

APPENDIX IV: GRADUATE STUDENT DOCUMENT

This document describes policies and guidelines pertaining to graduate students in the Department of Biomedical Sciences and is not intended to supplant information in the ***Graduate and Professional Bulletin***. Students are expected to be familiar with policies of the appropriate Divisions, Department, and Graduate School that affect their education. This document is organized as follows:

- I. Graduate Degree Programs
- II. Requirements for the Ph.D. Degree
- III. Requirements for the M.S. Degree

I. Graduate Degree Programs

The Department of Biomedical Sciences offers M.S. and Ph.D. degrees. For a more detailed description of the types of degrees and their requirements, consult the *Graduate and Professional Bulletin*.

Each of the graduate degree programs and the requirements leading to conferring the advanced degree are described in this document. This document refers to the following Graduate School (GS) Forms that the student may be responsible for completing during the course of his/her training and with which students are required to become familiar:

- *Program of Study* (GS Form 6)
- *Petition for Change in Committee* (GS Form 9A)
- *Report of Preliminary Examination* (GS Form 16)
- *Report of Final Examination* (GS Form 24)
- *Application for Graduation* (GS Form 25 & 25A)

A. Responsibilities and Scholastic Standing

Responsibilities of a graduate student to the appropriate Division, Department and University include, but are not limited to, those outlined in the *Graduate and Professional Bulletin* under the section on "Student Rights and Responsibilities".

Good academic standing requires satisfactory progress in the overall graduate program. A students' individual Graduate Committee shall render judgments as to whether satisfactory progress is being made toward the degree, taking into account all aspects of academic performance and promise, not necessarily course work alone. For Ph.D. candidates this shall include an evaluation of their progress in their dissertation project. A positive judgment is required to remain in good academic standing. University scholastic standards for graduate students are detailed in the *Graduate and Professional Bulletin*.

Students must maintain a cumulative G.P.A. of 3.0 or better to remain in good academic standing. The student whose cumulative G.P.A. falls below 3.0 will be placed on academic probation by the Graduate School. The student placed on such probation has one semester to regain good academic standing by raising his/her cumulative GPA to 3.0 or will face dismissal from the program. A grade of lower than "B" in any core course places a student on

Departmental probation and may be cause for termination. Students placed on Departmental probation will be given the opportunity to regain good academic standing by retaking the course in which they received a grade of lower than "B" and passing the course with a grade of "B" or better. The student's graduate committee may recommend the amount of time that the student will be allotted to regain his/her good academic standing. A grade of Unsatisfactory ("U") on thesis, dissertation or independent study courses within the Department may be cause for termination from the program.

B. Evaluation of Graduate Student Progress

After the first year of study, each student shall provide an annual Progress Report to the appropriate Division Graduate Education Committee by November 1. Each student shall fill out the Progress Report form provided to them by the appropriate Divisional Graduate Education Committee, schedule a meeting with his/her graduate committee and obtain signatures from his/her committee members and advisor indicating that the student is, or is not, making satisfactory progress. A determination by the student's graduate committee that he/she is not making satisfactory progress shall result in the student being placed on departmental probation by his/her graduate committee. A positive judgment is required for the student to remain in good academic standing. A copy of each Divisional Graduate Student Progress Report is attached to this document.

The Progress Report shall be submitted to the Coordinator/Chair of the appropriate Division Graduate Education Committee. If the student's graduate committee determines that there is "unsatisfactory progress" and the appropriate Division Graduate Education Committee determines that "satisfactory progress cannot be anticipated", they will advise the Head of the Department of this determination and may recommend immediate dismissal of the student from the Graduate School. The Head may approve this action and must then refer it to the Dean of the Graduate School for final action. If there is a conflicting determination by the student's graduate committee and the appropriate Divisional Graduate Education Committee, the conflict shall be resolved by the Head.

If at any time an advisor wishes to terminate his/her association with the student, the advisor must inform the student and student's committee of this intent, following consultation with the appropriate Divisional Graduate Education Committee and the Head of the Department about this decision, before the student's affiliation with the advisor's laboratory is terminated.

If an advisor resigns from the Department, a student may request that the Department Head attempt to place the student with another advisor within the Department.

If a graduate student wishes to discontinue his/her association with an advisor, it is the student's responsibility, in consultation with the appropriate Divisional Graduate Education Committee or the Head of the Department, to secure a commitment from another faculty member to become the advisor. If another advisor is not available and the student does not make adequate progress toward the degree, the student will be dismissed from the departmental graduate program.

C. Academic Dishonesty

All graduate students are held to the highest of ethical academic standards. Any substantiated form of academic dishonesty, including but not limited to cheating, plagiarism, or falsification of data, will be cause for a written recommendation by the appropriate Divisional Graduate Education Committee for immediate dismissal. Such recommendation will be referred to the Head for approval and the Dean of the Graduate School for final action.

D. Student Appeals

Students may appeal grading decisions by an instructor by using the "Graduate School Appeals Procedure" outlined in the *Graduate and Professional Bulletin*.

Students may appeal allegations of violations of academic dishonesty by using existing "Graduate School Appeals Procedures" outlined in the *Graduate and Professional Bulletin*.

E. Work policy for GTAs and GRAs

When a graduate student receives financial support through a Graduate Research Assistantship (GRA) or a Graduate Teaching Assistantship (GTA), the department expects that 50% of his/her effort is as an employee and 50% is as a student. This means that 100% of his/her effort shall be devoted to graduate training and GTA/GRA duties. Students with GTAs or GRAs who are seeking outside employment should obtain approval from the student's graduate committee and the Department Head prior to accepting such a position.

F. Continuous Registration

Consistent with University regulations, all graduate students in residence are required to be continuously enrolled (Fall and Spring semesters) in their degree programs. In addition, students must be registered during the semester in which they officially graduate. Students may fulfill this requirement by registering for any graduate-level course (regular or non-regular) or, if eligible, may select **Continuous Registration** (CR) status. Graduate students eligible for CR are:

- M.S. students who have completed all regular coursework for the approved program of study
- M.S. and Ph.D. students who have interrupted their studies
- Ph.D. students who have almost completed the dissertation, for whom the completion and defense of the dissertation is the only activity to be undertaken

University policies on **Continuous Registration** are found in the Graduate Study section of the *Graduate and Professional Bulletin*.

II. Requirements for the Ph.D. Degree

Applicants to the Ph.D. graduate program can be nominated by their prospective advisor. Approval for admission to the Ph.D. graduate program is made by the appropriate Divisional Graduate Education Committee, after receiving input from appropriate faculty members. Admission is dependent upon the following criteria: the applicant should have graduated from an undergraduate or professional degree program with a grade point average (G.P.A.) of 3.0 or better; have completed the GRE, MCAT or qualified for Track II admission; and have completed the TOEFL (Test of English as a Foreign Language) exam with a score >550 (or >267 if computer-based) if the applicant is a foreign student.

Required coursework for the Ph.D. degree is initially determined by the student's advisor. The final program of study is determined by the advisor and the student's graduate committee.

A minimum of 72 credits is required for the Ph.D. degree. Of these, 21 credits must be earned in courses at or above the 500-level. A cumulative GPA of ≥ 3.0 must be maintained to remain in good academic standing. Qualified students are admitted to this program with the understanding that they must fulfill all the requirements for a Ph.D. degree.

The student shall formally select an individual graduate advisory committee by the end of the first year. At this time the student shall file a *Program of Study* (GS Form 6) with the Graduate School. The *Program of Study* is a summary of academic planning and provides a formal statement of what is to be done for the degree.

The student's graduate advisory committee advises and approves of the selection of appropriate coursework, the selection, preparation, and execution of a research project and administers and evaluates advanced degree examinations. The student's graduate committee shall consist of a minimum of four faculty members. The minimum committee shall include the advisor, acting as chairperson, at least two additional members from the Department of Biomedical Sciences, and one member from outside the Department who is selected by the student but is officially appointed by the Dean of the Graduate School, and who represents the Graduate School.

The names of the student's graduate committee members are submitted to the Department Head for approval and then forwarded to the Dean of the Graduate School for formal appointment as part of the GS Form 6. Committee members may be added or removed with the approval of the student, advisor, Department Head, Dean of the Graduate School and the member(s) involved. Such committee changes must be done using a GS Form 9A, *Petition for Change in Committee*. Students are to maintain an association with the laboratory of their advisor until completion of their Ph.D.; no student shall continue in the program without an association with the advisor identified on the GS Form 6, unless the student obtains approval from his/her graduate committee and the Department Head, and has identified a willing advisor.

The Department requires all Ph.D. candidates to participate in a supervised and structured teaching program. The form of this experience will vary depending upon the *Program of Study* and career goals of the individual student. It is recommended that the experience be mentored and include both presenting lectures and assisting in a laboratory course for a minimum of one semester. The student should register for "supervised teaching" with the appropriate credits, which will be documented on the student's record. The grading of this may be pass/fail. The student and the student's graduate committee shall devise a plan for fulfilling the teaching requirement.

The core curriculum for the Physiology Division of the Biomedical Sciences Ph.D. program is as follows:

<u>Course</u>	<u>Credits</u>	<u>Course Title</u>
BMS 500	4	Mammalian Physiology I
BMS 501	4	Mammalian Physiology II
BC 565	4	Molecular Regulation of Cell Function or
CM501	4	Advanced Cell Biology
BMS 610	1	Managing a Career in Science or a course in Science and Ethics

Advancing to “doctoral candidacy” shall require the passing of a Preliminary Examination. The preliminary exam shall be administered to students who have completed at least their first year of residency in the Department of Biomedical Sciences and plan to seek a Ph.D. degree in the Department. The student’s graduate committee shall administer the exam. The specific format of this exam will be at the discretion of the student’s graduate committee, but will include both written and oral components. The purpose of the preliminary exam is to determine the student’s:

- ❖ comprehensive understanding of the disciplines of physiology
- ❖ understanding of the selected area of study
- ❖ writing skills
- ❖ problem-solving skills
- ❖ potential to obtain an advanced research degree

The core curriculum for the Neurobiology Division of the Biomedical Science Ph.D. program is as follows:

<u>Course</u>	<u>Credits</u>	<u>Course Title</u>
BMS 500	4	Mammalian Physiology I
BMS 610	1	Managing a Career in Science
NB 502	2	Techniques in Neurosciences I
NB 503	3	Developmental Neurobiology
NB 505	3	Neuronal Circuits, Systems and Behavior
OR		
BMS 545	3	Neuroanatomy
NB 793	1	Neuroscience Seminars
NB 796	1	Journal Club

Upon completion of the first year and with the recommendation by the individual student’s graduate committee, a Comprehensive Examination shall be administered to students in the Neurobiology Division who plan to seek a Ph.D. degree in the Department. A faculty committee shall administer the exam after all core coursework has been completed. The specific format of this exam will be left to the discretion of the student’s committee, although an oral exam is suggested. The purpose of the exam is to determine the student’s broad understanding of the topics covered in the first year that are critical for research in Biomedical Sciences and to assess the student’s potential to obtain an advanced research degree. Evidence of a successful examination prior to admission to the Department of Biomedical Sciences for the broad spectrum of courses in the first year can be accepted in lieu of an additional examination. Unsatisfactory performance on this exam could result in the student being shifted to a M.S.

degree (see below) or being dismissed. At the discretion of the student's graduate committee, a student may retake the exam before the end of the next semester.

Advancing to “doctoral candidacy” shall require the passing of a Preliminary Examination. The preliminary exam shall be administered to students who have completed at least their first year of residency in the Department of Biomedical Sciences and plan to seek a Ph.D. degree in the Department. The student’s graduate committee shall administer the exam. The preliminary exam shall consist of presenting and orally defending a formal, written research proposal that provides the background, specific aims, methods, preliminary results, possible outcomes and tentative interpretations for the proposed study. This proposal will form the basis of the formal dissertation research, unless the student’s graduate committee approves specific changes from the original dissertation proposal.

The purpose of the preliminary exam is to determine the student's:

- ❖ broad understanding of the disciplines within the biomedical sciences
- ❖ understanding of the selected area of study
- ❖ writing skills
- ❖ problem-solving skills
- ❖ potential to obtain an advanced research degree

Requests to change the core curriculum will be considered on an individual student basis following a written request to the appropriate Divisional Graduate Education Committee by the student’s advisor.

All doctoral candidates are encouraged to complete course work in Grantsmanship and Statistics. Completion of at least four semester credits in Divisional/Departmental seminars is required for Ph.D. students. In addition, all students are expected to attend a Divisional/Departmental seminar series each semester.

Upon successful completion of the Preliminary Exam, the student’s Graduate Committee shall sign the *Report of the Preliminary Examination* (GS Form 16), which must be submitted to the Graduate School within 2 working days following the exam. The preliminary examination must be passed at least two semesters prior to the Final Examination.

Unsatisfactory performance on the preliminary exam could result in the student being shifted to a M.S. degree (see below) or being dismissed. At the discretion of the student's graduate committee, a student may retake the exam before the end of the next semester.

The Ph.D. candidate is required to conduct an independent and original research project with the guidance and encouragement of the student’s graduate committee. The candidate must demonstrate intellectual achievement, scholarly ability, and breadth of knowledge. In addition, the student must be the primary participant in the completed research. The research project shall provide the basis for the dissertation, which is presented to the student’s graduate committee in a format acceptable to the Graduate School. The dissertation presents the results of sustained research or investigation on an important intellectual problem. The dissertation must represent independent intellectual achievement and must make a meaningful contribution to knowledge. The student’s graduate committee shall meet approximately six months prior to

the Final Examination, at which time they will give the student formal permission to schedule his/her dissertation. As a condition for graduation, the Department also requires preparation of a manuscript suitable for submission to a refereed journal.

The Final Examination for Ph.D. candidates is an oral presentation of the dissertation, followed by questions from graduate committee members, other faculty and students. The objective of the Final Examination is to afford the doctoral candidate an opportunity to present his/her dissertation research in public and to defend the approaches used and conclusions reached. The Final Examination is open to the public. The student's graduate committee shall be responsible for the administration and evaluation of the examination. In the event the dissertation or defense is deemed unsatisfactory by a majority of the student's graduate committee, at the committee's discretion the defense may be rescheduled, consistent with rules of the Graduate School. The student is responsible for bringing the *Report of the Final Examination* (GS Form 24) to the examination and then submitting it completed and signed to the Graduate School within 2 working days following the examination.

After passing the Final Examination, the dissertation will be prepared in final form conforming to the rules of the Graduate School for its preparation. The student's graduate committee shall examine and approve the dissertation in its final form prior to the submission. Four copies of the thesis are required: two unbound copies for the Graduate School (for the University Libraries), one bound copy for the Department, and one bound copy for the advisor. Suggestions for the preparation of the dissertation may be found in the "Thesis Manual" publication from the Graduate School. The dissertation must be submitted to the Graduate School within two months of completion of the Final Examination. Failure to meet this deadline without a written extension signed by the Head will result in dismissal from the Ph.D. program.

III. Requirements for the Master of Science Degree

Admission to the Plan A or research Plan B M.S. program shall be contingent upon the availability of a position for a graduate student in the research laboratories of the appropriate Division and a division faculty member who will agree to be the advisor for the student.

A. Plan A M.S.

A Plan A M.S. degree requires the submission of a research-based thesis to the student's graduate committee. Preparation of a manuscript suitable for publication in a refereed journal is also required. Typically, the thesis is a formal document that addresses an important concern of the discipline, and requires independent work. This work is typically research-based, and therefore the course requirements for a Plan A M.S. will be determined by the student, the advisor and the graduate committee, but must include at least 30 credit hours. Completion of at least two semester credits in Divisional/Departmental seminars is required for Plan A M.S. students. The student's graduate committee shall consist of a minimum of three members of the faculty. The minimum committee shall include: the advisor as chairperson, at least one additional member from the Department of Biomedical Sciences, and one member from outside the Department. The advisor and the student should determine jointly the selection of the other members of the student's graduate committee. The student's graduate committee assists the student in the selection, preparation and completion of a research project and administers and evaluates the M.S. degree final examination. Once a plan for fulfillment of the degree program is

determined, the student shall file a *Program of Study* (GS Form 6) with the Graduate School, before the end of the second semester of study.

The final examination for a Plan A M.S. student will be an oral presentation of the student's research, followed by questions from committee members, other faculty, and students. The final examination will be open to the public. In the event the thesis, paper, or defense is deemed unsatisfactory by a majority of the committee, at the committee's discretion the defense can be rescheduled, consistent with rules of the Graduate School. Upon successful completion of the M.S. final exam, the student must file a *Report of Final Examination* (GS Form 24) with the Graduate School within two working days.

B. Plan B M.S. - Research

A research Plan B M.S. degree is similar to the Plan A M.S. degree, including the requirement for an oral defense but differs in that a thesis is not required. Completion of at least two semester credits in Divisional/Departmental seminars is required for research Plan B M.S. students. Rather, Plan B M.S. students are required by the Department to prepare a publication or scholarly paper that is suitable for submission to a refereed journal and submit it to the student's graduate committee. This paper does not have to meet Graduate School requirements for the format of a Plan A M.S. thesis.

C. Plan B M.S. – Course Work

The Neurobiology Division offers a coursework Plan B M.S. degree. A course work Plan B M.S. does not require a research-based thesis and emphasizes didactic coursework. A Plan B M.S. requires 32 credits of coursework and a final comprehensive examination (see the *Graduate and Professional Bulletin*).

Applications for the Plan B M.S. graduate program are reviewed by a committee appointed by the Division Graduate Education Committee. This committee, the Plan B M.S. Advising Committee, will also serve as the graduate advisor for all Plan B M.S. students. This committee shall:

- ❖ assess the student's background, interests and goals
- ❖ inform the student of existing Departmental requirements for graduation.
- ❖ recommend a tentative plan of study for the first semester in residence

There are currently two core curriculum options for the Plan B M.S. degree: Biomedical Sciences and Neurobiology concentrations. Students are required to choose one of these two concentrations and to take the courses that are required for that concentration (listed below). The curricula are designed to prepare the students for the final written examination for their selected concentration.

BMS Concentration:

<u>Course</u>	<u>Credits</u>	<u>Course Title</u>
BMS 500 (PS500)	4	Mammalian Physiology I
BMS 501 (PS501)	4	Mammalian Physiology II
BMS 545 (AY545)	5	Human Functional Neuroanatomy
BMS 575/619 (AY575/619)	6	Advanced Human Gross Anatomy
	OR	
BMS 531 (AY531)	3	Domestic Animal Dissection

Neurobiology Concentration:

<u>Course</u>	<u>Credits</u>	<u>Course Title</u>
BMS 500 (PS500)	4	Mammalian Physiology I
BMS 545 (AY545)	5	Human Functional Neuroanatomy
NB 503	3	Developmental Neurobiology
NB 505	3	Neuronal Circuits, Systems & Beh.

In the event that the student has already taken courses that are in the core curricula during their undergraduate program, they may substitute other advanced courses, but they shall be expected to demonstrate mastery in the core curriculum courses listed above, in the final examination. Once a plan for fulfillment of the degree program is determined by the student and the Plan B Advising Committee, the student shall file a *Program of Study* (GS Form 6) with the Graduate School.

A Plan B M.S. based solely on coursework and a final written exam shall not meet the requirement necessary for qualification for advancement to Ph.D. candidacy in the Department.

All Plan B M.S. students must take a written final exam at the end of their course of study. The goal of the exam shall be to assess the student's:

- ❖ understanding of the course material in their respective core curriculum
- ❖ writing skills
- ❖ problem solving skills

A student who fails the final examination may be re-examined once and may be required to complete additional work before the re-examination. The re-examination shall be held not earlier than 2 months, unless requested by the student, nor later than 12 months after the first examination.