

# Drexel University College of Medicine

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## Biomedical Graduate Studies



## 2011-2012 Policies & Procedures

### *A Division of Biomedical Graduate and Postgraduate Studies*

*The provisions of this handbook are not to be regarded as a contract between any student and the University. The University reserves the right to change any of the provisions, bylaws, rules, regulations, policies or procedures at any time as may be necessary in the interest of the University.*

*This handbook contains Biomedical Graduate Studies-specific policies. Program-specific handbooks or guidelines distributed to students at the beginning of each academic year may contain more detailed information about program policies and requirements.*

## **SCHOOL GOVERNANCE**

### **Biomedical Graduate Education Committee**

The Biomedical Graduate Studies Programs are governed by the Biomedical Graduate Education Committee, which has been delegated responsibility by the Board of Trustees to formulate the requirements for graduate degrees and which, selects qualified applicants, monitors academic records, approves students for graduation, reviews proposals for new programs, evaluates existing programs and approves graduate faculty appointments.

The Biomedical Graduate Education Committee (BGEC), acting as the administrative body of the graduate faculty, consists of the Vice Dean, who is chair; the director or designee of degree-granting programs in the Biomedical Sciences; the director of the M.D./Ph.D. Program; two student members; and two at-large members elected by the faculty. The director of professional development and postdoctoral studies; the director of the core curriculum sub-committee and the director of the international student committee will serve as non-voting members of the BGEC.

The Roles of the Biomedical Graduate Education Committee are as follows:

- Reviews proposed graduate programs and courses for approval and conducts self-studies of existing programs.
- Establishes the requirements for admissions to the Biomedical Graduate Programs, reviews and acts on applications to the programs; awards stipend support; reviews the academic performance of all students; recommends to a student's program and advisory-examination committee corrective action to improve academic performance; makes decisions concerning termination of a student's status because of academic inadequacies; recommends students for graduation; and responds to students' academic grievances.
- Reviews and recommends revision of the bylaws of the College of Medicine as they pertain to graduate studies as needed.
- Evaluates and approves recommendations for faculty appointments, student promotions and changes in status.
- Assists students and faculty in matters indirectly affecting academic performance; mediates conflicts involving students; brings to the Committee improvements in student life; acts as a resource system for the Graduate Student Association.

### **The Office of Biomedical Graduate and Postgraduate Studies**

The Office of Biomedical Graduate and Postgraduate Studies is located in suite G24 on the ground floor of the Queen Lane Medical Campus, 215-991-8570. The office consists of the Vice Dean for Biomedical Graduate and Postgraduate Studies, the Academic Director, the Director for Marketing and Recruitment, the Marketing Coordinator, the Program Administrator and two Academic Coordinators.

## **FINANCES**

### **TUITION**

The 2011-12 tuition and fee rates are as follows. All rates are subject to approval or revision by the Board of Trustees.

	<b>Full-Time* Per Semester</b>	<b>Part-Time Per Credit</b>
Biomedical Graduate Studies -Ph.D. & M.S. (1 <sup>st</sup> and 2 <sup>nd</sup> years)	\$11,095	\$1,235
Biomedical Graduate Studies -Ph.D. 3 <sup>rd</sup> + years	\$2,032.50	N/A
Non-Matriculated Status	N/A	\$1,235

### **FEES**

	<b>Full-Time* Per Semester</b>	<b>Part-Time Per Credit</b>
University Fee		
-New Students	\$160.00	\$87.00
-Continuing Students	\$50.00	\$30.00
Activity Fee	\$67.00	\$57.00
Thesis Binding Fee	\$30/copy	
Copyright of Thesis (optional)	\$65/copy	

\*Full-Time is equal to 9 or more credits for Biomedical Graduate Studies students.

### **Biomedical Graduate Program Stipend and Tuition Scholarship**

Financial assistance is available to qualified students in some programs of graduate study. This may consist of a partial or full stipend and/or tuition scholarship commensurate with the student's qualifications, background and experience. In addition, departments may have training grants or other funds available for the support of graduate students.

## **ACADEMIC POLICIES**

### **Degrees and Programs**

The Biomedical Graduate Programs offer masters and doctoral degrees in specific disciplines in the basic medical sciences. The degrees conferred by the Biomedical Graduate Programs are the Doctor of Philosophy (Ph.D.) and the Master's degree (M.S.).

The Doctor of Philosophy degree is the highest degree granted by any University. The program of work leading to the Ph.D. degree is designed to provide students with a comprehensive view of a field of knowledge and to train students in methods of research and scholarship in that field and closely related areas. The Master's degree program is designed to provide advanced professional and scientific study to prepare students to enter a specialized field or a doctoral program.

The following is the list of biomedical graduate programs offered in the College of Medicine:

- Biochemistry (M.S. and Ph.D.)
- Microbiology and Immunology (M.S. and Ph.D.)
- Molecular and Cell Biology and Genetics (M.S. and Ph.D.)
- Molecular Pathobiology (M.S. and Ph.D.)
- Neuroscience (M.S. and Ph.D.)
- Pharmacology and Physiology (M.S. and Ph.D.)
- Academic Medicine (M.S.)
- Biotechnology (M.S.)
- Drug Discovery and Development (M.S.)
- Molecular Medicine (M.S.)

### **Technical Standards for Admission and Continuation in Good Standing**

Technical Standards refer to non-academic requirements that are essential for meeting the academic requirements of our graduate programs in biomedical sciences. Within any area of specialization, students must demonstrate competence in those intellectual and physical tasks that together represent the fundamentals of biomedical research in their chosen discipline.

Most of the Ph.D. and M.S. degree programs of Drexel University College of Medicine require a laboratory-based research dissertation. Granting of these degrees implies that the recipient has demonstrated a base of knowledge in the field and the ability to independently apply that knowledge to solve a particular problem by forming hypotheses, designing and conducting experiments, interpreting the experimental results, and communicating the results and their interpretation to the scientific community. Thus, a candidate for the M.S. or Ph.D. degree in the biomedical sciences must possess abilities and skills that allow for observation, intellectual and conceptual reasoning, motor coordination, and communication.

All applicants and graduates must meet the prescribed technical standards, with or without reasonable accommodations. The use of a trained intermediary is not acceptable in many situations in that a candidate's judgment will be based on someone else's power of selection and observation.

### **Observation**

The candidate must be able to acquire knowledge by direct observation of demonstrations, experiments, and experiences within the laboratory and instructional setting. Examples are physiological or pharmacological responses in animals, studies of microbiological cultures and organisms, identification of normal and abnormal cells or tissues through a microscope, and interpretation of results obtained on various instrumentation.

### **Intellectual/Conceptual Abilities**

The candidate must be able to measure, calculate, analyze, reason, integrate and synthesize information to solve problems.

**Motor Skills**

The candidate must possess motor skills necessary to perform procedures required for experimentation within the chosen discipline. These skills may include, but are not limited to, surgery in animals, handling of animals, transfer of microorganisms to various media, preparing chemical and often toxic materials and solutions, preparation of anatomical specimens for microscopic examination, manipulating electronic and other complex equipment.

**Communication**

The candidate must be able to communicate and discuss his or her experimental hypotheses and results with the scientific community, both in scientific journals or directly at scientific meetings, seminars, or in the laboratory to the research team.

**Behavioral and Social Attributes**

The candidate must possess the emotional and mental health required for full utilization of his or her intellectual abilities, the exercise of good judgment, the prompt completion of responsibilities inherent in managing a scientific laboratory, the ability to function under the stress inherent in biomedical research, and the ability to understand and comply with ethical standards for the conduct of research.

In accordance with Section 504 of the Rehabilitation Act, the Americans with Disabilities Act (ADA), the ADA Amendments Act, and Drexel University College of Medicine policy, no qualified individual with a disability shall, on the basis of that disability, be excluded from participation in College of Medicine programs or activities. The College of Medicine will provide reasonable accommodation to a qualified individual with a disability.

During the application process, applicants who have disabilities and feel they may need accommodations must contact the Office of Disability Services for further information. A request for accommodations must be made as far in advance as possible. Accepted students who have a disability and feel they may need accommodations in order to successfully fulfill program requirements must initiate discussions with the Office of Disability Services as soon as the offer of admission is received and accepted. If a matriculated student develops a disability or the impact of their disability changes during their studies and accommodations may be needed to successfully fulfill program requirements, immediate contact with the Office of Disability Services is required. The Office of Disability Services is not able to issue retroactive accommodations. The Office of Disability Services can be contacted at the following:

Office of Disability Services  
Drexel University  
3201 Arch St., Suite 210  
Philadelphia, Pa 19104  
PHONE: 215-895-1401  
TTY: 215-895-2299  
FAX: 215-895-1402  
[disability@drexel.edu](mailto:disability@drexel.edu)

[www.drexel.edu/disability](http://www.drexel.edu/disability)

**Acknowledgement** - These Technical Standards are based on the policy of the University of Medicine and Dentistry of New Jersey, Graduate School of Biomedical Sciences, September 2009.  
(<http://som.umdnj.edu/gsbstrat/admissions.htm>).

### **Required Core Courses**

During their first year of matriculation, all Ph.D. and M.S. students (except M.S. in Academic Medicine, M.S. in Molecular Medicine and M.S. in Drug Discovery and Development) are required to take and pass Molecular Structure and Metabolism and Cells to Systems with a grade of “B” or better. In addition, Biostatistics and Scientific Integrity and Ethics must be taken and passed prior to graduation. M.S. in Academic Medicine, M.S. in Molecular Medicine and M.S. in Drug Discovery and Development students must refer to their program’s policies and procedures for course requirements.

### **Graduate Core Curriculum Subcommittee, Drexel University College of Medicine**

#### ***(1) Responsibility***

The Graduate Core Curriculum Subcommittee is responsible for the oversight, administration and review of the core courses required for all M.S./Ph.D. graduate students in the Biochemistry, Biotechnology, Microbiology and Immunology, Molecular and Cell Biology and Genetics, Molecular Pathobiology, Neuroscience, and Pharmacology and Physiology graduate programs. This includes Molecular Structure and Metabolism, Cells to Systems, Scientific Integrity and Ethics, and Biostatistics. The committee 1) coordinates course schedules, 2) reviews and approves course content and grading policies, 3) monitors student performance 4) recommends course of action for failing students and 5) conducts course evaluations. The committee reports to the BGEC.

#### ***(2) Membership***

The Graduate Core Curriculum Subcommittee consists of the course coordinators for Molecular Structure and Metabolism, Cells to Systems and two ‘at large’ faculty members that combined include representatives of each of the six Biomedical Graduate programs. The Chair of the committee is appointed by the Vice Dean for Biomedical Graduate and Postgraduate Studies

### **Grading Policy:**

Students are required to complete both Molecular Structure and Metabolism and Cells to Systems with an overall grade of “B” or better in order to take their program’s preliminary exam.

A student who receives a grade less than “B” in Molecular Structure and Metabolism or Cells to Systems is at risk for dismissal from his/her program at the discretion of the program. Individual program requirements may be more stringent.

There will be at least 5 in-class examinations each semester. The format of each examination will be determined by the faculty that lecture in each block and will vary somewhat throughout the course. Additional details will be provided prior to each examination. One letter grade each will be issued for *Molecular Structure and Metabolism* (fall semester) and for *Cells to Systems* (spring semester). Grades will be determined from the weighted average of exams based on lecture hours covered per exam, according to the following grading system:

<b>Numerical Grade</b>	<b>Letter Grade</b>	<b>Numerical Grade</b>	<b>Letter Grade</b>
90+	A	77-79	B-
87-89	A-	74-76	C+
84-86	B+	70-73	C
80-83	B	Below 70	F

### **Grading Policy**

1) **Requests for a change in grade on individual examinations must be directed to the course director before discussion with individual lecturers.** Adjustments to correct errors in grading will be made by the course director. This is **not** an opportunity to remediate poor performance.

2) A passing grade for *Molecular Structure and Metabolism* and for *Cells to Systems* is 80. An appeal of a grade less than 80 must be directed to the Graduate Core Curriculum Subcommittee through the course director.

3) The academic progress of students who fail *Molecular Structure and Metabolism* or *Cells to Systems* will be discussed by the Biomedical Graduate Education Committee. BGEC will determine the next steps (i.e. retake fall semester and/or spring semester, probation, dismissal, etc) considering the recommendations of the Graduate Core Curriculum Subcommittee and the student's Program Director.

4) If a PhD-track student receives an average score of < 80 for *Molecular Structure and Metabolism* and for *Cells to Systems*, his/her stipend support will no longer be provided by the Office of Biomedical Graduate and Postgraduate Studies in the second year of graduate training.

### **Courses in a Major Field**

The major field is the program in which a student specializes. Courses in a major field are the courses offered by a program in the field of that degree. Courses in a major field may include both required and elective courses.

### **Required Courses**

Required courses are the courses specifically identified by a program that students must take to fulfill the requirements for a specific degree.

### **Elective Courses**

These are the non-required courses that students may take for a specific degree program. Elective courses may be inside or outside the major field.

### **Registration**

Registration takes place at announced dates prior to the start of each semester. At this time students must register via BannerWeb <http://one.drexel.edu> for all regular courses, seminars and research.

A two-week Drop/Add period occurs at the beginning of each term. During Drop/Add period registration changes may be made. No course registration changes are permitted after the end of the Drop/Add period for each term. A student may register for a maximum of 18 credits per semester, of which no more than 9 may be research. A student needs to be registered for at least 9 credits to be considered full time status.

The Office of Biomedical Graduate and Postgraduate Studies is located in suite G24, Queen Lane. Office hours are 9:00 a.m. to 5:00 p.m., Monday through Friday. All student academic records for the Biomedical Graduate Programs are filed in this office. The Student Resource Center (SRC) is responsible for issuing all transcripts and completing all enrollment and graduation certifications. The SRC has two locations. The Queen Lane SRC is located on the ground floor of the College of Medicine, suite G27. Office hours are 8:00 a.m. to 5:00 p.m., Monday through Friday. The center city SRC is located on the first floor of the New College Building, suite 1142. Office hours are 8:00 a.m. to 5:00 p.m., Monday through Friday.

### **Registration – Non-matriculated Students**

Non-matriculated students must register through the Office of Biomedical Graduate and Postgraduate Studies. All students wishing to register as a non-matriculated student must submit a completed application, transcripts, a \$50.00 application fee and a registration form. ***All course registrations must be approved by the course director. Non-matriculated students can register for no more than 8 credits per semester.*** Contact the Office of Biomedical Graduate and Postgraduate Studies, G24 Queen Lane Medical Campus, 991-8570 for more information.

### **Auditing Courses**

Students may audit one course each semester. Approval must be granted by the chairperson of the department offering the course and the course director. Students may not change from credit to audit status or *vice versa* after the last day of the Drop/Add period. Students who formally audit a course will be expected to pay tuition at the standard rate determined by the University. Transcripts of students who formally audit a course will reflect this status.

### **Grading System**

Courses are graded in one of two ways. Some courses are graded on a letter grade system (A, A-, B+, B, B-, C+, C, C-, D, or F). These grades have a numerical quality point weight as follows: (A = 4.0, A- = 3.7, B+ = 3.3, B = 3.0, B- = 2.7, C+ = 2.3, C = 2.0, C- = 1.7, D = 1.0, and F = 0). Some courses are graded S = Satisfactory or U = Unsatisfactory; S and U grades do not have a corresponding numerical quality point weight and are not calculated in quality point averages.

### **Minimum Grade Point Average**

Graduate students are required to maintain an overall minimum grade point average of "B" (3.00) for graduation. No graduate credit is allowed for grades below "B" in Biomedical Graduate Studies required core courses or required core courses taken in the major field. A grade of "C" in all other courses will be allowed for graduate credit. A grade of "D" or "F" in any course will not be accepted for credit.

After each semester in which a student fails to achieve a "B" (3.00) average, the student will be placed on probation. ***Any student whose cumulative grade point average is less than 3.00 for two consecutive semesters (excluding summer sessions) will be dropped from the rolls by the university registrar. To be considered for re-admittance, a plan of action, which outlines the proposed steps that will improve academic standing, must be submitted to the Office of Biomedical Graduate and Postgraduate Studies.***

Any student whose cumulative grade point average is less than 3.00 for two consecutive semesters (excluding summer sessions) will be subject to dismissal from the Biomedical Graduate Program after review by the Biomedical Graduate Education Committee. The criteria of individual programs may be more stringent than the minimum Biomedical Graduate Program standards with regard to continuing status in a program. All decisions are subject to appeal to the Biomedical Graduate Education Committee. To undertake additional work to improve academic standing, students must obtain the permission of the program in which they are enrolled for graduate study.

### **Incomplete Grades**

With the agreement of the course director, a student may be assigned the grade of "I" (Incomplete) at the end of a semester in which all course work has not been finished. A grade of Incomplete will become an "F" or "U" if the final grade is not submitted within the period of one calendar year following the end of the semester in which the course was originally taken. Circumstances may prevent an instructor from assigning grades to an entire class at the official end of a semester. In such cases the grade of "IP" (In Progress) will be assigned temporarily until final grades are available. Courses with "I" and "IP" grades are not calculated in a student's grade point average until final grades are assigned.

### **Dropping a Course**

A course may be dropped during the Drop/Add period via BannerWeb. If the Drop/Add is performed by the end of the Drop/Add period, no record of the registration for the dropped course will appear on the student's transcript. ***If a drop is requested after the Drop/Add period, it is considered a withdrawal. A "W" appears on the transcript and the student is responsible for paying for the course.***

### **Course Withdrawal**

Students, who withdraw from a course after the Drop/Add period, must complete and submit an official Course Withdrawal form to the Student Resource Center (SRC).

If the Course Withdrawal form is received by the SRC after the Drop/Add period, but through the 10th week of the semester, the student, at the option of the instructor, may be assigned grades of Withdrawn (W), Withdrawn Passing (WP) or Withdrawn Failing (WF).

If the Course Withdrawal form is received by the SRC Center after the end of the 10th week of the semester, a student who withdraws from a course will receive a grade of "WP" if passing, or a grade of "WF" if failing.

### **Course Waivers**

A course taken on a graduate level at an accredited graduate institution may be accepted in lieu of a required course with the approval of the course director and/or program director.

### **Transfer of Credits**

Transfer of credits may be allowed from an accredited institution under limited and controlled conditions. Students must provide an official transcript as evidence that the credits to be transferred are for graduate level courses.

Up to 18 credits may be transferred from another accredited graduate school toward a **master's degree** with the approval of the director of the student's program. For programs that offer master's degrees for which the M.D. is a prerequisite, up to 12 credits may be transferred from any accredited graduate school with the approval of the director of the student's program.

Candidates accepted directly into a **doctoral degree** program following completion of a baccalaureate degree may transfer up to 24 credits from another accredited graduate school with the approval of the director of the student's program. Students entering a doctoral degree program after completing a master's, M.D. or other master's degree equivalent may transfer up to 18 credits from any accredited graduate school with the approval of the director of the student's program.

Any credits transferred toward a specific annotated degree must be equivalent to the required or elective courses offered for credit at Drexel University College of Medicine for that degree. The Biomedical Graduate Education Committee, in consultation with the relevant course director, will make the determination of equivalence.

To be acceptable, the credits must:

- 1) Be from an accredited academic institution;
- 2) Meet the academic requirements of a grade of at least a "B" (3.00) or an "S"; and
- 3) Not have been used previously toward the minimum credit requirement for another earned degree at Drexel University College of Medicine.

Credits taken to meet the requirements of a previous master's degree, master's equivalent, M.D. or other equivalent degrees cannot be transferred toward the master's or doctoral degree. However, courses taken in fulfillment of the requirements for those degrees may be considered in developing the requirements for the specific master's or doctoral degree program.

Up to 30 credits taken at Drexel University College of Medicine as a non-matriculated student may be accepted toward a master's or doctoral degree with the approval of the director of the candidate's program.

The request for such acceptance of credits taken prior to matriculation in a graduate program at Drexel University College of Medicine must be made at the time of application for admission to the program. With the advice of the director of the student's program and of the department, which offers corresponding courses, the Biomedical Graduate Education Committee will make the decision as to the approval or the acceptance of the credits.

If a student's program director gives the student permission to take a course(s) at another accredited graduate school after matriculation, the transfer of such credits is also possible. To be acceptable the credits must meet the requirements as outlined above. The Biomedical Graduate Education Committee will decide on the approval of the transfer of the credits with the advice of the director of the student's program and of the department, which offers corresponding courses.

***The maximum time a course from another institution may be valid for transfer is eight years from the completion of the course until the time of matriculation.*** Acceptance of any course for transfer credit requires the approval of the program director involved.

### **Graduate Student Support**

In order to maintain the high quality of the Drexel University College of Medicine graduate programs in biomedical science, stipend levels, health insurance, and tuition for Ph.D. students are uniformly set by the Office of Biomedical Graduate and Postgraduate Studies in consultation with basic science chairs, the Biomedical Graduate Education Committee and the College of Medicine Research Council. It is the responsibility of the Office of Biomedical Graduate and Postgraduate Studies to establish and administer this policy.

Stipends are equivalent for all Ph.D. students in all programs and across all years of study. The total amount of stipend, health insurance allotment, and tuition shall not exceed the levels set by NIH or any other extramural sponsoring agency.

The College of Medicine provides stipend, health insurance and tuition scholarship for Ph.D. students during the first two years of study; individual investigators and/or departments are responsible for supporting these costs for years three through six. For traditional M.D./Ph.D. students the College of Medicine provides stipend, health insurance and tuition scholarship for all four years of medical school and the first year of Ph.D. study; individual investigators and/or departments are responsible for supporting these costs for years two through four of Ph.D. training. For students in the M.D./Ph.D. Bioengineering track the College of Medicine provides tuition scholarship for all four years of medical school. The university provides stipend, tuition and health insurance for all four years of medical school. Individual investigators and/or departments within the university provide stipend, tuition and health insurance for years one through four of Ph.D. training.

For the 2011-12 academic year beginning July 1, 2011, Ph.D. and M.D./Ph.D. students will receive a stipend of \$27,000 + a health insurance allotment. The health insurance premium for 2011-12 is \$4,699 for 1<sup>st</sup> year students and \$4,335 for second year students and beyond. Students receive a tuition scholarship during the first two years of study. Tuition charges for students 3<sup>rd</sup> year and beyond is \$4,065 for the entire year (\$2032.50/semester).

### **Graduate Student Leave**

Ph.D. students are eligible for up to two weeks of approved leave per year, in addition to the observance of traditional holidays. All requests for leave must be made to and approved by the program director and the student's mentor. Any leave beyond two weeks (ten working days) must be approved by the Biomedical Graduate Education Committee. If a student takes an unapproved leave, his/her stipend will be suspended until he/she returns. In all cases, students taking a leave for 4 or more days must notify their program director and program coordinator via email prior to the start date of the leave.

### **Length of Study**

The maximum elapsed calendar time allowed for completion of master's degrees is four years and for completion of doctoral degrees is seven years (nine years for the M.D./Ph.D. program). The effective starting date for determining the length of study is the date of matriculation. *Time limits continue to run even during a leave of absence.* Exceptions to the time limit are subject to appeal through the Biomedical Graduate Education Committee. The program must support the request.

### **Student Status**

#### ***Maintenance of Matriculation***

All matriculated graduate students are required to register each semester (excluding summer sessions) in order to continue to be degree candidates, unless they have requested and have received a formal leave of absence approved by the Biomedical Graduate Education Committee. Informal leave of absence arrangements are not acceptable and will not be honored retroactively.

Matriculated students who do not register for a semester (excluding summer sessions) will be subject to termination of their matriculated status and may be administratively withdrawn and dropped from the rolls of the Office of Biomedical Graduate and Postgraduate Studies. Reinstatement to matriculated status for students who are administratively withdrawn will require petition to, and action by, the Biomedical Graduate Education Committee. Such students will be treated as new applicants requesting admission with advanced standing. They will be required to file a new application and pay the application fee.

#### **Non-Matriculated Status**

If a student fails to meet the standards of the Biomedical Graduate Education Committee for acceptance as a matriculated student or fails to meet application deadlines the program may petition the Vice Dean to admit the applicant as a non-matriculated student.

Non-matriculated students are not guaranteed permission to take any course they choose. Non-matriculated students must obtain the permission of the instructor of each course they wish to take. A non-matriculated student may apply for matriculated status at a later date.

### **Provisional Status**

The status of provisional acceptance provides for students whose test scores and GPA fall below accepted standards. On the basis of the record of accomplishment in the first semester, the advisor or the temporary advisory committee for the student, through the program director, recommends to the Biomedical Graduate Education Committee one of the following:

- That the status be changed to regular student;
- That the status of provisional be continued for second semester;
- That the student be dropped from the rolls.

### **Registered for Thesis Defense Only**

Students who have completed all course work and research requirements, but have not defended their thesis, may carry a status of "Registered for Thesis Defense Only." It is understood that a student carrying a "Registered for Thesis Defense Only" status has completed all course work and all research work as determined by the student's major advisor, has passed the preliminary examination, the comprehensive or qualifying examination, and has a cumulative grade point average of 3.00 or better. This registration carries no credit, has no fee and students receive no grade. Students may not be registered for Thesis Defense Only for more than two semesters. Students may not be registered for this category if they are taking any other graduate courses. Students must be registered for thesis defense by the Office of Biomedical Graduate and Postgraduate Studies. Registration for thesis defense requires the approval of the student's program director, mentor and committee chair.

### **Registered for Degree Only (RDO)**

Students who have completed all degree requirements, including defending the thesis, may carry a status of "Registered for Degree Only" (RDO) for a period of one academic year. It is understood that a student carrying an RDO status has completed all course work and all research work as determined by the student's major advisor, has passed the preliminary examination, comprehensive or qualifying examination and thesis defense, and has a cumulative grade point average of 3.00 or better. Students must register for RDO status. This registration carries no credit, has no fee and students receive no grade. Students may not be registered for this category if they are taking any other graduate courses.

### **Leave of Absence**

On recommendation of the student's major advisor and the director of the program in which the student is conducting his/her major work, and with the approval of the Biomedical Graduate Education Committee, a student may take a leave of absence for up to a maximum of two years for master's candidates and three years for doctoral candidates, consecutively or separately, for reasons of 1) military service, 2) serious illness 3) parental leave or 4) another reason deemed adequate for interrupting graduate studies. All leave of absences are granted without pay. Any financial obligations incurred prior to leave of absence to the University are not waived by a leave of absence. Furthermore, a leave of absence does not extend the time limits allowed for completion of degree. Students on F-1 or J-1 visas are not eligible for a leave of absence.

At least 30 days prior to the conclusion of a leave of absence, the student must submit a written request to the Program Director and the Office of Biomedical Graduate and Postgraduate Studies stating his/her desire to renew the leave for another year or the intent to be reinstated. If reinstatement is requested, the program will inform the graduate office in writing whether it supports or does not support the student's return based on whether or not the student has met the program's conditions for reinstatement, if any. If reinstatement is requested, any financial liabilities and other conditions of reinstatement must be completed. The conditions of reinstatement are decided at the beginning of the leave of absence by the Office of Biomedical Graduate and Postgraduate Studies or by the program in which the student is conducting his/her major work.

After approval of the Biomedical Graduate Education Committee, reinstatement will be effective on the first day of the following semester, during which time the student must be registered.

A student who neither applies for reinstatement nor requests renewal of the leave of absence after a period of one year will be dropped from the rolls of the Biomedical Graduate Program.

### **Change in Matriculation and Program Status**

For students changing to a different degree level within a program or between programs which are at the same degree level or below, the program directors involved must notify the Biomedical Graduate Education Committee in writing.

When changing degrees (from Ph.D. to M.S. or M.S. to Ph.D.) the student is held to the requirements that are in effect for that degree at the time of degree change and not at the time of original matriculation.

Students wishing to change from a master's degree to a doctoral degree program must have completed one year in the master's program before requesting the change. All requests for change of matriculation status from a master to a doctoral degree, or vice versa must be approved by the Biomedical Graduate Education Committee. All students who have taken courses through the Biomedical Graduate Program and change programs or change from non-matriculated to matriculated status will have both course credits and grades applied to their new program of study according to the following guidelines:

- Courses taken for a master's degree will not automatically be accepted toward a doctoral degree, unless the student changes from a master's degree candidate to a doctoral degree candidate without receiving the master's degree.
- In general, all credits taken as a matriculated student within the Biomedical Graduate Program (without limit to number) and up to 30 credits taken at Drexel University College of Medicine as a non-matriculated student may be applied toward any degree offered by the Office of Biomedical Graduate and Postgraduate Studies, subject to the approval and other limitations established by each specific program and provided they have not been used previously to meet the course requirements for another earned degree.

### **Guidelines for transitioning from the M.S. to the Ph.D. track**

The Biomedical Graduate Programs supports the transition of highly qualified students from the M.S. track to the Ph.D. track. The following are the criteria for considering this transition.

- 1) >84 average for Core Curriculum I and II
- 2) Ph.D. level performance in laboratory rotations
- 3) Strong recommendation from the program
- 4) Letter from student stating reasons for transition

### **Policy for transitioning from the Ph.D. to the M.S. track**

Students who transfer or who are transferred from the Ph.D. program to the M.S. track will be charged a graduation fee for the semester in which they receive their degree. The graduation fee for FY12 is \$13,000.

Upon transfer, the Ph.D. stipend and health insurance will continue for three months from the COM with the student in residence and working in the laboratory; or until completion of degree requirements, whichever comes first.

### **Change of Non-Matriculated Status**

- Non-matriculated students wishing to matriculate in the second semester are presented to the Biomedical Graduate Education Committee as new applicants at the earliest January meeting of the committee.
- Non-matriculated students anticipating changing to matriculated status mid-year should not register for non-matriculation for the second semester. They will be admitted as new students by the Biomedical Graduate Education Committee.

### **Withdrawal from the Graduate School**

Any student who wishes to withdraw from the Biomedical Graduate Programs should do so in consultation with his/her major advisor and/or program director. The student must then submit to the SRC an official Withdrawal Request form. This form is available online and at the SRC.

### **Termination of Enrollment**

A student may be dropped from the rolls for not maintaining matriculation, for having a grade point average (GPA) below 3.00 for one semester for students who were accepted provisionally or two consecutive semesters for all other matriculated students, or at the request of a program (program must give a valid reason). If dropped from the rolls, a

student may appeal the decision to the Biomedical Graduate Education Committee. A student is ineligible to continue in his/her program during the appeals process. If the appeal succeeds, the student is reinstated to the program.

### **Graduate Student Grievance Policy and Procedure**

Drexel University College of Medicine encourages open student-faculty communication and discussion to affect a satisfactory solution to problems relating to academic matters. However when such efforts do not achieve a satisfactory resolution, further consideration may be obtained through the procedure described below. If a student is appealing a decision to be dropped from the rolls, the student is ineligible to continue in his/her program during the appeals process. If the appeal succeeds, the student is reinstated to the program.

- Any student who has a grievance relating to an academic matter may seek help or advice informally by contacting the program director or Vice Dean for Biomedical Graduate and Postgraduate Studies. The student may speak to any of these individuals confidentially, without filing a complaint. If no complaint is filed, no record will be kept.
- To submit a formal complaint, the student must address a letter to the Vice Dean for Biomedical Graduate and Postgraduate Studies and forward a copy to the Dean of the College of Medicine.
- The Vice Dean for Biomedical Graduate and Postgraduate Studies will send a letter to the party to whom the complaint is addressed within 10 days of receipt of the formal complaint. The letter will include the date of the next Biomedical Graduate Education Committee meeting, at which time the parties may present information on the grievance. The student who submitted the formal complaint will also be advised in writing of the date of the next meeting and be given an opportunity to present information on the grievance.
- The Biomedical Graduate Education Committee will make a determination and inform both parties of the decision in writing.
- If the student wishes to appeal the decision of the Biomedical Graduate Education Committee, the Vice Dean will formulate an ad-hoc committee comprised of faculty and students who are not members of the Biomedical Graduate Education Committee. The ad-hoc committee will make a determination and inform all parties of the decision in writing.
- A final appeal may be made in writing to the Dean of the College of Medicine. The decision of the Dean will be final.

### **Graduate Student Responsibility and Rights**

A graduate student is expected to exhibit initiative and responsibility in planning and executing his/her graduate program. The student must be acquainted with the general regulations and administrative procedures governing graduate study and the specific program. The ultimate success of a student's graduate study is dependent on a close liaison between the student and the student's thesis committee.

Matriculates for the Master of Science and Doctor of Philosophy degree have thesis committees that include members of the graduate faculty.

The formal requirements for master's and doctoral degrees are intended as a guide to establish minimum standards of performance to aid the student in planning his/her program of formal and informal courses of study and performing his/her thesis research program. The thesis committee is designed to assist the student in planning and executing his/her program of graduate study. *However the student is expected to assume major responsibility in planning his/her program and complying with the required academic standards of the Office of Biomedical Graduate and Postgraduate Studies.*

## **CODE OF ACADEMIC INTEGRITY**

### **Guidelines for Students**

The goals of Drexel University and Drexel University College of Medicine include providing an educational environment that fosters intellectual pursuits, developing socially responsible individuals, ensuring academic freedom and protecting individual rights. As one aspect of meeting these goals, the University has developed standards for both academic and non-academic matters. All students are expected to act in a manner consistent with these standards. The Code of Academic Integrity reflects the standards for academic matters.

Cheating, plagiarism, forgery or other forms of academic misconduct are not tolerated at this institution. It is the responsibility of each student to ensure that his/her study and participation in the academic process is so conducted that there can be no question concerning his/her integrity. Faculty members have the responsibility of conducting their courses in a manner that fosters academic integrity.

Unless specifically exempted, examinations, quizzes, laboratory practicals, case studies, research papers, projects and other assignments are expected to be the work of the individual student. Any use of ideas, data or wording of another person must include explicit acknowledgement of the source. Failure to give such credit is plagiarism. Intentionally aiding another student in such activities is also a violation of the Code of Academic Integrity.

Examinations, quizzes and laboratory practicals are proctored. Each instructor specifies, as appropriate, what materials students may use during a written or practical exam, where students may sit or any other instructions. If the exam is an "open book" or "take home" exam, the instructor will clearly define the rules that apply. Unauthorized communication or use of unauthorized materials during an examination constitutes academic misconduct and is a violation of the code.

### **Academic Misconduct**

If during an examination, an instructor/proctor observes suspicious behavior and/or has such behavior reported by another student, he/she may warn the student. Continuation of the same behavior or actions will be regarded as cheating and the student will be dismissed from the examination at the discretion of the instructor/proctor. In the case of overt cheating, no warning will be given and the student will be immediately dismissed from the exam. All examination and any unauthorized materials will be confiscated. A student who is dismissed from an examination will receive a grade of "F" or "0" on that exam. If an instructor/proctor suspects plagiarism or other forms of cheating, the student will be notified promptly and all papers, etc. relating to the incident will be retained by the instructor/proctor.

### **Subsequent Action for Alleged Cases of Misconduct**

A matriculated student will have the opportunity to present his/her version of alleged academic misconduct to the course instructor. If the instructor feels that the penalty for the student's behavior should be beyond receiving a failing grade for the exam or assignment in question, the instructor must make a formal written complaint to the student's graduate program. If the program director feels there has been academic misconduct, he will request a review of the incident by the steering committee of the program. If the alleged misconduct is substantiated, a suitable penalty will be imposed by the program. The penalties may range from the aforementioned failure of the examination or assignment to suspension or expulsion from the program.

A matriculated student has the right to appeal the decision through the procedures established by the Office of Biomedical Graduate and Postgraduate Studies. Recommendations for suspension or dismissal must be confirmed by the Biomedical Graduate Education Committee. If the program rejects the student's appeal and the committee has confirmed a recommendation for suspension or dismissal, the student's next course of action is to appeal to the Biomedical Graduate Education Committee. The appeal must be made in writing within ten days of receipt of notice of the initial decision. If the student wishes to appeal the decision of the Biomedical Graduate Education Committee, the Vice Dean will formulate an ad-hoc committee comprised of faculty and students who are not members of the Biomedical Graduate Education Committee. The ad-hoc committee will make a determination and inform all parties of the decision in writing. Appeal of actions of the ad-hoc committee may be made to the Vice-Dean of Biomedical Graduate and Postgraduate Studies of the College of Medicine. The decision of the Vice-Dean is final.

## **CODE OF PROFESSIONALISM**

### **Professionalism**

Professional behavior appropriate for faculty and students in an academic research setting is expected and required at all times. Admission to and continued participation in all Graduate Programs is therefore contingent upon the student's understanding of these expectations, and his/her agreement to adhere to the Code's guidelines.

### **Guidelines of Professional Behavior for Biomedical Graduate Students**

Students are expected to:

#### **1. Reliability and Responsibility**

- a. act at all times in an ethical, responsible, and dependable manner.
- b. admit errors and accept responsibility for one's own actions.
- c. maintain a strictly honest approach to all activities so as to be deemed worthy of trust.
- d. treat fellow students, faculty, administrators, and staff with respect, empathy, compassion and sensitivity.
- e. complete assigned tasks in a timely and responsible manner.
- f. arrive on time for scheduled activities.
- g. maintain composure during difficult interactions.
- h. report inappropriate behavior (academic misconduct, i.e. cheating, plagiarism, forgery, etc).
- i. respond promptly when contacted whether by personal or electronic means.
- j. observe all regulations for good laboratory practice and university compliance including those set forth by IACUC, IRB, and Drexel University Dept. of Safety and Health.  
**Students who repeatedly violate safety regulations may be sent a letter of warning from their mentor, which will be copied to the Vice-Dean for Biomedical Graduate and Postgraduate Studies. Any subsequent violations may result in the loss of stipend for a minimum of one month and possible dismissal from the program.**

#### **2. Self-Awareness**

- a. demonstrate an ability to identify areas of deficiency in one's own performance; attend to one's own well-being.
- b. accept constructive criticism and modify behavior based on feedback.
- c. project a professional image in interpersonal relationships, manner, dress and communication (including electronic) that is consistent with that expected of a member of the scientific community and the academy.
- d. demonstrate self-motivation and accountability for one's own learning.
- e. request help from appropriate support structures when needed.

#### **3. Team-building and communication**

- a. facilitate communication among peers, faculty and staff.
- b. provide supportive and constructive feedback.
- c. listen to others respectfully and attentively and resolve conflicts in a collegial manner.
- d. discuss colleagues in a respectful manner.
- e. credit others for their contributions to shared work.

- f. attend classes, journal clubs, seminars and meetings for their full duration, and prepare appropriately for these activities.
- g. Demonstrate accountability when unable to fulfill responsibilities.

### **Citation and Referencing Guidelines**

The following guide is based on the approved standards of the *Publication Manual of the American Psychological Association, 5<sup>th</sup> Edition* (Washington, D.C.: American Psychological Association, 2001) style of referencing and is meant as a supplemental resource for research graduate students.

This guide is written for graduate students, by graduate students, and is certified by the Biomedical graduate faculty.

#### **I. What types of materials should I reference?**

- ✓ Direct quotes from a book, journal article, film, letter, email, lecture, etc.
- ✓ Single words, short phrases, sentences and longer passages quoted from books, journal articles, lectures, etc.
- ✓ Ideas you draw from a source but present entirely in your own words.
- ✓ Paraphrases and summaries of books, journal articles, pamphlets.
- ✓ Comments made by professors in lectures.
- ✓ Statistics.
- ✓ **Websites:** In most of the take-home exams or any kind of written scientific documents, materials from personal websites or online encyclopedias is not preferred. It is always better to go to the primary literature/published paper for the information. In case of talks or presentations, it is reasonable to take figures from websites but they must be referenced at the bottom of the slide. One can copy the website from the page and paste it.
- ✓ **Books/Text books:** Detailed information obtained from textbooks should be cited in your documents. In this case, it is important to give the name of the book, the publishers and the page number.
- ✓ **Published paper:** Direct quotes from any articles should have the first author, year and page number at the end of the sentence in parenthesis and the direct quotes should be in quotation marks. Any information or idea or hypothesis taken from articles should be referenced even if they are paraphrased in the text.

#### **II. Referencing a given concept, idea, methodology and/or results.**

#### **Examples:**

##### **Journal article**

[Original text taken from the *Journal of Neuroscience Methods* **54** (1994) 205-218.]

Original text: *The light path is mounted on a computer-controlled XYZ stage that allows the position of the spot to be easily moved in small increments. We then photostimulate at various sites in the slice. The brief pulse of glutamate causes a small group of neurons to fire action potentials. If a photo-activated neuron is presynaptic to the neuron from which we are recording, a synaptic potential is produced in the recorded cell. By placing the motorized XYZ stage under computer control, the pattern of inputs onto a single cell can be mapped with exquisite precision [1].*

##### **Summary/Paraphrasing:**

In Text - A laser light beam allows “uncages” glutamate so that it may activate a small group of neurons which will in turn fire action potentials within a spatially confined area. This process can then be repeated at various sites within the slice preparation and computer software can be used to better control the movement of the laser light allowing the precise mapping of the inputs onto a single recorded neuron (Katz & Dalva, 1994)\*.

\*For one author (Waterhouse, 2005)

\*For two authors (Katz & Dalva, 1994)

\*For three to five authors (Simmon, Cappella, Lands, Rosen, & Byssby, 1976)

- \*For six or more authors (Simmon et al., 1976)
- \*Subsequent references (Simmon et al., 1976)
- \*Subsequent references in the same paragraph (Simmon et al.)

**Direct Quoting:**

In Text - As the authors point out, “if a photo-activated neuron is presynaptic to the neuron from which [they] are recording, a synaptic potential is produced in the recorded cell” (Katz and Dalva, 1994, pg 207).

Reference - Katz, L.C. & Dalva, M.B. (1994). Scanning laser photostimulation: a new approach for analyzing brain circuits. *J Neurosci Meth*, 54, 205-218.

**Book:**

In-Text

One author - (Kendel, 2005)

Two authors – (Kendel & Howland, 2005)

Three or more – (Kendel, Howland, Smith, & Basso, 2005)

Subsequent – (Kendel et al, 2005)

Reference: Kendel, L., & Howland, D. (2005). *The new brain*. New York: Franklin Koss.

**Internet:**

In-Text - (American Psychological Association [APA], 2006)

Subsequent - (APA, 2006)

Reference - Electronic reference formats recommended by the American Psychological Association. (2000, October 12). Retrieved May 9, 2006, from <http://www.apa.org/journals/webref.html>

[1] Katz, L.C. & Dalva, M.B. (1994). Scanning laser photostimulation: a new approach for analyzing brain circuits. *J Neuro Methods*, 54, 205-218.

Research report

## Sex-related differences in MAPKs activation in rat astrocytes: effects of estrogen on cell death

Lei Zhang<sup>a</sup>, Beng shing Li<sup>d</sup>, Weqing Zhao<sup>d</sup>, Yoong H. Chang<sup>b</sup>, Wu Ma<sup>c</sup>, M. Dragan<sup>b</sup>, Jeffery L. Barker<sup>b</sup>, Qian Hu<sup>b</sup>, David R. Rubinow<sup>a,\*</sup>

In order to study possible sex-related differences in effects of E<sub>2</sub> on cell proliferation in astrocytes, we first analyzed DNA synthesis ([<sup>3</sup>H]thymidine incorporation) in male and female astrocytes in the presence and absence of E<sub>2</sub>. We observed decreased [<sup>3</sup>H]thymidine incorporation in astrocyte DNA after exposure to E<sub>2</sub> (10 nM–1 μM) in female astrocytes (Fig. 3A). At 100 nM, E<sub>2</sub> decreased [<sup>3</sup>H]thymidine incorporation by 60±6%, compared with controls; no further decrease was seen at the 1 μM concentration. No effect on [<sup>3</sup>H]thymidine incorporation was seen in female astrocytes at E<sub>2</sub> concentrations ≤10 nM or in male astrocytes at any concentration of E<sub>2</sub> (Fig. 3A).

When using as a direct quote:

“At 100nM, E<sub>2</sub> decreased [<sup>3</sup>H] thymidine incorporation by 60±6%, compared with controls; no further decrease was seen at the 1μM concentration.” (Zhang et al 2002, p.6)

When paraphrasing:

[<sup>3</sup>H] thymidine incorporation was decreased upon E<sub>2</sub> application in the nanomolar concentration, but not at the micromolar concentration, when compared to the control. (Zhang et al 2002).

For the Reference Page:

Zhang L, Li B, Zhao W, Chang YH, Ma W, Dragan M, Barker JL, Hu Q, and Rubinow DR. (2002). Sex-related differences in MAPKs activation in rat astrocytes: effects of estrogen on cell death. *Molecular Brain Research*, 103, 1-11.

## **GRADUATION - BIOMEDICAL GRADUATE PROGRAMS**

### **Graduation Requirements**

The Office of Biomedical Graduate and Postgraduate Studies set minimum requirements that are applicable to all graduate programs. Each student will be given a packet of forms at the beginning of their graduate training. These forms will be completed at different times throughout the graduate career. The final forms must be submitted to the Office of Biomedical Graduate and Postgraduate Studies prior to or at the time of the final thesis defense. Individual programs may impose additional requirements, but they may not waive the general requirements of the Office of Biomedical Graduate and Postgraduate Studies. Students should consult the following pages for the requirements of a particular degree. Students may also wish to contact their program director for further information. A minimum grade point average of 3.00 is required of all degree candidates for graduation.

### **Survey of Earned Doctorates**

The Biomedical Graduate Program participates in the annual Survey of Earned Doctorates distributed by the National Science Foundation. Each doctoral candidate is given a copy of the survey when they submit his/her thesis. Students are asked to complete the survey and return it to the Office of Biomedical Graduate and Postgraduate Studies.

### **Doctor of Philosophy Degree (Ph.D.)**

Ph.D. degree programs provide students with a comprehensive view of a field of knowledge and offer training in methods of research and scholarship in that field and closely related areas. The minimum requirements for the Ph.D. degree are given below. Individual programs may impose additional requirements.

Candidates accepted directly into a Ph.D. program following completion of a baccalaureate degree must complete a minimum of 96 graduate credits. Students entering a Ph.D. program after completing a master's, M.D., or other master's equivalent program must complete a minimum of 60 graduate credits. M.D./Ph.D. students, after successful completion of the first two years of Medical School, will be required to complete a minimum of 60 graduate credits for the completion of the Ph.D. degree portion of the program. All requirements must be completed within seven years from the date of matriculation for the Ph.D. degree (nine years for students in the M.D./Ph.D. program).

All Ph.D. students are required to register for a minimum of 9 semester hours of approved courses. The definition of major and related fields as applied to the Ph.D. degree in a given program is determined by the program director and faculty members who are directly responsible for the program. All work in related fields must be completed prior to admission to the qualifying examination.

Up to 24 credits may be transferred from an accredited institution under limited and controlled conditions. Once matriculated, a student must register each semester (excluding summer sessions) or be on approved leave of absence.

A minimum of two academic years consisting of four semesters of full-time residency is required for the Ph.D. degree; the semesters do not have to be consecutive. Nine credit hours is the minimum number constituting full-time work in a given semester.

To fulfill the requirements for the Ph.D. degree, a student must pass a qualifying examination prior to the final dissertation defense. The conduct and judgment of the performance on the exam is the province of the examination committee. To be recommended for promotion to doctoral candidacy, the student must receive a favorable vote of the members of the examination committee.

Every doctoral candidate is required to present a dissertation based on original work. The dissertation must be acceptable in both scholarship and literary quality. An abstract of 350 words or fewer must be included with the thesis.

After completion of the residency requirement and the qualifying examination and with the approval of the major advisor and program director, a candidate may present for the final dissertation defense. The dissertation committee will decide on the merits of the candidate's performance on the dissertation defense. To be recommended for the degree, the candidate must receive approval of the committee.

The Office of Biomedical Graduate and Postgraduate Studies will pay for binding (4 copies) and microfilming of the final dissertation. All other costs of preparation, reproduction, binding (personal copies) are the responsibility of the candidate.

A minimum cumulative grade point average of 3.00 is required of all Biomedical Graduate Program degree candidates for graduation.

#### **Advisory Committee - Ph.D.**

An initial advisory committee is formed for each student who pursues the Ph.D. degree within the first eight weeks of the student's first registration in the Biomedical Graduate Program. This committee is primarily responsible for the student's development. This committee must have at least three members. Instructors and research associates may serve on the advisory committee. Advisory committees may utilize the judgment, assistance or advice of a larger group to the extent that they consider it helpful. The advisory committee chairperson must be of professional rank.

A student may request a change in the membership of his/her advisory committee with the approval of all members of the existing committee. Notice of such change must be filed with the Office of Biomedical Graduate and Postgraduate Studies. No such change may be made by a student for the degree of Ph.D. after he/she has received four residence units, except with the approval of the Vice Dean for Biomedical Graduate and Postgraduate Studies. A vacancy on an advisory committee caused by the absence of a faculty member may be filled by the Vice Dean for Biomedical Graduate and Postgraduate Studies on joint recommendation of the candidate and the members concerned.

#### **Examination Committee – Ph.D.**

An examination committee will be composed of faculty from the student's program and will be responsible for administering preliminary and qualifying examinations. In some programs, this committee may be the same as the advisory committee.

#### **Preliminary Examination – Ph.D.**

At the end of the first academic year, students are required to pass a preliminary examination. The conduct and judgment of the performance in this examination is determined by the pertinent program or at the program's discretion.

#### **Qualifying Examination – Ph.D.**

To fulfill the requirements for candidacy for the Ph.D. degree, a student must pass a qualifying examination. Although the qualifying examination is open to all members of the graduate faculty, the conduct and judgment of the performance in this examination is determined by the pertinent program or at the program's discretion, of an appropriately constituted examination committee.

The qualifying examination should be taken after completion of one to two academic years of graduate study and at least 24 calendar weeks (six months) prior to presentation for the final dissertation defense. The examination may be oral and/or written.

The primary purposes of this examination are to ascertain whether the student is qualified to continue to work for the doctorate and, if so, to aid in planning the remainder of the student's graduate program.

Before presenting for the qualifying examination, the student must have the approval of his/her advisory committee and the program director in which the dissertation work is to be conducted.

To be recommended for promotion to candidacy, the student must receive a favorable vote of the members of the examination committee. A completed Admission to Candidacy form must be filled out and returned to the Office of Biomedical Graduate and Postgraduate Studies after the exam is completed.

If a student fails to pass the qualifying examination, reexamination shall be allowed only upon recommendation of the examination committee. The student must present his/her reexamination within three months of the failed qualifying examination. Presentation for reexamination must be approved by the major advisor and the program director in which the dissertation work is being conducted.

#### **Dissertation Committee – Ph.D.**

The committee will be comprised of five voting members. Three or four of the five voting members must be graduate faculty from the same program as the student's discipline and the remaining voting member(s) must be from a department other than that of the major field or from outside the University. No more than three members may be from one department. Members from outside the University must be approved by the Biomedical Graduate Education Committee.

The chair of the dissertation committee must have the rank of Assistant Professor or higher within the program that appoints the chair. Adjunct faculty may be appointed chair of dissertation committees but in that case a co-chair with full time university appointment must also be appointed. Full time faculty with research prefix or non tenure track status may serve as thesis committee members and **co-advisors**.

The committee should be formed by the end of the second year of matriculation. Absolute deadline for submission of the composition of the committee for approval by the Biomedical Graduate Education Committee is six months before final submission of a dissertation to the dissertation committee. Only in extraordinary circumstances should setting up the committee be delayed.

The committee will assume supervision of the student's graduate program. The faculty member under whom the student elects to conduct dissertation research will be the student's major advisor.

#### **Dissertation and Dissertation Defense - Ph.D.**

A candidate for the Ph.D. degree is required to present a dissertation based upon original research work. It is the policy of the Biomedical Graduate Program that a graduate student must conduct dissertation work under the supervision of a member of the graduate faculty.

A candidate for the Ph.D. degree must pass a final dissertation defense covering the thesis and related topics. The examination will be conducted by the student's dissertation committee, and all faculty members and graduate students are invited to participate.

The Office of Biomedical Graduate and Postgraduate Studies must be notified in writing of the time, date and place of the examination at least two weeks prior to the time scheduled by filling out the official Notification of Intent to Defend Form so the information may be disseminated.

The dissertation must be acceptable in both scholarship and literary quality. The style and form of the dissertation should be commensurate with established Office of Biomedical Graduate and Postgraduate Studies policy. An abstract of 350 words or fewer in length must be included with the thesis. It is recommended that students obtain a current copy of "*Preparing Your Thesis*" available online and from the Office of Biomedical Graduate and Postgraduate Studies.

At least eight weeks prior to the date of graduation, typewritten or suitably duplicated copies of the dissertation shall be distributed to each member of the dissertation committee.

A candidate may not present for the final dissertation defense until he or she has completed six months of residence after satisfactory completion of the qualifying examination and has the approval of the major advisor and the major program concerned. The dissertation defense may not be held later than four weeks prior to the expected date of graduation.

The dissertation committee shall decide upon the merits of the candidate's dissertation and performance on the dissertation defense. To be recommended for the doctoral degree, the candidate must receive approval of all of the voting members of the committee.

If there are one or two dissenting votes, the candidate will be rescheduled for one reexamination within three to six months. Three or more dissenting votes constitute a failure of the final dissertation and the dissertation defense. The basis for the failure must be documented and filed in the Office of Biomedical Graduate and Postgraduate Studies.

In such cases where a student fails the final dissertation defense, the committee may reschedule the student for one reexamination, within six months to one year of the original examination date. A failure of any reexamination may be appealed to the Biomedical Graduate Education Committee.

No later than one week prior to the expected graduation date, four copies of the completed dissertation suitable for binding and bearing approval of the dissertation committee must be given to the Office of Biomedical Graduate and Postgraduate Studies. One of these copies is placed on file in the library, one will remain in the Office of Biomedical Graduate and Postgraduate Studies, one will be given to the student's major advisor and one will be given to the program in which the candidate conducted his/her work. The members of the dissertation committee must complete a Certification of Dissertation form, which will be included with the bound dissertation.

An unbound copy of the dissertation must also be presented to the Office of Biomedical Graduate and Postgraduate Studies for microfilming by Proquest, Ann Arbor, Michigan. The abstract will be published in Dissertation Abstracts by Proquest.

The Office of Biomedical Graduate and Postgraduate Studies will pay for binding (4 copies) and microfilming of the final dissertation. All other costs of preparation, reproduction and binding (personal copies) are the responsibility of the candidate.

#### **Master of Science (M.S.) - Non-Thesis**

The M.S. degree can be obtained with or without a thesis. A thesis is defined as a document detailing the background, methods, results and discussion of an experimentally-based research project. A non-thesis M.S. includes the potential for performance of research without the requirement for a thesis. Each student in the non-thesis M.S. program is required to write a detailed review paper and spend a designated number of hours working with an advisor under whose supervision the paper will be written.

Each program has a specific plan for implementation of the non-thesis M.S. Detailed guidelines can be found in the program's policies and procedures manual. The minimum requirements for a M.S. without thesis include:

- 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 that reviews a topic in detail
  - Paper should include primary references and be 25-40 double spaced pages (not including an alphabetized list of cited references on additional pages).

**Successful completion of the requirements will be verified by an advisory committee appointed by the graduate program.**

#### **Master of Science (M.S.) - Thesis**

The M.S. degree programs are designed to provide advanced technical and scientific study to prepare students to enter a specialized field or a doctoral program. A minimum of 48 semester hours is required after completing a baccalaureate degree. For programs that offer the Master of Science degree for which the M.D. is a prerequisite, a minimum of 30 graduate credits are required after completing an M.D. degree. Transfer of up to 18 credits may be allowed from an accredited graduate institution under limited and controlled conditions.

Once matriculated a student must register each semester (except summer session) or be on approved leave of absence. All course work must be completed within four years of the date of matriculation. There are no Biomedical Graduate Program residency requirements for M.S. degrees; however they may be stipulated by individual programs.

To fulfill the requirements for the M.S. degree a student must pass a preliminary examination and present a thesis based on original research work. Individual programs may have additional requirements. The thesis must be acceptable in both scholarship and literary quality. The conduct and judgment of performance in the examination and the defense of the thesis is the province of the thesis committee.

The Office of Biomedical Graduate and Postgraduate Studies will pay for binding (4 copies) of the final thesis. Microfilming is not required for M.S. degree students. All other costs of preparation, reproduction and binding (personal copies) are the responsibility of the candidate.

A minimum cumulative grade point average of 3.00 is required of all Biomedical Graduate Program degree candidates for graduation.

#### **Advisory Committee - M.S.**

An initial advisory committee is formed for each student who pursues the M.S. degree within the first eight weeks of the student's first registration in the Biomedical Graduate Program. This committee is primarily responsible for the student's development. This committee must have at least three members. Instructors and research associates may serve on the advisory committee. Advisory committees may utilize the judgment, assistance or advice of a larger group to the extent that they consider it helpful. The advisory committee chairperson must be of professional rank.

A student may request a change in the membership of his/her advisory committee with the approval of all members of the existing committee. Notice of such change must be filed with the Office of Biomedical Graduate and Postgraduate Studies. A vacancy on an advisory committee caused by the absence of a faculty member may be filled by the Vice Dean for Biomedical Graduate and Postgraduate Studies on joint recommendation of the candidate and the members concerned.

#### **Examination Committee – M.S.**

An examination committee will be composed of faculty from the student's program and will be responsible for administering preliminary and qualifying examinations. In some programs, this committee may be the same as the advisory committee.

#### **Preliminary Examination – M.S.**

Students may be required to pass a preliminary examination. The conduct and judgment of the performance in this examination is determined by the pertinent program or at the program's discretion.

#### **Qualifying Examination – M.S.**

To fulfill the requirements for candidacy for the M.S., a student may be required to pass a qualifying examination. The conduct and judgment of the performance in this examination is the province of the examination committee.

The qualifying examination should be taken after completion of one academic year of graduate study. The examination may be oral and/or written.

The primary purpose of this examination is to determine whether the student has developed a sound understanding of the basic principles associated with his/her major field of interest and the related disciplines in which he or she has undertaken graduate courses.

Before presenting for the qualifying examination, the student must have the approval of his/her examination committee and the program director in which the thesis work is to be conducted.

A completed Admission to Candidacy form for the qualifying examination must be filed in the Office of Biomedical Graduate and Postgraduate Studies by the student's department or program.

### **Thesis Committee – M.S.**

The committee will be comprised of three voting members. Two voting members must be graduate faculty from the same department/program as the student's discipline and one voting member must be from a department other than that of the major field or from outside the University. Members from outside the University must be approved by the Biomedical Graduate Education Committee.

The chair of the thesis committee must have the rank of Assistant Professor or higher within the program that appoints the chair. Adjunct faculty may be appointed chair of thesis committees but in that case a co-chair with full time university appointment must also be appointed.

The committee should be formed by the end of the second year of matriculation. Absolute deadline for submission of the composition of the committee for approval by the Biomedical Graduate Education Committee is six months before final submission of the thesis to the thesis committee. Only in extraordinary circumstance should setting up the committee be delayed this long.

The committee will assume supervision of the student's graduate program. The faculty member under whom the student elects to conduct thesis research will be the student's major advisor.

### **Thesis and Thesis Defense - M.S.**

A candidate for the M.S. degree is required to present a thesis based upon original research work. It is the policy of the Biomedical Graduate Program that a graduate student must conduct thesis work under the supervision of a member of the graduate faculty.

A candidate for the M.S. degree must pass a final thesis defense covering the thesis and related topics. The examination will be conducted by the student's thesis committee. All faculty members and graduate students are invited to participate.

The Office of Biomedical Graduate and Postgraduate Studies must be notified in writing of the time, date and place of the examination at least two weeks prior to the time scheduled by filling out the Official Notification of Intention to Defend form so the information may be disseminated.

The thesis must be acceptable in both scholarship and literary quality. The style and form of the thesis should be commensurate with established Office of Biomedical Graduate and Postgraduate Studies policy. It is recommended that students obtain a current copy of "*Preparing Your Thesis*" available online and from the Office of Biomedical Graduate and Postgraduate Studies.

At least eight weeks prior to the date of graduation, typewritten or suitably duplicated copies of the thesis shall be distributed to each member of the thesis committee.

A candidate may not present for the final thesis defense until the approval of the major advisor and the major program is secured. The thesis defense may not be held later than four weeks prior to the expected date of graduation.

The thesis committee shall decide upon the merits of the candidate's thesis and the performance on the thesis defense. To be recommended for the master's degree, the candidate must receive approval of all voting members of the committee.

If there is one dissenting vote, the candidate will be rescheduled for one reexamination during the following three to six months. Two or more dissenting votes constitute a failure of the final thesis and the thesis defense. The basis for the dissent must be documented and filed in the Office of Biomedical Graduate and Postgraduate Studies.

In such cases where a student fails the final thesis defense, the committee may reschedule the student for one reexamination, within six months to one year of the original examination date. A failure of reexamination may be appealed to the Biomedical Graduate Education Committee.

No later than one week prior to the expected graduation date four copies of the completed thesis suitable for binding and bearing approval of the thesis committee must be given to the Office of Biomedical Graduate and Postgraduate Studies. One of these copies is placed on file in the library, one will remain in the Office of Biomedical Graduate and

Postgraduate Studies, one will be given to the student's major advisor, and one will be given to the program in which the candidate conducted his/her work. The members of the thesis committee must complete a Certification of Dissertation form, which will be included with the bound thesis.

The Office of Biomedical Graduate and Postgraduate Studies will pay for the binding (4 copies) of the final thesis. All other costs of preparation, reproduction and binding (personal copies) are the responsibility of the candidate.

### **Graduation Awards**

- Bondi Award - for excellence in doctoral research
- Alumnae/i Award – for services to graduate programs and student body
- The Biomedical Graduate Studies, Master of Science Distinguished Student Award

## **GRADUATE STUDENT AFFAIRS**

### **Graduate Student Government**

The Graduate Student Association (GSA) is the student government organization of the Biomedical Graduate Programs. The overall purpose of the GSA is to promote communication, understanding and intellectual stimulation among graduate students, the University, and the community at large.

All graduate students are voting members and are encouraged to contribute their time and services to the activities of the GSA. In the past few years specific effort has been made to encourage each program to designate at least one student to attend the monthly meetings of the GSA to ensure a broad based representation.

The GSA elects student representatives as voting members for several standing and ad hoc committees of the Biomedical Graduate Program and the University. These appointments provide an avenue for students to actively participate in all levels of the University's governmental system and ensure that the graduate student body is kept informed of Biomedical Graduate Program and University policy matters. Graduate students serving on such committees must maintain a minimum grade point average of 3.00.

The GSA sponsors annual events open to all students and faculty. The GSA sponsors and/or participates in inter- and intramural sports, Graduate Student Research Day (Discovery), Commencement and New Student Orientation (Genesis).

### **Discovery – College of Medicine Annual Research Day**

Discovery is an annual event designed to celebrate the research accomplishments of students and fellows affiliated with the Biomedical Graduate Programs. This event is hosted by the graduate students and the Office of Biomedical Graduate and Postgraduate Studies and involves current graduate students, alumnae/i, medical school students, postdoctoral fellows, technicians, residents/clinicians, summer research students, regional undergraduates, and faculty members. Selected graduate students present posters and research papers, followed by a lecture from a keynote speaker and an evening dinner and awards banquet.

### **Professional Societies**

Philadelphia is the location of a large number of colleges, universities, research institutes, industrial research laboratories, and a variety of professional and hospital service laboratories. Local branches or sections of major professional societies hold regular meetings throughout the year. Graduate students are encouraged to become active members of the local societies and to participate in their meetings and discussions.