Announcement of Defense (*required form - online*)
- Publicly present defense

Appendix 3 – Laboratory Rotation Forms

- Laboratory Rotation Proposal Form
- Student's Laboratory Evaluation Form
- Mentor's Laboratory Evaluation Form
- Rotation Presentation Evaluation

The goals of this rotation are:

Signatures:

Student: _____ Date: _____

Mentor: _____ Date: _____

Chair, Advisory Committee: _____ Date: _____

Program in Neuroscience

Student's Laboratory Rotation Evaluation Form

NOTE: THE INFORMATION PROVIDED ON THIS FORM WILL BE REVIEWED ONLY BY MEMBERS OF THE TRAINING COMMITTEE, AND WILL REMAIN CONFIDENTIAL!

Please print and complete this form, and forward it to Jenn McFarland as soon as the rotation is over. *Your will not receive credits for the rotation without this form!*

Student's name: _____

Lab-Head name: _____

Mentor's name and position (if different than above): _____

Rotation dates: _____

The goals of the rotation were: _____

Which of these goals were accomplished?

I gained experience with the following techniques:

Did you receive adequate training and guidance? Please explain:

Rate your overall experience in this laboratory, using the following scale: **1** (very positive) to **5** (poor): _____

Would you recommend this laboratory to other students? Please explain:

Use the space below for additional comments or suggestions (use additional pages if necessary):

Program in Neuroscience

Mentor's Laboratory Rotation Evaluation Form

Please print and complete this form, and forward it to Jenn McFarland as soon as the rotation is over. Your student cannot receive credits for the rotation in your laboratory without this form. **Please remember to include written comments on the next page!**

Student's name: _____

Mentor's name: _____

Rotation dates: _____

Rate the student relative to other individuals of similar training and experience with whom you have been associated. Please use the following scale:

1 (top 5th percentile), **2** (10th percentile), **3** (20th percentile), **4** (30th percentile), **5** (40th percentile)

Research Ability and Potential	
Written and Verbal	
Communication	
Perseverance in Pursuing Goals	
Self-reliance and Independence	
Laboratory Skills and Techniques	
Originality	
Accuracy	
Scientific Background	
Familiarity with Research Literature	
Overall Evaluation	

Final Grade Awarded: (Pass or Fail) _____

Would you consider recruiting this student to your laboratory? _____

Use the space below for additional comments, including strengths and weaknesses that should be considered in evaluating a student's research career (use additional pages if necessary):

Mentor's signature: _____

Program in Neuroscience
Pre-Candidacy Advisory Meeting Record

Please print and complete this form, have it signed by the head of your Advisory Committee, and forward it to Jenn McFarland. *All students must meet with their Advisory Committees in the Fall and Spring semesters (by November 1st and April 1st respectively) This form is needed to register for the upcoming semester.*

Student Name: _____ Meeting Date: _____

Note: *Comments should address student's progress regarding goals and accomplishments and provide specific directives with benchmarks the student is expected to meet by the next meeting. Whenever possible, a timeline should be included. Please use the back of the form if more room is needed.*

Comments: _____

_____Courses proposed for next semester:

	<i>Semester/Year</i>	<i>Faculty Name</i>
Rotations Completed or Planned:	_____	_____
	_____	_____
	_____	_____

Mentor/Thesis Advisory Chosen: _____**Signatures:**

Student: _____ Date: _____

Chair, Advisory Committee: _____ Date: _____

Chair, Training Committee: _____ Date: _____

Program in Neuroscience

Rotation Presentation Evaluation

Presenter's Name:

Was the question asked (hypothesis) explained clearly?

Comments:

Was sufficient background provided to explain why this question is interesting?

Comments:

Did you understand the methods used?

Comments:

Were the data explained clearly?

Comments:

Was the talk effective?

- showed enthusiasm and maintained audience contact
- avoided jargon & abbreviations
- slides titled with take away message
- interacted well with slides, pointing to and explaining each element
- spoke slowly, clearly, and loudly enough

Comments:

Slides

- avoided long lists and paragraphs
- avoided tables
- avoided complicated figures
- figures were clearly labelled
- avoided too many slides

Comments:

Were the questions answered clearly and briefly?

Comments:

Overall Comments:

Appendix 4 - Candidacy Form

Application for Admission to PhD Candidacy

- Read the requirements for the Doctor of Philosophy degree in the Graduate School catalog
- Familiarize yourself with the specific PhD requirements established by your program
- Complete this application
- Obtain approval signatures from your primary adviser and graduate program director
- Attach your unofficial transcript printed from [SURFS](#) to this application; cross out courses that will not count toward this PhD degree
- Submit this application and transcript to: Graduate School Dean's Office, 620 W. Lexington St., fifth floor

Last Name:	Title <input type="checkbox"/> Mr. <input type="checkbox"/> Ms.	First Name
Student ID Number: @	E-mail address:	
Mailing Address: Street		
City	State	ZIP
Graduate Program:	Date admitted to Graduate Program:	
Number of credits earned toward this PhD Degree (not including 899):	List course(s) in which a incomplete (I) or no mark (NM) was earned:	
List course(s) earned at other institutions which will count towards this PhD degree (grade earned must be ≥B, attach official transcript):		

APPROVAL SIGNATURES		
Please type and sign		
Adviser:	Signature: Special <div style="text-align: right;"> Graduate Faculty Status: <input type="checkbox"/>Regular <input type="checkbox"/>Associate <input type="checkbox"/> </div>	Date:
Graduate Program Director:	Signature:	Date:
Graduate School Associate Dean: Dr. Erin Golembewski	Submit application to Graduate School Dean's Office for Signature:	Date:

Appendix 5 - Post Candidacy Forms

- Post Candidacy Thesis Committee Meeting Record
 - Thesis Proposal Form
-

- Nomination of Members for Final Doctoral Examination Committee
 - Certification of Completion of the Doctoral Dissertation
 - Announcement of Doctoral Dissertation Defense (online)
-

Program in Neuroscience**Post-Candidacy Thesis Committee Meeting Record**

Please print and complete this form, have it signed by your mentor and forward it to Jenn McFarland. *All students must meet with their Thesis Committees in the Fall and Spring semesters (by November 1st and April 1st respectively) This form is needed to register for the upcoming semester.*

Student Name: _____ Meeting Date: _____

Note: *Comments should address student's progress regarding goals and accomplishments and provide specific directives with benchmarks the student is expected to meet by the next meeting. Whenever possible, a timeline should be included. Please use the back of the form if more room is needed.*

Project Title: _____
Mentor: _____

Comments: _____

Committee Members:
Chair/Mentor: _____

Outside member

Thesis Proposal Scheduled: Yes/No If yes, tentative date _____
Thesis Defense Scheduled: Yes/No If yes, tentative date _____

Signatures:

Student: _____ Date: _____

Mentor: _____ Date: _____

Graduate Program Director: _____ Date: _____

Nomination of Members for Final Doctoral Examination Committee

1. File this form with the Graduate School at least six months before your final examination.
2. The chair and at least two committee members must be ****Graduate Faculty** Regular Members.
3. The committee must have between five and seven members, all of whom must hold a doctoral degree.
4. At least one committee member must be from outside the candidate's program.
5. Designate the chair and two other members as "readers". Two weeks before the final examination, the readers must certify that the doctoral dissertation is complete and ready to be defended by filing the *Certification of Completion of the Doctoral Dissertation Form* with the Graduate School.
6. For proposed examiners who are not members of the ****Graduate Faculty**, provide a curriculum vitae.
7. Submit this form to Dr. Golembewski, Associate Dean, Graduate School, 620 W. Lexington St., fifth floor

Student Last Name:

Student First Name:

Student ID Number:

E-mail address:

Graduate Program:

Date admitted to PhD Candidacy:

Proposed Date of Examination:
(month) (day) (year)

Dissertation Committee

Committee Chair (1):	Reader Yes No	Department:	**Graduate Faculty Status:
Regular Associate Committee Member (2):	Reader Yes No	Special None (CV attached) Department:	**Graduate Faculty Status:
Regular Associate Committee Member (3):	Reader Yes No	Special None (CV attached) Department:	**Graduate Faculty Status:
Regular Associate Committee Member (4):	Reader Yes No	Special None (CV attached) Department:	**Graduate Faculty Status:
Regular Associate Committee Member (5):	Reader Yes No	Special None (CV attached) Department:	**Graduate Faculty Status:
Regular Associate Committee Member (6):	Reader Yes No	Special None (CV attached) Department:	**Graduate Faculty Status:
Regular Associate Committee Member (7):	Reader Yes No	Special None (CV attached) Department:	**Graduate Faculty Status:
Regular Associate		Special None (CV attached)	

Approval Signatures

Committee Chair:	Signature:	Date:
Graduate Program Director:	Signature:	Date:
Graduate School Associate Dean: Dr. Erin Golembewski	Submit application to Graduate School Dean's Office for signature:	Date:

University of Maryland Graduate School, Baltimore

Certification of Completion of the Doctoral

Dissertation* The Announcement of Doctoral Dissertation Must Accompany this Form

University of Maryland

Baltimore

Date:

To: Associate Dean of the Graduate School

From: (dissertation committee chair) (program)

The undersigned members of the student's dissertation committee hereby certify that the dissertation written by:

Student's Name: (last) (first)

Student ID Number: @

entitled:

is ready for defense.

Signatures:

Dissertation Committee Chair: (date)

Dissertation Reader 1: (date)

Dissertation Reader 2: (date)

Graduate Program Director: (date)

Date of Final Examination*: (month) (day) (year)

**The examination committee must have sufficient time to review the thesis and return the form to the Graduate School at least two weeks (10 working days) before the examination.*

Updated: May 2006

Announcement of Doctoral Dissertation Defense:

<http://www.graduate.umaryland.edu/Current-Students/Announcement-of-Defense-/>

(Online Form)



**You must apply on SURFS to get your diploma!!!!
Watch for deadlines!**



Appendix 6: Committee Meeting Forms

- **Pre-Candidacy Advisory Committee Meeting Record**
 - **Individual Development Plan (before choosing a mentor)**
-

- **Post-Candidacy Thesis Committee Meeting Record**
 - **Individual Development Plans (once mentor has been chosen)**
-
-
-

Program in Neuroscience
Pre-Candidacy Advisory Meeting Record

Please print and complete this form, have it signed by the head of your Advisory Committee, and forward it to Jenn McFarland. *All students must meet with their Advisory Committees in the Fall and Spring semesters (by November 1st and April 1st respectively) This form is needed to register for the upcoming semester.*

Student Name: _____ Meeting Date: _____

Note: *Comments should address student's progress regarding goals and accomplishments and provide specific directives with benchmarks the student is expected to meet by the next meeting. Whenever possible, a timeline should be included. Please use the back of the form if more room is needed.*

Comments: _____

_____Courses proposed for next semester:

	<i>Semester/Year</i>	<i>Faculty Name</i>
Rotations Completed or Planned:	_____	_____
_____	_____	_____
_____	_____	_____

Mentor/Thesis Advisory Chosen _____

Signatures:

Student: _____ Date: _____

Chair, Advisory Committee: _____ Date: _____

Chair, Training Committee: _____ Date: _____



GRADUATE PROGRAM IN LIFE SCIENCES

Individual Development Plan (IDP) for University of Maryland Graduate Students (before mentor is selected)

Name of Graduate Student:

Date:

Advisor:

Program:

The Graduate Program in Life Sciences is committed to providing a top-tier research training environment for graduate students. To further support the development of graduate students in their trajectory towards independent careers, the Graduate Program in Life Sciences is pleased to provide the Individual Development Plan (IDP) as a mentoring guidance document. Once completed, please turn in to your program administrator.

The specific goals of the review process are to:

- Identify the graduate student's goals to promote enhanced productivity
- Identify graduate student's professional development needs to foster career growth
- Help ensure graduate expectations and goals are aligned with their faculty advisor and program

Instructions

Graduate students and faculty advisors should complete **Section A** together, and the **graduate student** should complete **Section B** to bring with them to their meeting with the faculty advisor. During this meeting, both parties should discuss the graduate student's responses to the career development section and also ensure that the graduate student and the faculty advisor are aware of the expectations of their studies.

Additional Assistance

Jennifer Aumiller (Director, Pre/Postdoctoral Career Development) is available to meet individually with graduate students and/or faculty advisors to provide additional guidance in preparing this document. For additional information, please contact at jaumiller@som.umaryland.edu.

Plans for upcoming year

1. Research Interests

2. Courses you plan to take in the upcoming year

3. Research rotations (completed and in progress)

Mentor name	Rotation dates	Project title

4. Plans for improving scientific writing and oral presentation skills in the upcoming year

5. Anticipated meeting and workshop attendance in the upcoming year

6. What professional societies do you wish you could be a member of?

**Part B. Professional Development Goals for the Upcoming Semester
(completed by graduate student)**

1. Current career goal (s) Please indicate short, mid and long term goals.

--

2. Indicate which of the following workshops or seminars offered by the Graduate Program in Life Sciences or by partner groups on campus you plan to attend the upcoming year.

	Yes	No	Plan to attend this year
NRSA Workshop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Getting your research published	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Presenting your research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scientific Leadership and Project Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Networking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Writing a CV or resume	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Individual consultation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
“Careers in Science” seminar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature of Graduate Student _____ Date _____

Signature of Faculty Advisor _____ Date _____

By signing this form, both parties confirm that they have discussed all items outlined in the document. This form does not constitute a binding contractual agreement between both parties.

Signature of Graduate Program Director _____
Date _____

Members of the Graduate Student Advisory Committee (at least 2 in addition to Faculty Advisor)

Name _____

Name _____

Name _____

This document is available for download at:

Additional Resources

Additional resources regarding IDPs are available through FASEB and Science Careers. These materials are available at: http://opa.faseb.org/pages/PolicyIssues/training_links.htm
<http://myidp.sciencecareers.org>

Program in Neuroscience
Post-Candidacy Thesis Committee Meeting Record

Please print and complete this form, have it signed by your mentor and forward it to Jenn McFarland. *All students must meet with their Thesis Committees in the Fall and Spring semesters (by November 1st and April 1st respectively) This form is needed to register for the upcoming semester.*

Student Name: _____ Meeting Date: _____

Note: *Comments should address student's progress regarding goals and accomplishments and provide specific directives with benchmarks the student is expected to meet by the next meeting. Whenever possible, a timeline should be included. Please use the back of the form if more room is needed.*

Project Title: _____

Mentor: _____

Comments: _____

Committee Members:

Chair/Mentor: _____

Outside member _____

Thesis Proposal Scheduled: Yes/No If yes, tentative date _____

Thesis Defense Scheduled: Yes/No If yes, tentative date _____

Signatures:

Student: _____ Date: _____

Mentor: _____ Date: _____

Graduate Program Director: _____ Date: _____



Individual Development Plan (IDP) for University of Maryland School of Medicine PhD Candidate Graduate Students

Name of Graduate Student:

Review Date:

Mentor:

Program:

Start date in lab:

Anticipated end date:

The Graduate Program in Life Sciences is committed to providing a top-tier research training environment for graduate students. To further support the development of graduate students in their trajectory towards independent careers, the Graduate Program in Life Sciences is pleased to provide the Individual Development Plan (IDP) as a mentoring guidance document. Once completed, please turn in to your program administrator.

Goals:

- Provide constructive feedback to trainees regarding their progress during the past six months
- Identify trainee's short-term research project goals to promote enhanced productivity.
- Identify trainee's professional development needs, foster career growth and long term goals
- Help ensure trainee's expectations and goals are aligned with those of the faculty advisor.

Instructions

Graduate Students should complete Section A and provide their complete responses to their faculty mentor prior to the scheduled review meeting. During this review meeting, both parties will discuss the graduate student's responses. **Faculty Mentors** will provide Section B. This is designed to elicit feedback on the student's overall performance as well as targeted areas for improvement.

Note: *Programs that already use IDPs, and/or have procedures to obtain mentor comments that cover similar information, may continue to use their forms. These alternatives should be reviewed and tracked by the Graduate Program.*

For assistance/guidance, please contact GPILS Director of Career Development:
jaumiller@som.umaryland.edu

Part A (completed by Graduate Student)

SUMMARY OF YOUR RESEARCH PROJECT

1. Initial IDP: Briefly describe the aims and experimental approaches of your research project. What is the significance of the research? Are collaborations or use of specialized resources/cores anticipated? If yes, indicate formal arrangements. (1/2 page sufficient), **OR**

Biannual IDP: Briefly summarize your research project and major accomplishments in the past six months (1/2 page should be sufficient)

--

2. What new skills and education/training in new research areas would enhance your project and your professional development?

--

3. Please attach an NIH format BioSketch

<http://grants.nih.gov/grants/funding/2590/biosketchsample.pdf>

4. Selection of Thesis Committee – if you have selected your thesis committee, please list the members here. (Also, please be sure to complete graduate school thesis committee form if not already completed: http://www.graduate.umaryland.edu/documents/doctoral_committee%20update%202012.pdf)

http://www.graduate.umaryland.edu/documents/doctoral_committee%20update%202012.pdf)

Thesis Committee Member Name	Department	Graduate Faculty Status

PLANS FOR COMING YEAR

1. List research project goals

--

2. Scholarship or other funding applications planned for the upcoming year

3. Potential collaborations in the coming year, if appropriate

4. Plans for improving scientific writing and oral presentation skills in coming year. Brief outline of accumulating results toward a research paper or presentation in coming year.

5. Which professional societies do you wish you become a member of?

6. Which workshops and seminars offered by GPILS or by partner groups on campus have you attended or do you plan to attend?

	Yes	Plan
NRSA Workshop	<input type="checkbox"/>	<input type="checkbox"/>
Getting your research published	<input type="checkbox"/>	<input type="checkbox"/>
Presenting your research	<input type="checkbox"/>	<input type="checkbox"/>
Scientific Leadership and Project Management	<input type="checkbox"/>	<input type="checkbox"/>
Networking	<input type="checkbox"/>	<input type="checkbox"/>
Writing a CV or resume	<input type="checkbox"/>	<input type="checkbox"/>
Individual consultation	<input type="checkbox"/>	<input type="checkbox"/>
“Careers in Science” seminar	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>

7. What national/international conferences have you attended/plan to attend? Which of these involve presentation of your data? (Indicate oral or poster presentation)

CURRENT CAREER GOALS

List several alternatives if appropriate. (Career options may be explored at <http://myidp.sciencecareers.org>)

SUGGESTIONS TO IMPROVE IDP PROCESS AND FORMS

We would like to improve the IDP process and forms continuously. We would appreciate your constructive suggestions, which will be treated confidentially. If you prefer, please provide written or oral suggestions separately to Jennifer Aumiller jaumiller@som.umaryland.edu.

Signature of Faculty Mentor _____ Date

Signature of Graduate Trainee _____ Date

*By signing this form, both parties confirm that they have **discussed** all items outlined in the document. **This form summarizes their discussion; it does not constitute a binding contractual agreement between the parties.***

Part B: (completed by the Faculty Mentor)

Please summarize the following points:

- Research project progress.
- Trainee's strengths.
- Trainee's capabilities and performance needing improvement.
- Comment on the Graduate Trainee's supervisory and/or group management skills, oral and written communication skills, and participation in group meetings and seminars.
- Additional major points discussed during the IDP meeting

Additional topics that may be addressed below:

- Is the Graduate Trainee's career development on-track?
- What skills should the trainee improve or acquire in order to advance his/her career?
- Summarize what portion, if any, of the research project might be taken by the individual to initiate his or her independent research.
- If performance has been unsatisfactory, what are the specific goals that the trainee must meet?
- How can the Graduate Program in Life Sciences as a whole or the individual training program assist in helping your trainee achieve his/her overall goals?

Signature of Faculty Mentor _____ Date

Signature of Graduate Trainee _____ Date

*By signing this form, both parties confirm that they have **discussed** all items outlined in the document. **This form does not constitute a binding contractual agreement between both parties.***

Signature of Program Director _____ Date _____

This document is available for download at:

Additional Resources

Additional resources and discussion regarding IDPs are available widely, including via FASEB and Science Careers, e.g.: <http://www.faseb.org/portals/2/pdfs/opa/idp.pdf>
<http://myidp.sciencecareers.org>

Appendix 8: Training Committee Members

Training Committee Members

Members

Brian Mathur, Ph.D. (Director of Graduate Education, Program in Neuroscience, Pharmacology)

Alex Ksendzovsky, M.D., Ph.D. (Neurosurgery)

Donna Calu, Ph.D. (Anatomy & Neurobiology)

Joseph Cheer, Ph.D. (Anatomy & Neurobiology)

Man-Kyo Chung, D.M.D., Ph.D. (Neural & Pain Sciences)

Ashley Marquardt (Neuroscience, Student Representative)

Ivy Dick, Ph.D. (Physiology)

Rao Gullapalli, Ph.D., MBA (Diagnostic Radiology and Nuclear Medicine)

Marta Lipinski, Ph.D. (Anesthesiology)

Mary Kay Lobo, Ph.D. (Anatomy & Neurobiology)

Jessica Mong, Ph.D. (Pharmacology)

Georgia Rogers, Ph.D. (Neuroscience, Staff)

Ex-officio

Margaret M. McCarthy, Ph.D. (Director of the Program in Neuroscience, Pharmacology)

Mary-Claire Roghmann, M.D., M.S. (Director of Graduate Education, M.D./Ph.D. Program, Epidemiology and Public Health, Medicine)