

*Drexel University College of Medicine
Neuroscience Graduate Program (MS)*

**POLICIES AND PROCEDURES
2016-2017**

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A. Course Requirements

The curriculum includes two semesters of a “Core Curriculum” that is shared by all of the biomedical graduate programs and a series of programmatic courses specific for neuroscience students. All students in the Neuroscience Program must take the Core Curriculum and Scientific Integrity and Ethics as well as the programmatic courses. All students must participate in a seminar/discussion course (Journal Club -Neurobiology Topics), starting in their second year and during every semester while in the program, prior to registering for Thesis Defense Only (see Section G). Total number of research credits is variable for each student. The Neuroscience Steering Committee will advise each student on the selection of the flexible aspects of the curriculum.

B. Curriculum

First Year Fall Semester

Core Curriculum I	5
Graduate Neuroscience I	2.5
1st Lab Rotation	4
Total Credits:	11.5

First Year Spring Semester

Core Curriculum II	5
Medical Neuroscience	6
2nd Lab Rotation (optional)	4
Total Credits:	11-15

Second Year Fall Semester

Graduate Neuroscience II	5
Neuroscience Thesis Research	9
Current Topics in Neurobiology (Journal Club)	2
Scientific Integrity and Ethics	2

Total Credits:	18
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Second Year Spring Semester

One of the following Advanced Neuroscience courses	
Cellular and Developmental Neuroscience	1
Systems and Behavioral Neuroscience	1
Motor Systems	4
Neuroscience Thesis Research	9
Statistics for Neuro/Pharm Research	2
Current Topics in Neurobiology (Journal Club)	2
*Elective	variable
Total Credits	14-17

* Electives can be taken at the discretion and advice of the student’s mentor and the Program Director.

The possibility exists for students to choose from a variety of courses as an elective. For example, students can take a neuropharmacology class (for Behavioral Neurobiology students) or a programming class (for Neuroengineering students). Decisions on the elective appropriate for each student will be made by the Neuroscience Steering Committee.

The Office of Biomedical Education has established criteria by which all students in all graduate programs will be uniformly evaluated regarding the Core Curriculum. Students must achieve a score of 80 in each semester of the Core in order to pass, and must achieve an overall average of 80 for both semesters of the Core in order to maintain stipend funding. Failed courses must be repeated. Funding revoked due to failure of the Core can resume upon re-establishing good standing, although the funds withheld will not be restored to the student. Regarding the Programmatic courses, a grade of B must be earned in each course. Programmatic courses must be repeated if the student earns a grade below a B in that particular course. Programmatic courses in which a student has earned a grade of B- can be remediated to a B. Students who fail more than one course or earn more than one grade below a B will be dismissed from the program at the discretion of the Neuroscience Steering Committee.

Unsatisfactory Performance in Journal Clubs

Three unexcused absences are allowed per year for journal clubs. More than three absences will result in a grade of Unsatisfactory (U). The “U” must be remediated to the satisfaction of the course director. Failure to remediate is grounds for dismissal from the program.

Laboratory Rotations

M.S. students must do at least one and no more than 2 rotations for which the student will be assigned a Pass/Fail grade. Each rotation is one semester in length. The purpose of these rotations is to enable the student to be matched with the most appropriate Graduate Advisor to supervise the student. The Neuroscience Program Director and Steering Committee will advise each student on the selection of rotations, as well as on the progress and outcome of rotations. Students have the option of arriving early to either complete an entire rotation or a partial rotation in the preceding summer semester. Once a rotation is underway, the student and faculty member must both stay in contact with the Program Director so that any problems that arise can be addressed, and especially if the rotation is proving to be unproductive. MS students may be able to select an advisor without doing second rotation. **Students may NOT finalize rotations without instruction and guidance from the Program Director.** Any student who is unable to identify a mentor willing to take him or her before the start of the second year will not be able to continue in the program. Please refer to Appendix #1 for a detailed description of the policies and requirements for Laboratory Rotations

Laboratory rotations are graded on a Satisfactory (S) or Unsatisfactory (U) basis. Students receiving an “S” are rated on a performance scale ranging from Outstanding (1) to Poor (5). A “U” for a lab rotation is reserved for students that do not meet performance requirements, including attendance, of the rotation as stipulated by the program. A “U” for a laboratory rotation is grounds for dismissal from the program.

C. Preliminary and Qualifying Exams

1. MS students are not required to take either the preliminary or qualifying exams. Instead the thesis proposal serves as the measure of competence to continue in the MS program.

D. Thesis Advisory Committee. By the end of the summer of first year (August 31), the student will propose members of the faculty to serve on the Thesis Advisory Committee subject to approval by the Steering Committee. Once formed this committee will meet every six months to review the student’s

progress. The committee consists of at least three voting members of the Committee who must be Graduate School faculty from the Neuroscience Graduate Program. The student's major advisor is a voting member of the Committee but cannot chair the Committee. The Chair of the Committee must not be a collaborator on the student's research project and must not have any apparent conflicts of interest related to the publication or funding of the student's project. It is also the responsibility of the Chair to ensure that there is sufficient balance on the committee to ensure a rigorous and unbiased critique of the student's project and progress. Additional information on the responsibilities of the Chair are found in Appendix 2. Following the bi-annual review by the Committee, a brief statement of the student's progress must be signed by each Committee member and submitted to the Steering Committee.

E. Thesis Proposal.

1. In lieu of the Qualifying Exam, Master's degree students will defend their thesis proposal to their thesis advisory committee. The Thesis Proposal document will be submitted by the student either towards the end of the Fall Semester or the beginning of the Spring Semester of the second year. Under special circumstances this can be extended (no more than 12 months but all proposals for extensions will be given due consideration; approval must be obtained through written request to the Steering Committee). The Thesis Proposal must be written in the style and within the page limitations of an NIH grant application and handed in 10 working days prior to formal presentation of the Thesis Proposal to his/her Thesis Advisory Committee. Page limit is 6-12 pages (to be decided by the Chair of the student's dissertation committee), arial, 11 point, half inch margins, single-spaced. Upon approval of the Thesis Proposal the student will continue with his/her thesis research, culminating on the presentation of the M.S. thesis for defense.
2. At the time of the proposal the student will present a brief (10-15 minute) oral summary of his/her intended research project followed by a detailed question and answer session with the Thesis Advisory Committee.
4. The Thesis Advisory Committee will then reach a decision. If the decision is positive, the student may continue with his/her thesis research. If the decision is negative, the student can re-submit a revised or new proposal in three months. If the Thesis Proposal is rejected a second time, the student will be either dismissed from the program or recommended for a non-thesis Master's degree.

F. Thesis Defense

1. A written thesis is required with oral defense before the thesis advisory committee. A candidate may not present him/herself for the final thesis defense until he or she has completed 18 calendar weeks of residence after satisfactory completion of the Thesis Proposal, and has the approval of his/her major advisor.
2. At least four weeks prior to the date of the commencement at which the degree is to be conferred, typewritten or photocopies of the thesis must be distributed to each member of the advisory-examination committee. Also at this time, the Chair of the Committee, or the Program Coordinator must notify the Office of Biomedical Graduate Studies, the Registrar's Office and all departments involved in graduate education of the scheduled date of the thesis defense.
3. The thesis defense will take place no less than two weeks and no more than four weeks after the thesis has been distributed to the members of the examination committee, except under written direction of the Steering Committee.
4. The thesis defense will be public. The candidate will be formally introduced by his/her advisor or the Chair of the Committee. The candidate will present a 30-minute seminar on his/her research, followed by questions from the Examination Committee and the general audience. After this initial question and answer period, the chair will dismiss the audience. The Examination Committee will meet

in private with the candidate to complete the examination process.

5. The Thesis Examination Committee shall decide upon the merits of the candidate's performance on the thesis defense. To be recommended for a Masters degree, the candidate must receive unanimous approval of the Committee. By permission of the Committee a candidate who has failed the final thesis defense may present him or herself for re-examination after three, but not more than twelve months. This re-examination must be taken within a calendar year of failure to pass the first examination. A report on each final thesis defense whether passed, failed, or recommended for re-examination must be filed by the Committee in the Office of Biomedical Graduate Studies.

6. Not later than four weeks prior to the commencement at which the degree is to be conferred, one printed copy suitable for binding and an electronic version of the completed thesis both bearing the approval of the advisory-examination Committee must be deposited in the Office of Biomedical Graduate Studies. If additional copies are requested, the cost of preparation, reproduction and personal binding copies are the candidate's responsibility.

G. Registration for Thesis Defense Only

The Thesis Committee will decide when the student has achieved sufficient progress that he or she may defend within one semester. At that point, the Chair of the Committee will submit a letter to the Program Director, co-signed by the mentor of the student, indicating that a student has achieved this status. Once approved by the Program Director, the student may then register for Thesis credits only, and is excused from Journal Club. The student can register for "Thesis Only" for no more than two semesters.

PROGRAM OF STUDY FOR NON-THESIS M.S. IN NEUROSCIENCE

The Faculty of the Neuroscience Program has approved the option of a non-thesis MS degree in which students can earn the degree by taking additional classes and writing a literature review paper as opposed to conducting original laboratory research. The requirements for a M.S. degree without thesis as mandated by the Biomedical Graduate Program Committee of the COM are a minimum of 36 credit hours of course work (with a 3.0 or higher GPA) consisting of the Core Curriculum (10 credit hours), Neuroscience program courses (at least 22 credit hours, listed on pages 2-3 of this document), and preparation of a scholarly paper (Literature Review, 4 credit hours).

Courses outside of the Neuroscience program may be taken on the advice and discretion of the Program Director and the faculty mentor. Credit for a graduate course requires a minimum grade of "B."

The student must choose a faculty mentor in the first year, no later than June 30. The role of the mentor is to provide guidance in selecting the topic for the scholarly paper, and in helping the student perform the literature search, and, in writing the document. The selected topic must be approved by Steering Committee of the Neuroscience Program.

The scholarly paper reviews a topic in detail based on the primary research literature. The body of the paper must be 35-50 double spaced pages (11 pt font, Arial). This page number does not include citations but citations must be provided as well. The following format must be followed:

- Abstract (250 words)
- Body of Paper
 - Introduction – what is the purpose and scope of the review
 - Literature review – review and contrast findings in the field; identify unresolved issues and shortcomings of technical approaches

- Summary – what are the key findings of the review
- Conclusion- what gaps in our knowledge or unanswered questions emerge from the review; what are potential future directions for research in this area.

Successful completion of the literature review will be subject to the approval of the mentor/advisor and the graduate program advisory committee.

TRANSFERRING BETWEEN M.S. and DOCTORAL PROGRAMS

Transfers from the M.S. to the Ph.D. program generally require that the student complete the M.S. (either the thesis or the non-thesis version) before becoming a Ph.D. student, but the transfer does not require a formal reapplication process. Instead, the student would have provide the program director with a letter stating the reasons for wanting to transfer to the PhD program along with a copy of his/her transcript and a letter of support from his/her primary advisor. All transfers must be approved by the Division of Biomedical Sciences Executive Committee.

Appendix 1

Policy for Laboratory Rotations for First Year Graduate Students

The purpose of this Appendix is to clarify the procedures and goals of rotations for first year MS students in the Neuroscience Program. During orientation, the new students will be given detailed information on the purpose of the rotations and the procedures by which rotations will be implemented.

1. Experience: Unless a rotation clearly proves to be non-productive at some point during the semester, we anticipate that each rotation will last for the complete duration of the semester. Coursework is heavier during the first year with the changes to the curriculum, and hence there is less time for students to attempt multiple rotations in a single semester. In consultation with the rotation advisor, students will have necessary time and flexibility for their coursework. While there are several purposes that rotations serve (getting a taste for hands-on research, having a home base and an advisor on academic as well as research matters, gaining a breadth of different laboratory experiences, etc.), the primary purpose of rotations is to make wise and informed choices in the selection of graduate mentors for each student. Masters students are encouraged to choose a mentor as early as possible during the first year.

2. Exposure: During the rotations, the student and the faculty member should be evaluating each other to make sure that they can establish a healthy, long-term working relationship; the faculty member might wind up being the primary advisor or a member of the student's thesis committee. It is absolutely crucial that all faculty members work in harmony toward the goal of placing each student in the laboratory that is best suited for him or her, and that faculty members do not take a selfish approach toward "recruiting" students to their laboratories. Issues of funding, space, time constraints, and other relevant factors should be taken into account, and all aspects of the decision-making process should be open and transparent to the faculty and student body.

3. Expectation: Rotations should not be treated as mini-thesis projects. By this we mean that projects should not be designed to end up as first-author publications for the student. Also, faculty members are discouraged from designing experiments that would require the student to spend more than one semester in their lab (unless the student has decided to continue in that lab for his/her thesis). Grades for rotations are PASS/FAIL, and a failing grade should reflect a lack of interest/attendance by the student. However, oversight by the steering committee should prevent students from getting a failing grade. Grades should not reflect the quality of the data and/or the success of the experiment. Expectations are that students will spend roughly 15-20 hours/week in the lab, exams permitting.

4. Execution. During orientation week, the Neuroscience Program will conduct programmatic orientation sessions in which faculty will present their research to the incoming students to assist the incoming students in deciding on potential rotations. The Program Director will consult with faculty members and students to assist in promoting the best possible matches for the first semester, and will finalize these decisions through contact with both the student and the faculty member. In many cases, these arrangements can be made even before students arrive for Orientation.

APPENDIX 2

Thesis Committee Guidelines and Chair Responsibilities

Committee membership is approved by the Program Director.

Chair of committee is nominated by the student and his/her mentor from the committee membership and approved/appointed by the Program Director and Steering Committee.

The Chair of the Committee must not be the student's major advisor or a collaborator on the student's research project and must not have any apparent conflicts of interest related to the publication or funding of the student's project. It is the responsibility of the Chair to:

- i. ensure that there is sufficient balance on the committee to ensure a rigorous and unbiased critique of the student's project and progress.
- ii. ensure that sufficient progress is being made in the student's research and other scholarly endeavors.
- iii. ensure that the research being conducted by the student will culminate in a high quality cutting-edge publishable body of work, and that at least a portion of it is published in a journal respected in the field of major advisor.
- iv. intervene if appropriate progress is not being made, or if there are any conflicts between the student and the major advisor
- v. report to the Program Director if there are any apparent issues or problems with any of the items listed above that can not be resolved with the student and advisor, so that that intervention can occur at the programmatic level.

It is the responsibility of the Chair of the Committee to be well versed in the expectations and guidelines of the program so that he or she can appropriately take on these duties and responsibilities.

Chair responsibilities:

- Schedule required meetings of the committee in conjunction with the student (initial meeting followed by meetings to discuss progress @ six month intervals)
- Set agenda for the meeting
- Conduct of the meeting
 - Student leaves the room for faculty discussion.
 - Committee reviews student progress, i.e. transcript, publications, abstract submissions, IDP
 - Initial meeting - student presents project proposal (20 minutes) followed by Q & A from the committee. The initial meeting should occur within 6-12 months after the qualifying exam.
 - Progress report meetings – student presents initial aims and documents progress on completed and ongoing aims followed by Q & A from the committee.
 - Chair moderates Q & A session
 - Student leaves the room for faculty discussion moderated by the chair.
 - Student returns and chair summarizes faculty comments and recommendations. Recommendations may include: “approval of project,” “request for revision of project,” “approval of progress,” “modification of project goals depending upon progress.”
- Chair insures that all required forms are signed and completed by student and committee members.

- Meeting follow-up – Chair provides a written summary of the student’s performance and recommended actions including suggestions and changes to the project. Written summary is distributed to the student and all committee members. The student acknowledges in writing to accept the advice/recommendations of the committee.

Thesis Committee Forms – can be found at <http://webcampus.drexelmed.edu/bgs/forms/>
(see appended forms below)



DREXEL UNIVERSITY
Graduate School of
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and Professional Studies**
College of Medicine

REPORT OF THESIS COMMITTEE MEETINGS

Required every 6 months

Name of Student:

Date of Meeting:

Date of next committee meeting:

Committee Members: **(Print Name & Email)**

Chairperson

- Comments (please refer to suggested topics on next page to be discussed at committee meetings):



- Please assess the ability of this student to function collaboratively and professionally in a scientific setting. (e.g. department seminars, scientific meeting, lab meeting, journal club)

Satisfactory

Unsatisfactory, needs improvement
(please comment)

IDP has been reviewed and accepted.



NOTIFICATION OF INTENT TO DEFEND

Name:

Program:

Date:

The defense of my thesis will be held: **(If you need a room, please request within the DBS office)**

Date:

Room:

Time:

Title:

The members of my Thesis/Dissertation Committee are listed below. I have attached the complete address of any members not affiliated with Drexel University.

*Notice of Defense must be posted by your Department/Program at least two weeks before your defense date.

Chairperson's Signature

**Division of Biomedical Sciences 2900 Queen Lane Suite G24
Philadelphia, PA 19129 Tel: 215.991.8570 Fax:
215.843.5810 Web: www.drexelmed.edu/biograd/**



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College of Medicine

THESIS DEFENSE

On _____,
(Date) _____, (Student's Name)

_____ successfully; _____ did not successfully, defend his/her thesis.

The committee certifies that the above-named candidate has completed all requirements for the degree of Masters of Science in Neuroscience and recommends this candidate for the awarding of the degree at Commencement.

Recommendations of the committee are noted below.

Comments:

[Large light blue rectangular area for comments]

Signatures/Printed name of Examining Committee:

Chairperson

Student's Signature/Date

Division of Biomedical Sciences 2900 Queen Lane Suite G24
Philadelphia, PA 19129 Tel: 215.991.8570 Fax:
215.843.5810 Web: www.drexelmed.edu/biograd/



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CERTIFICATION OF THESIS

Date:

This is to certify that the accompanying copies of the Master's Thesis of

_____, are complete and correct, as approved by the Thesis

Examining Committee, and are in satisfactory form to be bound.

Examining Committee Chairperson (Name)

Examining Committee Chairperson (Signature)

Student's Signature

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Philadelphia, PA 19129 Tel: 215.991.8570 Fax: 215.843.5810
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Non-Thesis Master's Certification of Completion

Name:

Program:

Date:

Requirements:

- 36 credit hours, including course work and research electives, with a 3.0 or higher GPA receipt of credit requires a 3.0 in a course. The Core Curriculum is required.
- Preparation of a scholarly paper based on the literature, which reviews a topic in detail
- Paper should be 25-40 double spaced pages (without references) and include primary references.
- Successful completion of the requirements will be verified by the student's advisory committee and program director.

Members of the Committee:

Printed Name/Title	Signature	Date
Printed Name/Title	Signature	Date
Printed Name/Title	Signature	Date
Printed Name of Program Director	Date	
Signature of Program Director	Date	
Student's Signature	Date	

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