

**GUIDELINES FOR GRADUATE PROGRAMS**  
**DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY**  
**MICHIGAN STATE UNIVERSITY**

This Graduate Handbook is intended to inform students of course and program requirements, the timetable for the selection of a faculty advisor and the formation of a guidance committee, procedures for comprehensive and dissertation defense examinations, graduation requirements, and the policy for dismissal, as required by the MSU Graduate Student Rights and Responsibilities (<http://splife.studentlife.msu.edu/graduate-student-rights-and-responsibilities>) document. The Handbook is available at the Department of Biochemistry and Molecular Biology (BMB) website (<http://www.bmb.msu.edu/>). Keep this handbook in a secure place so that you can refer to it as needed throughout your training at Michigan State University. The version of this handbook that was current at the time of your entry into the department will be used as the basis for guiding your passage through to the completion of your training.

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## I. Program Overview

Biochemistry is the discipline that studies the chemistry of living matter. Molecular biology is the discipline that studies the mechanisms underlying the flow of genetic information, ranging from the one-dimensional sequence of nucleotides in DNA to the three-dimensional structures of proteins. In addition to defining the chemical and structural nature of the molecules of life, biochemists and molecular biologists seek to understand the processes involved in their formation and degradation and how these processes are regulated. Such knowledge is a prerequisite for understanding normal biological functions and for adapting or modifying them for useful purposes. It is also fundamental to understanding diseases that result from biochemical and genetic disorders, ultimately leading to their treatment. Thus, biochemistry and molecular biology are fields with significance and applications across the biological spectrum, from the microbial through the plant and animal kingdoms. The rapid pace of conceptual and methodological advances coupled with the potential significance of new discoveries in modern biochemistry and molecular biology fit well with the University's overarching goals of expanding knowledge and transforming lives.

The Department of Biochemistry and Molecular Biology (BMB) is administered jointly by the Colleges of Natural Science, Human Medicine, and Osteopathic Medicine. Study for the Doctor of Philosophy or Master of Science degree with a major in biochemistry and molecular biology may be administered by any one of the three colleges referenced above. Study for the Doctor of Philosophy degree with a major in biochemistry and molecular biology—environmental toxicology is administered by the College of Natural Science. Areas of active research in the Department are extensive and diverse. Such areas include plant biochemistry, computational biology, structural biology, eukaryotic and prokaryotic molecular biology, membrane biochemistry and signaling mechanisms, genomics, proteomics, intermediary metabolism and metabolic regulation, and mechanisms of enzyme catalysis. Opportunities are also available for joint programs or collaborative research in genetics, cell biology, microbiology, neuroscience, toxicology, biotechnology, microbial ecology, and plant sciences.

The major objectives of the graduate programs in BMB are to help students to develop their creative potential and to prepare them for careers in research and teaching in the biochemical sciences. Individual programs of study are designed to develop independent thought as well as broad knowledge and technical skills, through formal and informal courses, laboratory experience, seminars, individual study, and, foremost, through original research that forms the basis for the student's thesis or dissertation.

## II. Program Components/Plan Options

The graduate programs of BMB are designed to provide basic education in biochemistry and molecular biology as well as extensive training in research. This is accomplished through formal courses, seminars, individual study and, foremost, through the original research that forms the basis of the student's thesis or dissertation. GradPlan (<http://grad.msu.edu/gradplan/Default.aspx>) has been developed by the Graduate School for Ph.D. students to lay out their Ph.D. program of study and make notes on all the requirements as they are completed. Please use this instrument.

Federal agencies that fund research require that graduate students and postdoctoral fellows prepare an individual development plan (IDP). The Department asks each graduate student to prepare and maintain her/his IDP. The Graduate School provides additional tools and strategies for generating IDPs, which are at <http://grad.msu.edu/docs/Individual%20Development%20Plans%20for%20Graduate%20Students.pdf>.

All TAs and RAs must complete the on-line training about the Relationship Violence and Sexual Misconduct Policy. To Access the training, login to the ORA training website at: <http://goo.gl/pLh01o>. Click "Register," "Complete Registration" and then "Launch" to begin the Relationship Violence and Sexual Misconduct (RVSM) Policy - Faculty, Staff Training. (If it indicates that you have already registered, use "In Progress Training", then "Launch."). You will want to reserve approximately 30 minutes to complete all assignments. If you need assistance, contact the Helpdesk at 517-884-4600 or [train@ora.msu.edu](mailto:train@ora.msu.edu)

### II.A. Elements of the Doctoral Training Program

The Ph.D. degree is the terminal degree for professional scientists who seek to design, execute, and direct independent research projects. The heart of the Ph.D. training program is an original and creative research project that forms the basis of the doctoral dissertation. The intermediate attainment of a master's degree is not required. Students normally take 14 or 15 credits of advanced biochemistry courses and electives during their first two years. The specific course of study is decided in consultation initially with the Graduate Program Director and later with a Guidance Committee composed of five faculty members and chaired by the thesis advisor.

During the first two semesters, students participate in ten-week rotations in three laboratories of interest before selecting a thesis advisor. The comprehensive examination for the Ph.D. degree is undertaken near the beginning of the third year. For this exam, each student writes a research proposal and defends it before an examining committee. Thereafter, research progress is evaluated annually by the Guidance Committee. Usually at least five years are required to complete the requirements for the Ph.D. degree.

As an integral aspect of their training, doctoral students participate in the teaching activities of the Department for at least one semester. Student participation in departmental affairs, including several standing or ad hoc committees, is encouraged.

Weekly seminars sponsored by this and other departments provide opportunities to hear about current discoveries by leading scientists from around the nation and the world.

### II.B. Elements of the Research-based Master's Degree Program

University guidelines provide for two types of M.S. degree programs: "Plan A, consisting of prescribed course work, research, thesis, and certifying examination," and "Plan B, consisting of prescribed course work, without a thesis, and with a certifying examination." However, BMB offers only the Plan A M.S. (In exceptional circumstances, a Plan B M.S. degree program may be approved by the Graduate Programs Director and the Department Chairperson). Although the M.S. degree is not the terminal professional degree in this field, it does connote evidence of knowledge of the field and capability in performing biochemical and/or molecular biology research.

A minimum of 30 credits of graduate work including at least 16 course credits at the 800 and 900 levels is required for the M.S. degree. The course of study is determined by a Guidance Committee chaired by the thesis advisor. M.S. candidates are typically not supported by departmental assistantships, but may be supported by funds from research grants. At least two years are required to complete the requirements for the M.S. degree.

### II.C. Graduate Students with Non-Degree Status

Graduate non-degree status is seldom used and is generally neither encouraged nor required. Instead, a student wishing to take courses beyond the bachelor's degree without being enrolled in a graduate degree program should enroll through the Lifelong Education program (Unclassified status). Enrollment in the Lifelong Education program is also recommended for students who need to make up deficiencies in order to qualify for admission to a graduate degree program. (Please note that if a student takes any graduate applicable courses through Lifelong Education, only a limited number can transfer into the program for fulfillment of degree requirements).

### II.D. Interdisciplinary (Dual-Major) Degree Programs with other MSU Departments

The following description of interdisciplinary, dual-major degree programs is consistent with the document approved by BMB, Physics & Astronomy, Chemistry, and Computer Science. These guidelines shall also be consistent with the University guidelines for dual major degree programs (see "Dual Major Doctoral Degrees" in the MSU Academic Programs Guide).

The interdisciplinary degree programs and the Program in Quantitative Biology and Modeling (see <http://biomodel.msu.edu>) are designed to promote more effective and synergistic interactions across the Computer Science/Physics/Math/Chemistry//Biology interfaces, and to train doctoral students as innovative scientists who can operate effectively at those interfaces. For each student, the program is centered on an

interdisciplinary research project with a primary advisor in the student's major department and a secondary advisor in the second department.

*II.D.1. Program Outline.* Interdisciplinary (dual major) graduate degrees involve two departments (BMB or another biological science, and a physical, mathematical or computational science) with one being the student's primary affiliation (and home of the principal advisor), and the other a secondary affiliation (home of a secondary advisor or collaborator). The degree is called, for example, a Ph.D. in "Biochemistry & Molecular Biology and Physics," when the primary affiliation for the Ph.D. is BMB and the secondary affiliation is Physics.

Admission requirements to graduate school are those of the BioMolecular Science Gateway, or the primary department if that department is not a participating member. A student can be admitted as an interdisciplinary degree student with concurrence of both the BioMolecular Science Gateway and the primary department, but currently it is typical that he/she is admitted into the primary program then arranges the secondary affiliation upon choice of a research project.

The student's coursework is split 60%:40% between the primary and secondary departments, with no more than 125% of the typical course load of a single Ph.D. degree being required for the dual major degree (see section IV.A.6 for further details). Obligations for teaching are met in the primary department.

The Guidance Committee shall comprise at least five faculty members, with three members of the primary department and two members from the secondary department. The graduate program practices and policies of the primary department will apply. When BMB is the primary department, one of the three members will be the Departmental Representative appointed by the Graduate Programs Director (see section VII.A.1).

Comprehensive (preliminary) exams are also arranged according to the guidelines of the primary department, and must meet the standards of a guidance committee that includes members from both departments, as previously described. A project-based comprehensive exam like the one in BMB is ideally suited for this (see section VIII).

If a student decides to leave the interdisciplinary degree program, he/she can revert to the requirements of his primary affiliation.

### **III. Admission**

#### III.A. Admission to the Doctoral Program

*III.A.1* Students are usually admitted to the Ph.D. program directly from the B.S. level without earning an M.S. degree, although applicants having an M.S. degree are also considered. Admission is via the BioMolecular Science Gateway, which is described at these websites (<http://biomolecular.msu.edu/> and <http://biomolecular.msu.edu/apply.html>).

*III.A.2* A student in the M.S. program may apply to the Doctoral program via the BioMolecular Science Gateway, but only when his/her M.S. thesis is complete and accepted, and with the written recommendation of his/her M.S. Guidance Committee, the Graduate Programs Director, and written approval by the department Chairperson. Similar recommendations and approval are required for a student who enters our M.S. program but then aspires to the Ph.D. program without obtaining an M.S. degree. The original graduate application should be updated with respect to transcripts, supporting letters, statement of purpose, and other materials described in the application instructions. Evaluation of the acceptability of the applicant to the doctoral program will be based in part on the availability of funds, the student's qualifications and potential compared with other current applicants, and the availability of a professor who will consent to be the research advisor.

#### III.B. Admission to the Master's Program

A student may enter the M.S. program through the BioMolecular Science Gateway or by transferring from the Ph.D. program in this Department to the M.S. program. Such a transfer may be initiated by the student or may be recommended by his/her major professor, Guidance Committee, Comprehensive Examination Committee, or the Graduate Programs Director. A request for transfer should be communicated in writing by the student to the Graduate Programs Director. The written consent of the Graduate Programs Director is required for such a transfer.

## IV. Ph.D. Degree Requirements

### IV.A. Course Program

*IV.A.1.* First-year enrollment. Students entering the doctoral program via the BioMolecular Science Gateway, and intending to obtain a Ph.D. degree in BMB are required to take BMB 801, BMB 829, BMB 805, and two elective courses. Exceptions to these requirements may be made based on previous satisfactory performance in graduate-level courses of similar content; such exceptions are to be approved by the Graduate Programs Director. Students with an entrance deficiency such as physical chemistry are expected to make up the deficiency in their first year by taking appropriate collateral courses in addition to the other required first-year courses.

*IV.A.2.* First-year credit load. Students are expected to enroll for 5 credits (BMB 801 and BMB 829) in Fall semester, and 6 credits (BMB 805 and an elective course) for Spring semester, ~~and 3 credits in Summer semester.~~

*IV.A.3.* Elective courses. Students shall take two elective courses to design a program that will give them thorough preparation in their chosen area of specialization. A list of elective courses to consider may be found at <http://www.bmb.msu.edu/graduate/index.html>. Students may ask for advice from the Graduate Programs Director in the selection of elective courses. During the second year, the Guidance Committee may recommend additional elective courses of relevance to the student's research areas. The Guidance Committee will approve the overall course program and determine requirements beyond the departmental minimum.

*IV.A.4.* Laboratory rotations via the BioMolecular Science Gateway. The purpose of laboratory rotations (3 rotations of 10 weeks each) is to give students an opportunity to experience the research environment in several different laboratories prior to selecting a major professor. This experience allows the student to become well-acquainted with the research focus of a particular laboratory, including the relevant scientific literature, specific project directions, and relevant experimental techniques. The rotations also help students and faculty gain an understanding of whether a fruitful training and mentoring relationship is likely to be established.

The rotation assignments will be made by the BioMolecular Science Gateway Director in consultation with the students and faculty members. For students pursuing a dual-major degree in this department and another program (Microbiology and Molecular Genetics, Physiology, Pharmacology and Toxicology, Cell and Molecular Biology, Genetics, Physics and Astronomy, Chemistry, or Computer Science), these students should inform and obtain approval from this department's Graduate Programs Director, and the director in the respective program.

The specific activities in each rotation may vary among laboratories; these activities and expectations should be defined at the outset by the faculty member. These activities are likely to include reading background and project-specific scientific literature; design, execution and analysis of experiments; discussion of research project opportunities; interactions with other lab members; and presentation of the rotation project effort at a lab group meeting. The supervising faculty member will submit a written evaluation at the completion of each rotation period based on the student's effort and success in meeting the goals of the rotation. This evaluation will be sent to the BioMolecular Science Gateway Director.

#### *IV.A.5. Required Seminar and Ethics Courses.*

IV.A.5.a. In the first year, each student must enroll in the Responsible Conduct of Research workshops conducted by the Graduate School (see section XI.A). This requirement may also be satisfied by participation in a departmentally-approved course in scientific ethics (e.g., NSC 830). In addition to this initial training, 3 hour annual refresher training will include online refresher modules developed by The Graduate School and informal meetings with the student's research mentor(s). All training must be documented by The Graduate School and the BMB Department.

IV.A.5.b. Enrollment in BMB 978 (BMB Colloquium) is required annually from the second year onward (1 credit per year); a cumulative total of four credits in BMB 978 is required. Students completing their degree requirements in less than five years may enroll for BMB978 more than once in a given year.

IV.A.5.c. Students must enroll in at least two graduate seminar courses (BMB 960, BMB 961 or equivalent).

IV.A.5.d. Students must enroll in at least one semester of the BMB 961 section entitled *Instructional Methods in Biochemistry & Molecular Biology* (see section IV.G).

#### *IV.A.6. Dual Major Degree Course Requirements.*

Consider the following as a sample template for an interdisciplinary Ph.D. program in which BMB is either the primary or secondary department, and replace as needed by the relevant information for the departments of interest.

A typical course plan for a traditional BMB Ph.D. student is BMB 801 (3 cr), 802 (3 cr), 805 (3 cr), 829 (2 cr), 978 (1 cr, taken for 4 cr total), and the Responsible Conduct of Research workshops (see IV.A.5.a), with additional courses as advised by the Guidance Committee to complement the student's research. The following interdisciplinary coursework requirements are based

upon requiring no more than 125% of this 18-credit traditional plan and reflect the 60%:40% coursework ratio desired for interdisciplinary Ph.D. training.

IV.A.6.a. *When BMB is the primary affiliation:* At least four graduate courses (excluding graduate seminars) will be taken in BMB, usually at the 800 or 900 level, totaling 12 (or more) credits. Lab rotations are required although the number of rotations undertaken may be flexible especially if the student decides on a dual major program at the outset. Training in instructional methods will be required as for a traditional BMB Ph.D. student. At least three courses (9 or more credits; excluding graduate seminars) will be taken in the secondary area, e.g., Physics, with at least two of the courses at the graduate level.

IV.A.6.b. *When BMB is the secondary affiliation:* At least three courses (9 or more credits that exclude BMB 978) of BMB coursework, with at least two of the courses at the graduate (800 or 900) level. Teaching responsibilities will be determined by the primary department.

#### IV.A.7. Dual Enrollment by Undergraduates

Dual enrollment provides an opportunity for academically talented undergraduate students to enroll in graduate courses and conduct research towards a graduate degree while completing the last two years of their bachelor's degree(s) programs.

To be considered for dual enrollment, the student must first file an Application for Admission to Graduate Study, as indicated under Application Procedure in this section of the catalog and be admitted into a graduate program. Subsequent to admission to a graduate program, in regular status, the student must complete a Request for Dual Enrollment Status form, available from the Office of the Registrar. A student who is accepted for dual enrollment can be admitted to both the undergraduate and graduate degree program upon reaching junior standing.

Within the first semester of dual enrollment, the student's graduate degree program adviser must be identified and the appropriate graduate degree guidance committee established. The adviser and committee assist the student in developing a program of study for the graduate degree. Admission to graduate study must be approved before work to apply toward a graduate degree program is undertaken. Credits completed prior to admission to graduate study *cannot* be applied toward a graduate degree program.

A student will be classified as an undergraduate until the minimum number of credits required for a first bachelor's degree is completed. When the student is classified as a graduate student, eligibility begins for graduate assistantships, other forms of graduate student financial aid, or those services and prerogatives normally reserved for graduate students.

A student pays undergraduate tuition up to the total number of credits required for a first bachelor's degree(s) in his/her major(s), at which point graduate tuition is applicable and students are eligible for graduate fellowships and assistantships. If approved by the graduate program, a maximum of nine credits, at the 400-level or higher, from the undergraduate degree program can be applied toward the requirements for the graduate degree program for credits completed after admission to graduate study.

In semesters when the student is dually enrolled, federal financial aid designated for the first bachelor's degree (Federal Pell Grant and Federal Supplemental Educational Opportunity Grant) will be determined based upon the number of undergraduate credits only. Awards will be manually adjusted as necessary once the student is registered. Students are not eligible for financial aid as a graduate student until the semester after the minimum number of credits required for the first bachelor's degree has been earned.

#### IV.B. Minimum Standards for Retention.

According to University regulations, a minimum cumulative grade point average required for graduation is 3.00 for graduate students. Dismissal from a degree program may be required of a student whose grade point average is below 3.00. A grade of at least 3.00 must be achieved in all required courses. The retention and remediation policies are described in further detail in section X.B.1.

IV.C. Enrollment for a minimum of 24 and maximum of 36 dissertation research credits (BMB 999) is required by the Graduate School.

IV.D. Each student must fulfill the residency and course requirements specified by the College in which (s)he is enrolled and as defined under the Graduate Education section of *Academic Programs* bulletin).

#### IV.E. Time Limit.

A Graduate School regulation specifies that all requirements must be completed within eight years from the time at which a student begins the first class at MSU in his or her doctoral program of study. A reasonable goal for Ph.D. students is five years beyond the B.S. degree (see section XIII.A.).

IV.F. Foreign students must demonstrate fluency in oral and written English as demonstrated by satisfactory grades ( $\geq 3.0$  including remediation) in courses, seminars and scientific writing.

IV.G. To train students in teaching methods in the field of biochemistry and molecular biology, participation in the teaching mission of the Department is required of all candidates, regardless of their source of financial support (see section XIII.D). This participation requires enrollment in a special section of BMB 961 entitled *Instructional*

*Methods in Biochemistry & Molecular Biology*. This is typically completed in the second year, or in the third year in some circumstances. Participation in workshops for teaching assistants, offered by the University, is also encouraged especially for those students anticipating a career in academic science.

IV.H. A Doctoral Guidance Committee must be formed within 12 months after entering the doctoral program via the BioMolecular Science Gateway (see section VII.A) and an initial Guidance Committee meeting must be held within 15 months after entering the doctoral program (see section VII.A.2.a). Any request to delay formulating a Doctoral Guidance Committee or to delay holding an initial meeting because of extenuating circumstances must be approved by the Graduate Programs Director. In the absence of approval by the Graduate Programs Director, the Department will request that the college place an academic hold on the student's enrollment. Releasing this hold will require written approval by the Graduate Programs Director.

IV.I. The comprehensive examination (see section VIII) must be taken no later than Nov. 15 of the third year, with any remediation to be completed by Dec. 15 of that year (unless an extension is authorized by the Graduate Programs Director).

IV.J. Annual meetings with the Guidance Committee. By the end of each 12-month period following the comprehensive examination, the student must meet with his/her Guidance Committee for a review of his/her research and academic progress (see section X.A.2. and X.A.4). A written progress report, summarizing the year's research progress and future plans, must be submitted to the Guidance Committee members one week prior to each annual meeting. Any request to delay an annual meeting because of extenuating circumstances must be approved by the Graduate Programs Director. In the absence of such approval, the Department will request that the college place an academic hold on the student's enrollment.

IV.K. Competence in oral presentation.

Development of skills in orally presenting and evaluating scientific information in an organized and critical fashion is a requirement for the Ph.D. degree. This requirement can be met in the following ways:

*IV.K.1.* Formal oral presentations in 900-level courses or their equivalent.

*IV.K.2.* Journal club or research presentations (attended by more than one laboratory group).

*IV.K.3.* Oral presentations or poster presentations at national or regional meetings. These must be evaluated in the Department by practice presentations prior to the off-campus meeting.

*IV.K.4.* A formal lecture or series of lectures in a biochemistry course (not laboratory presentations).

*IV.K.5.* Satisfactory completion of a course or workshop on public speaking. (Note that the comprehensive examination seminar, the dissertation seminar, and laboratory group research seminars do not meet the requirement.)

Four satisfactory presentations, obtained in at least two of the five approved areas, must be documented by the student before graduation. It is the responsibility of the student to obtain a written statement from a faculty member describing the setting for each oral presentation, and also indicating that the student was provided with feedback on his/her performance. Forms to facilitate the documentation of oral presentations are available from the Graduate Programs Secretary. The completed forms should be returned to the Graduate Programs Secretary for filing with the student's records as soon as possible after each oral presentation.

IV.L. Performance of Independent Research.

The research component of the Ph.D. comprises the completion of a dissertation based on primary research, the presentation of a seminar describing the research efforts, and the oral defense of the dissertation, all in a manner judged to be satisfactory by the Guidance Committee (see section IX.A.). Copies of the dissertation bound in the standard form must be submitted to: (i) the major professor, and (ii) the BMB Graduate Programs Secretary. See recent bound dissertations in the Biochemistry Computer Graphics Facility, Rm. 202 BCH, for the accepted style. The degree will not be certified by the Department until the bound copies of the dissertation have been received; see section IX.A.4. In addition, the candidate is expected to prepare a manuscript or manuscripts based on the dissertation research in a form suitable for publication in the research journals of the field.

IV.M. Such specific additional requirements as may be determined by the Guidance Committee.

IV.N. Failure to satisfy any of the above requirements IV.A-G, I (or sections X.B.1, 2) may result in termination of the student's participation in the doctoral program, as detailed in section X.B.6. If any of requirements IV.K-M (or section VI.B.3) is not satisfied, the Guidance Committee in consultation with the student, the major professor and the Graduate Programs Director will review the circumstances and attempt to design a remedy for the situation, as detailed in section X.B.6.

## V. M.S. Degree Requirements

V.A. A minimum of 30 credits of graduate work is required, including at least 16 course credits at the 800 and 900 levels. The number of research credits (BMB 899) required varies, depending in part on the college in which the student is enrolled (see Graduate Studies bulletin) but must meet a minimum requirement of four credits and may not exceed 10 credits. Courses taken to make up entrance deficiencies and those with less than a 400 course number are collateral courses and cannot be included in the 30-credit total. A maximum of 8 course credits may be transferred from another institution (with a grade of 3.0 or higher in each course) if approved by the student's Guidance Committee and the Graduate School.

V.B. The course program must include BMB 801, 805, 829, and two elective lecture courses or their equivalents taken elsewhere; equivalency is to be determined by the Graduate Programs Director. BMB 802 is strongly recommended. BMB 978 must be taken for one credit per year, from the second year onward, to a minimum of one credit and a maximum of three credits.

V.C. Each student must register for and complete the Responsible Conduct of Research workshops conducted by the Graduate School (see section XI.A), or enroll in a departmentally-approved course in scientific ethics (e.g., NSC 830). In addition to this initial training, 3 hour annual refresher training will include online refresher modules developed by The Graduate School and informal meetings with the student's research mentor(s). All training must be documented by The Graduate School and the BMB Department.

V.D. Foreign students must demonstrate fluency in oral and written English as demonstrated by satisfactory grades ( $\geq 3.0$  including remediation) in courses, seminars and scientific writing.

V.E. An annual meeting with the Guidance Committee chaired by the major professor is required to evaluate academic and research progress and performance. The first meeting between the student and Guidance Committee must occur within twelve months of entering the program. A written evaluation based on the meeting must be prepared and signed by the Guidance Committee members, signed by the student, and submitted to the Graduate Programs Secretary immediately following the meeting for inclusion in the student's file.

V.F. Residency requirements as specified by the College and the Graduate School must be fulfilled. Normally, about three years are needed for the successful completion of degree requirements. All requirements must be completed within six years.

V.G. Completion of a research-based thesis (i.e., plan A) and its oral defense in a manner satisfactory to the Guidance Committee.

V.H. Submission of the unbound thesis to the University, and bound copies to the Department and to the major professor (see section IV.L).

## VI. Selection of Thesis/Dissertation Advisor

### VI.A. General Considerations.

Any regular faculty member in BMB may serve as the major professor (research mentor, thesis advisor). Students may also select a major professor from any of several cognate departments and graduate programs, including the Departments of Microbiology and Molecular Genetics, Physiology, and Pharmacology and Toxicology, or the Programs in Genetics and in Cell and Molecular Biology. Students in the interdisciplinary dual-major degree programs may select a major professor from the participating departments. The major professor serves as the student's academic advisor and normally serves as the student's doctoral dissertation research advisor. So that incoming graduate students may be able to identify the most suitable laboratory in which to do their dissertation research, they are encouraged to become familiar with the research programs in the Department.

If the major professor (research advisor) is a regular faculty member in BMB, then the major professor will chair the Guidance Committee (see section VII). If the major professor (research advisor) is not a regular faculty member in this department, then the Department will assign a regular faculty member to serve as chair of the Guidance Committee.

Several considerations have bearing on the selection of a research laboratory and major professor. The professor must have the financial support and physical space for the student's research. The laboratory should be engaged in research that is of particular interest to the student. The student should develop a suitable rapport with his/her major professor that will promote an atmosphere conducive to the development of the student's creative potential and ability to conduct modern biochemical research. With the foregoing in mind, the following procedures were developed to aid the student in selecting a suitable research laboratory.

### VI.B. Procedures

*VI.B.1.* As part of the orientation program for incoming students each Fall semester, faculty who wish to participate will present their research interests to the assembled incoming graduate students. During orientation, the students are also encouraged to visit the laboratories and become acquainted with the professors and students.

*VI.B.2.* Faculty members will be encouraged to make available to interested students their reprints, research proposals, and a statement of future research goals.

*VI.B.4.* The purpose of rotations is to identify a laboratory and mentor for Ph.D. thesis research. It must be understood that selection of a dissertation research advisor by the student does not guarantee acceptance by the faculty member. Space and funding limitations and differences of research attitude are necessary

factors that must be considered. The student may request assistance from the BioMolecular Science Gateway and Graduate Programs Directors in selecting a laboratory, particularly if difficulties in selecting a mentor are encountered. After a mutual agreement is reached between a student and a professor, the student must immediately notify the BioMolecular Science Gateway and Graduate Programs Directors in writing so that departmental approval and administrative records can be established.

*VI.B.5.* The relationship between the graduate student and the research advisor has a strong bearing on the student's intellectual development and research progress and thus completion of the degree. The student and mentor should strive to realize a mutually pleasant and productive association. However, circumstances can develop in which insurmountable obstacles arise in the relationship, severely impeding the progress in the program. The selection of a dissertation research advisor accordingly need not be irrevocable. Students considering a change of research advisor should consult with the Graduate Programs Director before proceeding. Obviously, such a decision should not be reached lightly.

#### VI.C. Master's Degree Student: Selection of Major Professor

Section VI.B of the Ph.D. program applies here, except that laboratory rotations should not be necessary. It is desirable that the major professor be chosen early, preferably before entering the first semester of graduate study.

## VII. Formation of the Guidance Committee

### VII.A. The Doctoral Guidance Committee

The student is responsible for initiating the selection of the other members of the Guidance Committee as soon as possible after the major professor has been chosen. The Guidance Committee must be selected within 12 months after starting the graduate program via the BioMolecular Science Gateway, or enrollment will be withheld until such time as the Guidance Committee selection is complete (see section IV.H). Students who have previously obtained an M.S. degree from this department should form their committees in the first semester of work toward the Ph.D degree. Assistance will be provided by the major professor and the Graduate Programs Director.

*VII.A.1. Membership.* The Guidance Committee shall normally consist of five members, and must include (i) the major professor (research mentor, thesis advisor), (ii) a minimum of three regular faculty members of this department, one of whom is appointed by the Graduate Programs Director and is designated the Departmental Representative, and (iii) at least one regular faculty member from a department other than BMB. The composition of Guidance Committees of students in dual-major programs is defined elsewhere (II.D.).

If the major professor (The student's research advisor) is a regular faculty member in BMB, then the major professor will normally chair the Guidance Committee. If the major professor (research advisor) is not a regular faculty member in this department, then the Department will appoint a regular faculty member to serve as chair of the Guidance Committee.

Selection of the Guidance Committee members, other than the Departmental Representative, is the responsibility of the doctoral candidate with the advice and consent of the major professor. Because this committee serves as a scientific advisory group for the doctoral thesis research, selection should be based primarily on the relevance of the expertise of the committee members to the student's intended dissertation project. Following this selection, the Graduate Programs Director will appoint the Departmental Representative to the committee. The student may request another faculty member as the Departmental Representative. Substitutions for an absent member of the Guidance Committee, or any other changes in the composition of the Guidance Committee, should be arranged with the Graduate Programs Director by the student and the major professor.

*VII.A.2. Responsibilities.* The Guidance Committee is charged with the following responsibilities:

VII.A.2.a. to hold an initial meeting with the student for the purpose of planning his/her Ph.D. program. This initial meeting, chaired by the major

professor, should be scheduled by the candidate and held as soon as possible after the Guidance Committee has been selected, and *must* be held within 15 months after entering the graduate program via the BioMolecular Science Gateway (see section IV.H.). (Students who have previously obtained an M.S. degree in this department should hold the initial Guidance Committee meeting during their first semester in the doctoral program.) The meeting must include the following: (i) a written summary outline, normally 1 to 3 pages, must be prepared by the student with the advice and consent of the major professor and be presented to each committee member at least two days in advance of the meeting); (ii) a short oral presentation by the student of the proposed dissertation research; (iii) selection of the course work to be required in the student's program; (iv) approval by the committee of the proposed thesis research topic and its general aims and scope; (v) discussion of the preferred format for the written portion of the Comprehensive Examination (see section VIII.F; and (vi) completion of the form entitled "Report of the Guidance Committee — Doctoral and Other Programs." This form, which is available from the Graduate Programs Secretary, should be completed by the Departmental Representative and returned to the Graduate Programs Secretary immediately following the meeting for further processing. The signed form will then be transmitted by the Graduate Programs Secretary to the relevant Dean's office, with copies distributed to the student and to each member of the Guidance Committee. All items described in this paragraph must be completed before the student schedules the comprehensive examination. If the Guidance Committee does not initially concur with the topic, scope or aims of the proposed research project, their concerns should be explicitly outlined to the major professor and the student so that approval of a modified proposal can be obtained at a subsequent meeting prior to the comprehensive exam.

VII.A.2.b. to review the candidate's progress by the end of each 12-month period following the completion of the comprehensive examination. The Graduate Programs Secretary will notify the student and each Guidance Committee member of this obligation at least two months prior to the due date for each annual meeting. The student shall prepare a report (normally 5 to 15 pages) summarizing the year's research progress and future plans, and present a copy to each Guidance Committee member one week prior to each annual meeting. The student is responsible for scheduling the meeting. (Failure to hold this meeting by the deadline will lead to an academic hold on the student's enrollment, which will be released when a meeting date has been set; see section IV.J.) At the meeting, the student will present a 10- to 20-minute oral report. The meeting will include discussion of the report and any other matters relevant to the student's progress in the graduate program. The student's dissertation research advisor may recuse herself/himself from chairing the meeting but may attend as an observer. In such cases, the Departmental Representative will

chair the meeting. Alternatively, the student, or the committee may request the advisor's absence from the meeting. The advisor may then join the other committee members after the meeting for discussion of the student's progress. This annual meeting should serve to: (i) assess whether progress has been made; (ii) provide motivation and opportunity for the student to gain experience in the presentation and defense of his/her work; and (iii) provide opportunity for the members of the committee to make suggestions regarding methods, direction and appropriateness of the research plan outlined by the student, keeping in mind that final decisions regarding the research project are the responsibility of the major professor.

VII.A.2.c. to provide the Graduate Programs Director with an evaluation of the student's progress, as determined in each annual meeting. The Departmental Representative is responsible for the preparation of this report. (A form for reporting the evaluation will be prepared by the Graduate Programs Secretary upon receipt of the written comments from the Departmental Representative. The completed form will be circulated for signature by the Graduate Programs Secretary with a copy maintained in the student's file and the original distributed upon return. If the members reach a consensus evaluation, a single report signed by all members will suffice. Should substantial disagreement occur, individual statements representing minority views should be appended to the report. Any specific additional requirements which the student must meet, as well as how and on what schedule the student will meet the requirement(s), should be included as part of the Committee report. The student must sign the report; if (s)he disagrees with the evaluation, a written rebuttal may be appended. The Committee report and appended documents will become part of the student's permanent file. If the consensus of the Guidance Committee is that satisfactory progress toward the Ph.D. degree cannot be achieved, the Graduate Programs Director and Department Chairperson shall be informed as described in section IV.N. and X.B.6.

VII.A.2.d. to serve, collectively or individually, as resource personnel on matters of professional development as well as matters that may influence academic or research performance.

VII.A.2.e. to evaluate the dissertation and administer the final oral examination in its defense (see section IX.A.).

## VII.B. The Master's Degree Guidance Committee

*VII.B.1. Membership.* The Guidance Committee shall consist of a minimum of three regular faculty members, the majority of which must be from BMB. The Guidance Committee should be selected by the end of the first year in the program. As with doctoral guidance committees, the major professor will chair the Guidance Committee

*VII.B.2. Responsibilities.* The Guidance Committee is charged with the following responsibilities: (i) to plan the M.S. program with the candidate, (ii) to meet annually with the student to evaluate the student's academic and research progress, and (iii) evaluate the thesis and administer the final oral examination in its defense.

## VIII. Comprehensive Examination

### VIII.A. Purpose of the Comprehensive Examination

The purpose of the Comprehensive Examination is to evaluate the student's academic and research progress and potential. The examination provides information to help the student and the faculty determine whether the goals of the student are consonant with his/her abilities and with the standards of the Department, and whether his/her rate of progress merits continued support of the student by the Department in terms of research facilities and resources, faculty time, and direct financial aid.

### VIII.B. Description of the Comprehensive Examination

The Comprehensive Examination consists of the preparation of a written research progress report and proposal (see section VIII.F.), its oral presentation in a public seminar, and its defense before an examining committee. (The composition of the examining committee is described below in section VIII.D.1.) The examination will focus on an evaluation of (i) the studies the student has already conducted in the laboratory of his/her dissertation research advisor, (ii) the proposal for future research that will serve as the basis for the doctoral dissertation, and (iii) the student's knowledge and understanding of the facts and fundamental concepts that are pertinent to the dissertation research. Thus, the student must demonstrate defensible logic in the formulation of questions and in the attempts or proposals to answer these questions experimentally, as well as a knowledge and understanding of the facts and concepts important to the research (See also section VIII.E. on the evaluation of performance.)

### VIII.C. Preparing for the Comprehensive Examination

What is the student be expected to know for the examination, and how should (s)he prepare for it? To answer these questions in part, the following considerations are put forth:

*VIII.C.1.* A BMB doctoral student must know a certain essential body of information in order to understand the field, to communicate with others, and to build upon others' work. Much of this factual knowledge can be learned from course work and from the current basic textbooks of biochemistry and molecular biology. Therefore, early in their graduate careers, students are encouraged to review textbooks to fill in the gaps in their knowledge and understanding, which may be assessed by coursework and conversations with the major professor or Guidance Committee members. Other sources such as those described below complement the learning process.

*VIII.C.2.* The Department is very interested in a student's research potential and capabilities. These are assessed by testing the student's ability to ask significant questions, to synthesize logical hypotheses, to design and execute appropriate experiments to answer these questions, and to interpret the results properly. Thus,

a major aim of the comprehensive exam is to determine if the student can solve biochemical problems logically and creatively. The exam will also require knowledge of various laboratory techniques, including the theoretical basis for methods of isolation, identification, and analysis of biomolecules. Thus, it is to the student's advantage to begin laboratory work as soon as possible, since it is often easier to learn about methods in a practical setting.

*VIII.C.3.* The student will gain in the understanding of contemporary approaches to biochemical problem-solving by reading selective articles in biochemical research journals. This does not mean skimming numerous articles, but carefully analyzing a few selected ones to understand the questions the authors asked, the general approach and specific techniques used to answer the questions, and to what extent the authors actually answered the questions. By making it a practice to look up in standard texts, reference books, and cited articles those matters in these papers that are not understood, students will systematically add to their body of essential biochemical knowledge. This approach augments the review of textbooks and research papers.

*VIII.C.4.* A major distinction between the Doctor of Philosophy and the technician lies in the areas of self-assessment and self-direction, and in understanding the significance of a research problem in the larger context of science. These abilities are learned as the student obtains the specific knowledge, skills, and competencies required of a Doctor of Philosophy in BMB. Part of the student's education involves the process of comprehending what is important to know, what skills are needed, what the priorities are at a given time, and what is effective communication. This requires in large part a self-directed development of scientific judgment and awareness that are obtained through the student's interactions with the major professor, colleagues in the laboratory, and other scientists. Students should call upon faculty members for help in the pursuit of these goals. Progress will occur as the student actively participates in research, laboratory seminars and discussions, departmental seminars, and journal clubs, and reflects on what (s)he is doing and planning to do.

*VIII.C.5.* The dissertation research advisor should not directly participate in the writing of the Comprehensive Examination Progress Report and Research Proposal or in the preparation for the oral presentation. These should represent the student's individual efforts and abilities. Prior to the time that a student begins preparing for the comprehensive examination, the dissertation research advisor is expected to play a major role in preparing the student for this evaluation by directing the student to relevant review and research articles, discussing the scope, significance and specific aims of the project, analyzing data arising from experiments by the student and by others, and discussing strategies for effective writing and oral presentation.

Cases of scientific misconduct due apparently to unintentional plagiarism continue to arise. "Ithenticate" is an anti-plagiarism software that is available on

Desire 2 Learn (<https://d2l.msu.edu/>), and is set up so that faculty, postdocs, and graduate students can check their written work for unintentional plagiarism. Read more at: <http://tech.msu.edu/ithenticate/>.

#### VIII.D. Scheduling and Administration of the Comprehensive Examination

A student may attempt the comprehensive examination if his/her academic performance meets the standards described in section IV.B, and the initial meeting with the Guidance Committee has been held and officially documented by submission of the signed Guidance Committee report (see section VII.A.2.a). For students entering via the BioMolecular Science Gateway, the deadline is November 15th of the third year. If the outcome is other than a Pass without Conditions, the examination must be completed by December 15th of the third year. (Students who have previously earned an M.S. degree in this department must complete the comprehensive examination no later than one month after the beginning of the second year in the Ph.D. program.).

No later than three months before a student's latest possible examination date (i.e., typically by August 15 of the second year), the student shall establish a date for the comprehensive examination in consultation with the guidance committee members and the departmental Comprehensive Exam Organizing Committee (CEOC), who will appoint one member of the examining committee (see VIII.D.1). If a student has not selected an exam date by the indicated deadline, the CEOC will assign an open examination date for that student. If a student feels that the assigned date presents an undue hardship, s/he can request an alternative date by written request to the Graduate Programs Director. The Graduate Programs Director should be kept informed of the examination schedule.

The following procedures and requirements pertain to students who are in the process of scheduling, preparing for, and taking the examination:

*VIII.D.1.* CEOC will select each student's Comprehensive Examination Committee in accordance with the following requirements. The Comprehensive Examination Committee shall consist of a minimum of three BMB Department faculty members (including the Examination Chairperson and the Departmental Representative) and the non-BMB faculty member(s) from the student's Guidance Committee. The Chairperson of a student's Comprehensive Examination Committee will be a member of CEOC who is not a member of the student's Guidance Committee. The Comprehensive Examination Committee will exclude the student's major professor (note that the mentor's role related to the comprehensive exam is described in section VIII.C.5).

For students in dual major degree programs (II.D), the comprehensive exams are arranged according to the guidelines of the primary department. The examining committee shall include members from both departments, with three members from the primary department and two members from the secondary department. If BMB is the primary department, the student's major professor (primary

advisor) is excluded from the Comprehensive Exam Committee. The Guidance Committee in consultation with the Graduate Programs Director will decide whether the secondary advisor should participate in the comprehensive exam.

*VIII.D.2.* The student is strongly encouraged to make use of a Reader for the research proposal prior to the Comprehensive Examination. This Reader may be a faculty member (from BMB or other unit), a postdoctoral researcher, or an advanced graduate student, but the individual must be familiar with the required format and expectations of the exam. The Reader will evaluate and comment on the student's best effort at a progress report and research proposal, emphasizing the writing format, scientific logic, and clarity of language rather than the specific experimental details of the proposed research. The Reader must not be a member of the student's Comprehensive Examination Committee. The Reader will be chosen by agreement between the student, the major professor (research advisor), and the selected individual. To the extent possible, the Reader's expertise should overlap the topic of the student's research. The Reader will try to help the student anticipate problems with the progress report and research proposal with respect to presentation and scientific content. However, the primary responsibility for developing an acceptable proposal rests with the student. Students are encouraged to consult with other students or faculty members, and to make use of other resources such as workshops on proposal writing in order to develop as strong a proposal as possible before giving it to the Reader. If a Reader is used, the student must give the progress report and research proposal to the Reader at least four weeks before the comprehensive examination. The Reader must return the progress report and research proposal to the student within one week. This will allow at least two weeks for the student to make revisions, since a copy of the progress report and research proposal must be given to each member of the Comprehensive Examination Committee at least one week before the comprehensive examination. The identity of the Reader will be revealed to the exam committee and his/her efforts will be publicly acknowledged at the oral presentation.

*VIII.D.3.* The student will set a firm date for the examination after consulting with the members of his/her Comprehensive Examination Committee (date subject to the time limitations stated above). At least one week prior to the scheduled date of the exam, the student must present a copy of his/her Comprehensive Examination Progress Report and Research Proposal to each member of the Comprehensive Examination Committee and to the Graduate Program secretary.

*VIII.D.4.* The public oral portion of the examination (i.e., seminar) should be approximately 50 minutes in length. The closed portion of the examination should be scheduled for the following two hours. The seminar presentation is typically held in Room 208 Biochemistry (scheduled through the departmental staff or website), although comparable rooms in buildings nearby may also be used. Announcements of the seminar should appear in the *BMB Weekly* and on

appropriate bulletin boards. The closed portion of the examination that immediately follows the seminar should be held in one of the conference rooms in the Biochemistry Building or an adjacent building; the candidate is responsible for scheduling these rooms in advance.

*VIII.D.5.* The Comprehensive Examination Committee will attend the oral presentation but will not participate in the public discussion. As soon as the public discussion is completed, the Committee will meet with the student in a pre-scheduled conference room (see above paragraph) for private consideration of the research report and research proposal. Before the closed examination begins, the committee will briefly discuss any relevant general issues and the chair will remind the committee of the purpose, scope and criteria for the examination. Near the conclusion of this examination, the student will be excused from the room while a decision is reached. The chairperson of the student's Comprehensive Examination Committee will inform the student and the major professor/research advisor as soon as possible of the decision and the reason(s) for it. Section VIII.E. describes the criteria used for evaluating performance and the procedure for submitting the required written report of the examination result.

#### VIII.E. Evaluation of Performance on the Comprehensive Examination

The overarching purpose of the Comprehensive Examination is to assess the potential of the graduate student to complete a research project suitable for her/his dissertation, which is the major requirement for the Ph.D. The exam should evaluate the student, and not the project. The following criteria will be used in evaluating student performance on the comprehensive examination. First, the candidate shall demonstrate an understanding of the scope and significance of the research, and shall have defined and defended the specific aims of the proposed project. Second, the candidate shall demonstrate knowledge and understanding of the fundamental concepts on which the thesis project is based. Third, the candidate shall demonstrate adequate knowledge of the basic principles and concepts of biochemistry and molecular biology (metabolism, structure and function of biomolecules, enzymology of nucleic acids). Fourth, the candidate shall demonstrate skill in analytical thinking and in the application of the scientific method to the research topic. Fifth, the student will have made sufficient progress on the research project to demonstrate an ability to execute experiments successfully and to interpret their results. Sixth, the student will have composed a suitable written proposal, including organization of the scientific concepts and appropriate professional writing style. Seventh, the student will have demonstrated adequate oral presentation skills including organization and clarity.

A pass decision shall require that there be not more than one dissenting vote. In cases either of marginal performance, or of strong performance but where areas of weakness were found, the examining committee can take advantage of a full range of options, including recommending or requiring rewriting of the progress report and/or research proposal, execution of certain laboratory procedures, or other alternatives uniquely appropriate to the candidate. Deadlines for completing these remedial activities shall be

defined and must not extend beyond Dec. 15 of the student's third year, unless approval is obtained from the Graduate Programs Director. At the discretion of the examining committee, a discussion may be held with the major professor at the conclusion of the exam. In the event of failure, the committee may recommend that the student apply to the M.S. program (see section III.B.2). The Department believes that recommendation to pursue the M.S. degree is not a punitive measure, but one that may serve to strengthen the candidate. Normally, only one chance will be given to pass the comprehensive examination; however, a second opportunity may be offered on the recommendation of the Comprehensive Examination Committee after consultation with the student's major professor, the Graduate Programs Director, and the student. This decision should be rendered as soon as possible, and no later than one week after the examination date. If a student believes that the evaluation of his/her performance in the comprehensive exam was unfair, Article 2.2.4 of the GSRR (<http://grad.msu.edu/gsrr/>) states that the Dean of the College shall administer the reassessment of the student's performance. In the comprehensive exam, evidence of academic misconduct may lead to dismissal from the program. Section 5.5.2 of the GSRR describes the appeal process. The comprehensive examination, including any repeats, must be passed no later than the end of the first semester of the third year in the program.

The form used to report the examination result is available from the Graduate Programs Secretary. Within one week of the examination date, the completed form must be returned by the Comprehensive Examination Committee Chairperson to the Graduate Programs Secretary for the recording of the result, filing, and distribution of copies to the student, the major professor, the Graduate Programs Director, the CEOC Chairperson, and each member of the examining committee. The chairperson of the student's Comprehensive Examination Committee will inform the student and the major professor/research advisor of the decision without delay (see section VIII.D.5.).

A copy of the student's Comprehensive Examination Progress Report and Research Proposal must be maintained by the Department in the student's file.

#### VIII.F. Format of the Comprehensive Examination Progress Report and Research Proposal

At the first Guidance Committee meeting, the student, mentor and committee should agree on whether the student's Research Proposal should follow the format of a PHS SF424 R01 proposal (<http://grants.nih.gov/grants/funding/424/index.htm>) an NSF proposal (<http://www.nsf.gov/funding/preparing/>), or a generic format, as described below. Regardless of the format, this document should be prepared single-spaced, using 11 or 12 point Arial or other clear font, with figures and tables embedded into the text, a bibliography (including complete lists of authors and reference titles; no limit on the number), and without appendices. Additional details are indicated below.

*VIII.F.1* For students using an NIH format, the text should include Specific Aims (1 page) and Research Strategy (≤12 pages to include Significance, Innovation,

and Approach that includes Preliminary Studies and Planned Studies). Full references are not included within the  $\leq 12$  page limit. Samples of R01 proposals are available on the internet

(<http://www.niaid.nih.gov/researchfunding/grant/pages/appsamples.aspx>).

*VIII.F.2* For students using an NSF format, the text should include a Project Summary (1 page that describes the intellectual merit and broader impacts) and Project Description ( $\leq 15$  pages to include objectives, expected significance, relation to the present state of knowledge in the field, general plan of work, and broader impacts). Full references are not included in the  $\leq 15$  page limit.

*VIII.F.3* For students using a generic format, the text should include Specific Aims (1 page), Introduction ( $\leq 3$  pages; a concise history of the problem area and the main issues that currently occupy attention in the area), Results ( $\leq 5$  pages, describing your principal results, presenting them in graphic, tabular, or other relevant form and in an order that relates clearly to the sequence of questions asked), Proposal for Future Research ( $\leq 5$  pages), and full References (no page limit). (Usually the proposed research will be a continuation of the research problem that the student has described in the Results section. However, if the proposed dissertation research is clearly unrelated to the student's previous research, the proposal should include a separate introduction to the new project of  $\leq 2$  page.)

## **IX. Thesis/Dissertation Defense and Final Oral Examination**

### IX.A. The Doctoral Dissertation

*IX.A.1. Nature and Scope of the Dissertation.* The dissertation must be based on original biochemical and/or molecular biological research that results in a significant contribution to knowledge. A major requirement is that the dissertation must clearly demonstrate that the candidate has reached a state of scientific maturity enabling him/her to perform independent research of high quality. The merit of the research should be commensurate with that published in refereed biochemical journals.

Since the dissertation is a scholarly work that should indicate scientific competence, it should reflect various attributes of the candidate. The foremost of these are:

- Intellectual ability.
- Technical competence.
- Knowledge in depth of the research area.
- Ability to construct and test hypotheses.
- Ability to interpret results and justify the interpretation.
- Ability to be critical.
- Understanding of the significance and limitations of the research findings.
- Ability to communicate in a competent manner.

If a major portion of the dissertation research is completed and similar results are then published by another laboratory, the Guidance Committee should be convened as soon as possible. The candidate should clearly communicate the nature of the problem and bring the committee up-to-date on the work accomplished. The committee will then recommend the course of action to be followed, basing its recommendation on the quantity and quality of the work the candidate has performed. The recommendation might range, depending on the individual case, from allowing the candidate to base the dissertation solely on the work already done to requiring a significant amount of additional experimentation.

*IX.A.2. Preparation of the Dissertation.* The candidate is solely responsible for writing the dissertation; however, the dissertation presented for evaluation by the Guidance Committee should reflect the input and standards of the dissertation research advisor. As a guide to the desired style and form of the dissertation, the students should examine the previously approved dissertations on file that are in room 202 BCH. An electronic dissertation must be prepared in accordance with the specifications in the "The Graduate School Guide to the Preparation of the Master's Theses and Doctoral Dissertations," a handbook that is available, along with a packet of required forms, from the Office of the Graduate School.

The Department abides by the standard set forth in the Academic Programs Catalog (<http://www.reg.msu.edu/AcademicPrograms/Text.asp?Section=111#s399>), which defines a doctoral dissertation as “original research upon which a dissertation, which makes a significant contribution to knowledge is to be prepared and publish”.

- Often, the content of one or more chapters of a thesis /dissertation comes directly from papers already published, often with multiple authors in addition to the author of the thesis/dissertation. In this context, the guidance committee and its chair are urged to consider the appropriateness of including a chapter in a thesis/dissertation that is a multi-authored published paper not written by the author of record of the thesis/dissertation. For a thesis or dissertation that consists of one or more chapters that are already published papers: **(a) These chapters must be introduced with the list of all authors, citation for the publication, and include a copy or of the written permission from the publisher (who generally holds the copyright) to reprint the article. (b) If multiple articles make up the document, these must be “tied together” with a required general introduction and summary/discussion.** The dissertation/guidance committee chair will decide any further requirements.

To avoid unintentional plagiarism, "Ithenticate" that is an anti-plagiarism software is available on Desire 2 Learn (<https://d2l.msu.edu/>). Students can use it to check their written work for unintentional plagiarism. Read more at: <http://tech.msu.edu/ithenticate/>.

The candidate is responsible for the cost of the dissertation. Under some circumstances, the major professor may pay for specific items. For example, the cost of the preparation of figures that will be used for manuscripts as well as for the dissertation may be paid from funds available to the research advisor.

*IX.A.3. Evaluation of the Dissertation and Final Examination Procedure.* At least one week (and preferably two weeks) prior to the scheduled defense date, the candidate shall submit to each Guidance Committee member a copy of the dissertation that represents his/her best effort. The copies should be complete, carefully proofread, clearly reproduced, and in a form that the candidate and the major professor consider as qualifying for the final version. The Guidance Committee should critically review the work. For example, additional experiments to clarify a point, or changes in both presentation and content may be required. Any differences of opinion between a member of the Committee, the candidate, and/or the dissertation advisor should be arbitrated by the entire Guidance Committee. If substantial changes are required, the committee may request that the candidate submit a revision of the dissertation to each member of the Committee for review before final acceptance is given.

To ensure fairness in the examination procedure and maintenance of academic standards, the Dean of the College or the Chairperson of the Department may appoint an outside member to the examining committee, who will read and critique the thesis/dissertation, participate in the oral part of the exam, and submit a report to the Dean of the College and/or the Chairperson of the Department.

As part of the final examination, the candidate will present an open seminar describing the dissertation research. It should be scheduled at a convenient time and must be announced in the *BMB Weekly* and on appropriate bulletin boards.

Immediately following the seminar, the Guidance Committee will meet in private with the candidate to administer the final oral examination in defense of the dissertation. The Departmental Representative should record the Committee's decision on the form, "Record of Completion of Dissertation and Oral Examination Requirements for Doctoral Degree Candidates." In all instances, the acceptability or unacceptability of the dissertation shall be the decision of the Guidance Committee. Acceptance shall require that there be not more than one dissenting vote.

*IX.A.4. Degree Certification.* After completion of the final examination and any required revisions to the dissertation, two bound copies of the Ph.D. dissertation or M.S. thesis must be received by BMB and the major professor, respectively, before the Department will certify to the Graduate School that the degree requirements have been fulfilled. The Graduate School will only accept electronic documents of theses and dissertations via ProQuest. Students have the option to permit her/his thesis or dissertation available to searches using Google, Google Scholar and Google Books. Theses or dissertations that involve potential patents are restricted from public access for a period of six months by ProQuest. Detailed formatting and submission information for preparing documents is available from the Graduate School Web site. Full texts of theses and dissertations are available at <http://libguides.lib.msu.edu/dissertations>. With approval from the Department's Chairperson and Graduate Programs Director, someone other than the candidate is permitted to deliver the bound thesis to the Department if a copy of a receipt from the bindery, and information on the delivery date and name of the person is provided to the Graduate Programs Director.

#### IX.B. The Master's Degree Thesis

The thesis shall demonstrate that the student has acquired the technical skills to plan experiments, to carry them out with precision, and to interpret the results logically. It should be apparent that the candidate has the ability and training to participate successfully as a member of the research team. The thesis must be prepared in accordance with the specifications in the publication, "The Graduate School Guide to the Preparation of Master's Theses and Doctoral Dissertations," obtainable from the Graduate

School. Other aspects of thesis preparation and presentation are as described in the section on doctoral dissertations (see section IX.A), except that an open seminar is not required. Suitably bound copies of the thesis must be presented to the thesis research advisor and to the BMB Graduate Programs Secretary. The degree will not be certified by the Department until the bound copies of the thesis have been received (see section IX.A.4).

## **X. Departmental Policies: Academic Performance**

Graduate students have a right to periodic evaluation of their academic progress, performance, and professional potential (GSRR 2.4.8). Therefore, the Department has developed procedures to review the performance of each graduate student at least once a year. This section of the handbook explains the evaluation procedures and the policies for dismissal due to academic deficiencies.

### X.A. Evaluation

*X.A.1.* In the first year, a student's overall progress and potential will be evaluated by the BioMolecular Science Gateway Director. This evaluation will be transmitted in writing in March, with a copy retained in the student's file. The evaluation will be based on the academic record and on written statements describing the research potential of the student. These statements will be supplied by those faculty members under whom research has been conducted in the rotation system, or as BMB 899 or 999. The content of these statements may be made available to the student.

*X.A.2.* Subsequent annual evaluations will also be provided in March by the Graduate Programs Director, with copies retained in the student's file. They will be based, to a major extent, on written judgments of research progress and potential supplied by the major professor and the Departmental Representative. Graduate students may rebut or appeal any part of the guidance committee's or faculty advisor's evaluations by writing to the Chairperson of the Department or the Graduate Programs Director. This appeal will be filed together with the annual progress report. Serious disagreements may be mediated by the Graduate Programs Director. Performance in course work and on the comprehensive examination will be considered with other available evidence bearing on research progress and professional growth.

*X.A.3.* For doctoral candidates, the comprehensive examination is held within one month after the beginning of the student's third year via the BioMolecular Science Gateway by each student's Comprehensive Examination Committee (see section VIII.). There is no equivalent examination for master's candidates.

*X.A.4.* For doctoral candidates, an annual evaluation by the Guidance Committee is required in the third and subsequent years. Specifically, an annual meeting to evaluate progress shall be held by the end of each 12-month period following the passing of the comprehensive examination. The process for this annual evaluation is detailed in section VII.A.2.b. The Guidance Committee shall provide the Graduate Programs Director with a written evaluation of the student's progress shortly after each annual meeting as specified in section VII.A.2.c. This evaluation should describe any problems that might hinder progress to completion of the degree, and any actions or timeline for addressing those problems. A copy of this evaluation will be given to the student.

*X.A.5.* As a required component of the Ph.D. degree, training in teaching methods is provided by a section of BMB 961 entitled "Instructional Methods in Biochemistry and Molecular Biology." This course acquaints students with the challenges they are likely to confront when teaching Biochemistry and Molecular Biology to undergraduates at the introductory or higher level. Emphasis will be on teaching an analytical approach to problem-solving, and designing problems to test for understanding and not memorization in the assessment of student performance. Topics that are conceptually difficult for undergraduate students will be identified, and strategies for communicating the information will be discussed and practiced. Respective course instructors will mentor Ph.D. students on objectives and instructional methods. In addition to informal discussions with faculty members or the director of BMB961, a written evaluation will be prepared by the faculty member in charge of each course and a grade of Pass/No Pass will be given. Instructor ratings from students enrolled in a course may comprise a component of the evaluation. These evaluations will be transmitted by the faculty instructor to the Graduate Programs Secretary for inclusion in the student's file. The rights and responsibilities of teaching assistants are defined by the MSU/GEU contract (see <http://grad.msu.edu/2011-2015GEUContract.pdf>).

*X.A.6.* The final evaluation will be made by the Guidance Committee after its examination of the doctoral dissertation or master's thesis and the student's performance in its defense. (See section IX.A.3 for doctoral candidates and section IX.B. for master's candidates.)

*X.A.7.* If the performance and/or the progress of a student does not meet departmental standards at any stage in the program, the student will be notified in writing of the deficiency by the Graduate Programs Director. The possible effect of the deficiency on the student's status will be included in such notice, as well as the actions required for remediation and a timeline for completing those actions. This notice will be given to the student as soon as the deficiency is apparent.

## X.B. Minimum Standards for Retention

*X.B.1.* According to University regulations, a minimum cumulative grade point average required for graduation is 3.0 for graduate students. Withdrawal may be required of a student whose grade point average is below 3.0; no graduate degree can be conferred with a GPA less than 3.0. A GPA of at least 3.0 must be achieved in all required courses. Withdrawal from a degree program may be required of a student who receives more than two unsatisfactory grades. An unsatisfactory grade is defined as one below 3.0 in courses required by the Department (see Section IV.B.) or the student's Guidance Committee, or a grade below 2.5 in any other graduate-level course (i.e., 400 level and above).

*X.B.2.* Remediation of unsatisfactory grades. The subject matter of each departmentally required BMB course (see sections IV.A.1, IV.A.3 and IV.A.5) or any other course required by the student's Guidance Committee must be mastered sufficiently well to warrant a grade of at least 3.0. In the event of one grade, or at most two grades below 3.0, a student may attempt to remediate the substandard performance by any means negotiated between the student and the professor(s) who taught the course, and approved by the Graduate Programs Director. Normally the remediation would require the student to repeat the course if it can be done by the Spring semester of the second year; repeating a course may require approval by the College Dean. Completion of an approved remediation procedure to the written satisfaction of the professor(s) with whom it was negotiated, or earning a grade of at least 3.0 upon repeating the course, shall satisfy the requirement.

*X.B.3.* Similar objective standards cannot be described for performance in research. This evaluation must reflect to a major extent the professional, subjective judgment of the faculty concerned. A student may be asked to withdraw from the Ph.D. or Master's degree program on the basis of these judgments alone, regardless of the grade point average. If the consensus is that satisfactory progress is not being achieved in fulfilling these requirements, a recommendation will be made to the Department Chairperson that the student be dropped from the graduate program. If the Department Chairperson concurs in this recommendation, the student may request that his/her case be brought before the faculty (see X.B.6). Normal University procedures, defined in the Graduate Student Rights and Responsibilities document (<http://splife.studentlife.msu.edu/graduate-student-rights-and-responsibilities>), are available for further appeal.

*X.B.4* The admission of a student into a graduate degree program does not guarantee that student a research program of his/her own choosing. Thus, a student who fails, even with the assistance of the Graduate Programs Director, to identify a faculty member who will consent to serve as his/her major professor will be asked to withdraw or may be dismissed from the graduate program.

*X.B.5.* Students must adhere to the ethical standards described in section XI.A of this handbook.

*X.B.6.* Failure to satisfy any of the core requirements of the graduate program (sections IV.A-G, I and X.B.1-2) may result in termination of the student's participation in the graduate program. The Graduate Programs Director will review the circumstances in consultation with the Department Chairperson, who will then render a decision. The student may be invited to participate in this discussion. If the decision is other than termination of the student from the doctoral program, or if the student contests (on the merits of the case) a decision to terminate, the case will be considered as soon as possible at a faculty meeting. The student, the major professor, or any willing member of the faculty chosen by

the student may present his/her case to the faculty. The recommendation may be (i) to retain the student in the program if the student can remediate the substandard performance by a specified procedure and schedule, or (ii) to terminate the student from the graduate program. A majority vote by the faculty present shall decide which alternative to recommend to the Department Chairperson. A quorum is required, and voting shall be by secret ballot. The Department Chairperson must justify to the faculty any action other than that recommended by the faculty. If the decision to terminate the student is upheld by the faculty and the Department Chairperson, the student may appeal this decision to the Dean of the Graduate School.

If the student appeals a decision to terminate on grounds alleging an infringement of her/his rights (rather than on the merits of the case itself), the appeal process should begin with the departmental Student Judiciary committee (see section XII) and thereafter through established University channels. The document named Student Rights and Responsibilities describes procedures for a student to petition a grievance or complaint. Details are presented this document in Appendix 3: Graduate Student Academic Grievance Hearing Procedures.

If any of the additional requirements (sections IV.K-M and X.B.3, 5) is not satisfied, the Guidance Committee in consultation with the student, the major professor and the Graduate Programs Director will review the circumstances and attempt to design a remedy for the situation. If the consensus is that satisfactory progress is not being achieved in fulfilling these requirements, a recommendation will be made to the Department Chairperson that the student be dropped from the graduate program. If the Department Chairperson concurs with this recommendation, the student may request that her/his case be brought before the faculty (see preceding paragraph). Normal University procedures are available for further appeal.

*X.B.7.* A student who is dropped from the graduate program may, with the approval of the Graduate Programs Director and Department Chairperson, be allowed to transfer to the M.S. program. Approval will depend in part on the recommendation of the student's doctoral Guidance Committee or Comprehensive Examination Committee, and on the consent of a regular faculty member who will serve as the master's research advisor. If this alternative is approved by the Department and accepted by the student, the student should notify the Graduate Programs Director of her/his acceptance in writing.

#### X.C. Departmental Files and Access to Student Records

*X.C.1.* GradPlan (<https://login.msu.edu/?App=J3205>) is the official website for all doctoral student program planning, guidance committee reports and changes, comprehensive and final defense reports, submission of the dissertation to the Graduate School, and the final University degree certification. It provides

electronic circulation for checking/approvals and generates automatic emails when needed.

X.C.1.a. The Department also maintains files of student records that include grade transcripts, test scores (GRE, TOEFL), and letters of recommendation.

X.C.1.b. Academic records for work at MSU that include the form entitled "Report of the Guidance Committee, Doctoral and Other Programs" which describes the specific requirements of a student's doctoral program, grade reports for courses taken at MSU, documentation of oral presentations, and certificates of completion for scientific ethics training.

X.C.1.c. Comprehensive exam and progress reports, including a copy of the comprehensive exam proposal, the report of the exam committee (and documentation of any remediation thereof), annual reports of the Guidance Committee (and any formal responses by the student to those reports), annual reviews by the research supervisor (and any formal responses by the student to those reviews), and annual statements regarding financial support for the subsequent year.

X.C.1.d. Nomination and supporting materials for awards and fellowships as well as any announcements that such awards have been conferred.

X.C.2. In addition to the student records accessible at GradPlan (<https://login.msu.edu/?App=J3205>), other records will be maintained in a secure location by the Graduate Programs Secretary.

X.C.3. Access to student records held in the department will be granted to the student (except for those records to which the student has waived the right of access), the faculty advisor / research supervisor, members of the Guidance Committee, the Graduate Programs Director, or the Chairperson of the Department. Normally such access is obtained by request to the Graduate Program Secretary during normal business hours.

X.C.4. Students may request corrections of the information maintained in departmental files (or at GradPlan if she/he requires assistance) by submitting a written request to the Graduate Programs Director. The request should describe the alleged errors in the file and the corrective action requested. The decision on whether an error actually exists and the means of rectifying such errors will be the responsibility of the Graduate Programs Director.

## **XI. Departmental Policies: Integrity and Safety in Research and Creative Activities**

Intent: Integrity in research and creative activities is based on sound disciplinary practices as well as on a commitment to basic values such as fairness, equity, honesty and respect. Students learn to value professional integrity and high standards of ethical behavior through interaction with members of their academic unit and their faculty advisors and by emulating exemplary behavior. This section of the handbook states the Department's expectations for the responsible conduct of research and creative activities of graduate students (GSRR 2.4.7) and defines the criteria for dismissal for reasons other than academic deficiencies, including research misconduct, dishonesty with respect to grades or academic records and scholarship, and violations of professional standards.

### XI.A. Ethical Standards

Scrupulous honesty in the recording, the interpretation, and the use of scientific observations is one of the most important characteristics of a scientist. Only with such honesty can science advance, since its growth depends on accurate and reliable communication of observations within the scientific community and careful interpretation of the meaning of those observations. Accordingly, establishment of proofs of a breach of honesty by a student in the course of study or research performed pursuant to an advanced degree in BMB at Michigan State University shall constitute grounds for dismissal from the graduate program. Presentation of such proofs subsequent to the awarding of an advanced degree shall constitute grounds for revocation of that degree. Article 2.4.9 of the Graduate Student Rights and Responsibilities document (<http://splife.studentlife.msu.edu/graduate-student-rights-and-responsibilities>) describes procedures for dismissal or withdrawal in cases not involving academic dishonesty.

Each faculty advisor and graduate student may obtain the document Guidelines for Integrity in Research and Creative Activities (<http://grad.msu.edu/staff/mentoreport.pdf>). The description of academic misconduct, and procedures used in such instances are described in a document, which can be obtained at [https://www.msu.edu/~acadgov/documents/ISGACapproved2\\_24\\_09final\\_polished\\_editedversion3\\_3\\_09.pdf](https://www.msu.edu/~acadgov/documents/ISGACapproved2_24_09final_polished_editedversion3_3_09.pdf)). Further information on the responsible conduct of science is available at the following website: <https://www.msu.edu/~biomed/rcr/>.

Completion of appropriate training in the responsible conduct of science is a requirement for advanced degrees from this department (section IV.A.5.a). This requirement can be satisfied by attending the Responsible Conduct of Research workshops organized by the Graduate School, and described at the following website: <http://grad.msu.edu/rcr/> or by passing a course dedicated to that topic (e.g., NSC830).

### XI.B. Use of Human Subjects in Research

Extensive University, state and federal regulations have been put in place to protect the rights, welfare and privacy of human subjects who participate in research conducted by students and/or faculty affiliated with MSU. To achieve this goal, the Institutional

Review Boards (IRBs) will 1) require all investigators be educated in the use of human subjects, 2) review all proposed research involving human subjects prior to initiation of the research, 3) approve, modify or disapprove research according to established criteria for protection of human subjects, and 4) monitor approved research to ascertain that human subjects are indeed protected during the performance of the research. The processes of education, review and monitoring serve to ensure the safe and ethical conduct of research that will protect human subjects in an atmosphere of mutual trust and integrity in the pursuit of knowledge and human benefit.

Graduate students must be aware of these regulations and must comply with them fully in the conduct of their research. These regulations and the processes for adhering to them are administered at MSU by the University Committee on Research Involving Human Subjects (UCRIHS) and are stipulated in detail at the relevant University website: <http://www.humanresearch.msu.edu/> .

### XI.C. Use of Animals in Research

Research utilizing animals at MSU is governed by The *Animal Use & Care Program*, developed to ensure the highest standard of care for research animals and strict adherence to federal and state regulations. Any research involving the use of animals must be approved in advance by the *All-University Committee on Animal Use & Care* (AUCAUC). Graduate students must be aware of these regulations and must comply with them fully in the conduct of their research. These regulations and the processes for adhering to them are stipulated in detail at the AUCAUC web site:

<http://www.humanresearch.msu.edu/>

### XI.D. Lab Safety and Security Policies

The management of University laboratory safety regulations and policies is the responsibility of the Office of Radiation, Chemical and Biological Safety (ORCBS). Graduate students are expected to comply fully with the policies and practices stipulated by ORCBS and as supplemented by site-specific safety plans instigated by the Department or by the principal investigator or research supervisor. Initial training in chemical and radiation safety will be routinely conducted as part of the orientation for new graduate students each August. Additional lab-specific safety training is the responsibility of the principal investigator or research supervisor. Annual refresher courses are offered through the ORCBS website, and must be completed by all graduate students for whom those courses are relevant. Each laboratory conducting chemical, radiological or biological experiments will have on site the appropriate training and practices manuals. Further information on these regulations, policies and training is available at the ORCBS website (<http://www.orcbs.msu.edu/>)

## **XII. Student Conduct and Conflict Resolution**

Any student who believes that his/her academic or professional rights have been infringed upon should first seek redress from the individual(s) involved. If a satisfactory conclusion is not reached, the student should present the problem to the Department Chairperson. If the grievance involves the Department Chairperson, the Chairperson of the departmental Faculty Advisory Committee should be contacted. If the problem cannot be resolved at this stage, it may be referred to the departmental Student Judiciary committee. This committee includes faculty and student representatives, as defined in the departmental Bylaws. The functions of the Student Judiciary are as specified in the relevant articles of the Graduate Student Rights and Responsibilities document. Details are presented this document in Appendix 3: Graduate Student Academic Grievance Hearing Procedures. Students may also contact the Office of the University Ombudsperson. This website (<https://www.msu.edu/unit/ombud/grievance-procedures/index.html>) has information on procedures.

The Office of the University Ombudsperson provides assistance to students, faculty, and staff in resolving University-related concerns, which include: student-faculty conflicts; communication problems; concerns about the university climate; and questions about what options are available

for handling a problem according to Michigan State University policy. The University Ombudsperson also provides information about available resources and student/faculty rights and responsibilities. The office operates as a confidential, independent, and neutral resource. It does not provide notice to the University - that is, it does not speak or hear for the University.

Contact the Ombudsperson at any point during an issue when a confidential conversation or source of information may be needed. The Ombudsperson will listen to your concerns, give you information about university policies, help you evaluate the situation, and assist you in making plans to resolve the conflict.

Contact information:

Office of the University Ombudsperson  
129 N. Kedzie Hall  
(517) 353-8830  
ombud@msu.edu  
<https://www.msu.edu/unit/ombud/>

As part of the professional development program, the MSU Graduate School regularly conducts workshops on conflict resolution. Further information on these workshops is available at the following website: <http://grad.msu.edu/conflictresolution/>

### **XIII. Work Related Policies**

This section defines the Department's expectations concerning graduate student's work as graduate research assistants (see section XII.B). This position is formally distinct from a teaching assistantship, which is an appointment described in the current MSU/GEU Contract that provides financial support when BMB graduate students assist in teaching.

XIII.A. A five-year tenure for a student in the doctoral program is a reasonable goal. Hence, the Department assures financial support to Ph.D. students who maintain satisfactory progress and are in good standing. Support beyond five years is subject to review and is dependent on the availability of funds. M.S. students are supported by the availability of her/his research mentor's grants.

XIII.B. The Department views all doctoral candidates similarly regarding their obligations, regardless of their source of financial support from departmental funds, faculty research grants, training grants and fellowships. Although students are officially appointed in various categories (research assistants, NSF fellows, NIH trainees, etc.), we refer to them all as graduate research assistants and operate as if the responsibilities for all the categories were blended and divided equally among all students. These blended responsibilities include: (i) advancing at a reasonable rate the student's own scientific education, including as a major component the development of research abilities; (ii) working toward the discovery and reporting of new scientific information; and (iii)

assisting with the teaching program that includes the more routine educational duties such as proctoring and grading examinations.

#### XIII.C. Research obligations transcend student training.

Research will properly be viewed by the student as an individual responsibility, as a major part of the training program, and as the basis for the presentation of a satisfactory dissertation or thesis. But by accepting departmental support, students also accept the responsibility to their major professors, the Department, the University, the granting agencies, and society in general for continuing effort toward the goal of research results aside from research training.

#### XIII.D. Teaching requirement.

Participation in the teaching mission of the Department is required of all Ph.D. candidates, and is an integral part of a Ph.D. program. The rationale for this requirement is the expectation that many Ph.D. students will subsequently have careers that include significant teaching responsibilities. Furthermore, the teaching experience helps to develop communication skills that are valuable in any career. This teaching experience is incorporated as an integral part of the BMB 961 course in the section entitled *Instructional Methods in Biochemistry & Molecular Biology*.

Ph.D. students generally receive their training in instructional methods during their second year or occasionally in the third year. M.S. students may be asked to participate in their first two years. Graduate students wanting to obtain a certification in teaching should inform the Graduate Programs Director. Students are expected to participate in one or two laboratory courses as well as to hold office hours or recitation sessions for other courses, or to help proctor and grade examinations. Students must understand that several factors determine the type of teaching assignment. In the case of students who are in a joint Ph.D./D.O., or Ph.D./M.D. program (e.g., a COM or CHM Medical Scientist Training Program), the teaching requirement has been waived.

#### XIII.E. Service Obligations.

Students are expected and encouraged to participate fully in the academic and scientific life of the Department. This participation might take various forms, including service on standing or ad hoc departmental committees, and/or proctoring and grading examinations. Such services are generally deferred until the second or third years of the graduate program, although some limited services may be requested during the first year. In some circumstances, students may be financially compensated (e.g., on an hourly pay basis) for such services. The Graduate Programs Director will strive to distribute these responsibilities in an equitable manner among all students having such obligations.

### XIII.F. Other Non-Research Activities.

The major responsibility of a Ph.D. student is scientific research because financial support is from a research assistantship to conduct funded research. Other activities (such as workshops, seminars, internships, committee service, or additional teaching activities) may enhance a student's preparation for her/his future career, but these activities should not unduly hinder progress towards completion of the doctoral degree. To avoid potential conflicts between research and other activities that might affect progress, the student should discuss any such activities with and secure the approval of his/her major professor *prior to* committing to that activity. The purpose of this discussion is to work out an understanding that would accommodate the additional activity while maintaining what would be judged by the major professor as acceptable progress toward completion of the research upon which the dissertation is based.

### XIII.G. Vacation Policy.

Any student who accepts financial support from or through the Department, regardless of the type of the appointment, is viewed by the Department as accepting a responsibility equivalent to that of a half-time graduate assistant. As with other University employees on calendar-year appointments, a graduate assistant is entitled to a total of one month's annual vacation plus those University staff holidays so designated in the University calendar. Between-semester periods and Spring break are not considered to be holidays. Any absence from the University, except those authorized for scientific meetings, etc., must be considered to be part of the one-month annual vacation. Vacations must be arranged with the major professor or, in the first year, with the BioMolecular Science Gateway Director. With these guides, each student is responsible for bookkeeping with respect to vacations. However, a student who plans to be absent from the University area on regular weekdays should notify the Graduate Programs Secretary so that emergency situations can be met.

XIII.H. Grief Absence Policy (as approved by University Council): For master's (Plan A), master's (Plan B) with research responsibilities, and doctoral students, it is the responsibility of the student to: a) notify their advisor/major professor and faculty of the courses in which they are enrolled of the need for a grief absence in a timely manner, but no later than one week from the student's initial knowledge of the situation, b) provide appropriate verification of the grief absence as specified by the advisor/major professor and faculty, and c) complete all missed work as determined in consultation with the advisor/major professor and faculty. It is the responsibility of the advisor/major professor to: a) determine with the student the expected period of absence – it is expected that some bereavement processes may be more extensive than others depending on individual circumstances, b) receive verification of the authenticity of a grief absence request upon the student's return, and c) make reasonable accommodations so that the student is not penalized due to a verified grief absence. If employed as a RA or TE, the graduate student must also notify their employer. Both employer and student will swiftly communicate to determine how the student's responsibilities will be covered during their absence. Graduate teaching assistants (TAs) should refer to the bereavement policy in the

MSU GEU CBU Article 18. Students in the graduate professional colleges (CHM, COM, CVM, LAW) with their own grief absence policies are excluded from the above and should follow their own policies. Students who believe their rights under this policy have been violated should contact the University Ombudsperson.

#### XIII.I. English Language Proficiency.

Foreign students must demonstrate fluency in oral and written English as demonstrated by satisfactory grades ( $\geq 3.0$  including remediation) in courses, seminars and scientific writing.

## **XIV. University Resources**

This section includes a list of university resources available to all graduate students with particular attention to those that apply to the mission of the Department.

### XIV.A. University Policies.

This Handbook is intended and believed to be consistent with University and College policies. Relevant University policies can be obtained from the following websites.

- Academic Programs: [www.reg.msu.edu/ucc/ucc.asp](http://www.reg.msu.edu/ucc/ucc.asp)
- Graduate Students Rights and Responsibilities (GSRR):  
<http://splife.studentlife.msu.edu/graduate-student-rights-and-responsibilities>
- Guidelines for Graduate Student Advising and Mentoring Relationships:  
<http://grad.msu.edu/researchintegrity/docs/ris04.pdf> (p9)
- Guidelines for Integrity in Research and Creative Activities:  
<http://grad.msu.edu/researchintegrity/docs/ris04.pdf> (p12)
- MSU/GEU Contract: <http://grad.msu.edu/2011-2015GEUContract.pdf>

### XIV.B. Colleges and Schools Supporting BMB

*XIV.B.1.* Graduate School ( <http://grad.msu.edu/> )

XIVB.1.a. Dissertation and Graduation Requirements and checklists  
<http://grad.msu.edu/thesisdissertation/submissionpacket.aspx>

XIVB.1.b. Career and Professional Development  
<http://grad.msu.edu/prep/>

XIVB.1.c. Conflict Resolution  
<http://grad.msu.edu/conflictresolution/>

*XIV.B.2.* College of Natural Science ( <http://naturalscience.msu.edu/> )

*XIV.B.3.* College of Human Medicine ( <http://www.chm.msu.edu/> )

*XIV.B.4.* College of Osteopathic Medicine ( <http://www.com.msu.edu/> )

*XIV.B.5.* AgBioResearch  
( <http://www.maes.msu.edu/> )

#### XIV.C. Related Departments and Graduate Training Programs

*XIV.C.1.* Department of Microbiology and Molecular Genetics  
(<http://www.mmg.msu.edu/>)

*XIV.C.2.* Department of Physiology ( <http://www.psl.msu.edu/> )

*XIV.C.3.* Graduate Program in Cell and Molecular Biology  
( <http://www.cmb.msu.edu/> )

*XIV.C.4.* Graduate Program in Genetics ( <http://www.genetics.msu.edu/> )

*XIV.C.5.* MSU-DOE Plant Research Laboratory ( <http://www.prl.msu.edu/> )

#### XIV.D. Additional Support and Services

*XIV.D.1.* ORCBS ( <http://www.orcbs.msu.edu/> )

*XIV.D.2.* University Lab Animal Resources ( <http://www.ular.msu.edu/> )

*XIV.D.3.* Registration ( <http://reg.msu.edu/> )

*XIV.D.4.* Department of Police and Public Safety  
( <http://www.dpps.msu.edu/> )

*XIV.D.5.* Course descriptions ( <http://www.reg.msu.edu/Courses/Search.asp> )

*XIV.D.6.* Course schedules ( <http://schedule.msu.edu/> )

## Appendix 1: Synopsis of the Doctoral Program

1. The First Year
  - a. Completion of first-year courses selected in consultation with the BioMolecular Science Gateway and Graduate Programs Directors (section IV.A.1), including a course or workshop series in scientific ethics (section IV.A.5.a).
  - b. Laboratory rotations (each 10 weeks long) (section IV.A.4).
  - c. Selection of the major professor/dissertation research advisor (section VI.A.)
  - d. Selection of the Guidance Committee (section VII.A).
  - g. Beginning of dissertation research.
  - h. Evaluation of the student's progress by the BioMolecular Science Gateway Director (section X.A.1.)
  
2. The Second Year
  - a. Continuation of dissertation research.
  - b. Enrollment in courses prescribed by the Guidance Committee (section IV.A.3).
  - c. Initial Guidance Committee meeting. This should be held as soon as possible, and *must* be held within 15 months after entering the graduate program via the BioMolecular Science Gateway. At this meeting, (i) the student's written proposal for dissertation research must be presented and discussed, and (ii) the complete course program must be formally decided (section VII.A.2.a).
  - d. Submission of the form entitled "Report of the Guidance Committee--Doctoral and Other Programs." The final typed form must be signed by the student and all members of the Guidance Committee. This requirement should be completed in conjunction with the initial Guidance Committee meeting.
  - e. Completion of a workshop for teaching assistants, if desired.
  - f. Participation in departmental teaching activities as a component of the BMB 961 section entitled *Instructional Methods in Biochemistry & Molecular Biology* (section XII.D.)
  - g. Evaluation of the student's progress by the Graduate Programs Director (section X.A.2.)
  
3. The Third Year
  - a. Continuation of dissertation research.
  - b. Enrollment in courses prescribed by the Guidance Committee (section IV.A.3).
  - c. Satisfactory completion of the comprehensive examination (section VIII.)
  - d. At least partial completion of the requirement for four oral presentations (section IV.K.)
  - e. Presentation of a written progress report by the student to the Guidance Committee.
  - f. Evaluation of the student's progress by the Guidance Committee (section VII.A.2.b, c)
  - g. Evaluation of the student's progress by the Graduate Programs Director (section X.A.2.)

4. Each Subsequent Year
  - a. Continuation of dissertation research.
  - b. Enrollment in courses prescribed by the Guidance Committee and graduate seminar courses (section IV.A.3, and IV.A.5).
  - c. Oral presentations until a total of four has been completed and documented (section IV.K).
  - d. Presentation of a written progress report by the student to the Guidance Committee.
  - e. Evaluation of the student's progress by the Guidance Committee (section VII.A.2.b,c).
  - f. Evaluation of the student's progress by the Graduate Programs Director (section X.A.2).
  
5. The Final Semester
  - a. Seminar on dissertation research.
  - b. Final oral examination in defense of the dissertation (section IX.A.3.)
  - c. Submission of the unbound dissertation to the University, and bound copies to the Department of Biochemistry and to the major professor (section IX.A.4.)
  - d. Submission of manuscripts based on the dissertation to refereed biochemical journals.

## **Appendix 2: Forms used by BMB or by the University for graduate programs.**

### Appendix 2.A. University Forms

1. Report of the Guidance Committee - Doctoral and Other Programs
2. Record of Completion of Dissertation and Oral Examination Requirements for Doctoral Degree Candidates
3. Record of Comprehensive Examinations for Doctoral Degree and Educational Specialist Degree Candidates

### Appendix 2.B. Departmental Forms

1. Guidance Committee Selection form
2. Annual Guidance Committee meeting report form
3. Annual Evaluation by the Graduate Programs Director
4. Comprehensive Examination report form
5. Laboratory Rotation evaluation form
6. Teaching experience evaluation form
7. Oral Presentation Report form
7. Exit form: leaving Department at completion of degree

### **Appendix 3: Graduate Student Academic Grievance Hearing Procedures For the Graduate Program: Department of Biochemistry and Molecular Biology**

Each right of an individual places a reciprocal duty upon others: the duty to permit the individual to exercise the right. The student, as a member of the academic community, has both rights and duties. Within that community, the student's most essential right is the right to learn. The University has a duty to provide for the student those privileges, opportunities, and protections that best promote the learning process in all its aspects. The student also has duties to other members of the academic community, the most important of which is to refrain from interference with those rights of others which are equally essential to the purposes and processes of the University. (GSRR Article 1.2)

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The *Michigan State University Student Rights and Responsibilities (SRR)* and the *Graduate Student Rights and Responsibilities (GSRR)* documents establish the rights and responsibilities of MSU students and prescribe procedures to resolve allegations of violations of those rights through formal grievance hearings. In accordance with the SRR and the GSRR, the Department of Biochemistry and Molecular Biology has established the following Hearing Board procedures for adjudicating graduate student academic grievances and complaints. (See GSRR 5.4.)

#### **I. JURISDICTION OF THE HEARING BOARD OF THE DEPARTMENT:**

- A. The Hearing Board serves as the initial Hearing Board for academic grievance hearings involving graduate students who allege violations of academic rights or seek to contest an allegation of academic misconduct (academic dishonesty, violations of professional standards or falsifying admission and academic records). (See GSRR 2.3 and 5.1.1.)
- B. Students may not request an academic grievance hearing based on an allegation of incompetent instruction. (See GSRR 2.2.2)

#### **II. COMPOSITION OF THE HEARING BOARD:**

- A. The Department shall constitute a Hearing Board pool no later than the end of the tenth week of the spring semester according to established departmental procedures. Hearing Board members serve one year terms with reappointment possible. The Hearing Board pool should include both faculty and graduate students. (See GSRR 5.1.2 and 5.1.6.)
- B. The Chair of the Hearing Board shall be the faculty member with rank who shall vote only in the event of a tie. In addition to the Chair, the Hearing Board shall include an equal number of voting graduate students and faculty. (See GSRR 5.1.2, and 5.1.5.)

- C. The Department will train hearing board members about these procedures and the applicable sections of the GSRR. (See GSRR 5.1.3.)

### **III. REFERRAL TO THE HEARING BOARD:**

- A. After consulting with the instructor and appropriate unit administrator, graduate students who remain dissatisfied with their attempt to resolve an allegation of a violation of student academic rights or an allegation of academic misconduct (academic dishonesty, violations of professional standards or falsifying admission and academic records) may request an academic grievance hearing. When appropriate, the Department Chair, in consultation with the Dean, may waive jurisdiction and refer the request for an initial hearing to the College Hearing Board. (See GSRR 5.3.6.2.)
- B. At any time in the grievance process, either party may consult with the University Ombudsperson. (See GSRR 5.3.2.)
- C. In cases of ambiguous jurisdiction, the Dean of The Graduate School will select the appropriate Hearing Board for cases involving graduate students. (See GSRR 5.3.5.)
- D. Generally, the deadline for submitting the written request for a hearing is the middle of the next semester in which the student is enrolled (including Summer). In cases in which a student seeks to contest an allegation of academic misconduct and the student's dean has called for an academic disciplinary hearing, the student has **10** class days to request an academic grievance to contest the allegation. (See GSRR 5.3.6.1 and 5.5.2.2.)
- E. If either the student (the complainant) or the respondent (usually, the instructor or an administrator) is absent from the university during that semester, or if other appropriate reasons emerge, the Hearing Board may grant an extension of this deadline. If the university no longer employs the respondent before the grievance hearing commences, the hearing may proceed. (See GSRR 5.4.9.)
- F. A written request for an academic grievance hearing must (1) specify the specific bases for the grievance, including the alleged violation(s), (2) identify the individual against whom the grievance is filed (the respondent) and (3) state the desired redress. Anonymous grievances will not be accepted. (See GSRR 5.1 and 5.3.6.)

### **IV. PRE-HEARING PROCEDURES**

- A. After receiving a graduate student's written request for a hearing, the Chair of the Department will promptly refer the grievance to the Chair of the Hearing Board. (See GSRR 5.3.2, 5.4.3.)

- B. Within **5** class days, the Chair of the Hearing Board will:
1. forward the request for a hearing to the respondent and ask for a written response;
  2. send the names of the Hearing Board members to both parties and, to avoid conflicts of interest between the two parties and the Hearing Board members, request written challenges, if any, within **3** class days of this notification. In addition to conflict of interest challenges, either party can challenge two hearing board members without cause (GSRR 5.1.7.c);
  3. rule promptly on any challenges, impanel a Hearing Board and send each party the names of the Hearing Board members. If the Chair of the Hearing Board is the subject of a challenge, the challenge shall be filed with the Dean of the College, or designee (See GSRR 5.1.7.). Decisions by the Hearing Board chair or the College Dean (or designee) on conflict of interest challenges are final;
  4. send the Hearing Board members a copy of the request for a hearing and the respondent's written response, and send all parties a copy of these procedures.
- C. Within **5** class days of being established, the Hearing Board shall review the request, and, after considering all requested and submitted information:
1. accept the request, in full or in part, and promptly schedule a hearing.
  2. reject the request and provide a written explanation to appropriate parties; e.g., lack of jurisdiction. (The student may appeal this decision.)
  3. the GSRR allows the hearing board to invite the two parties to meet with the Hearing Board in an informal session to try to resolve the matter. Such a meeting does not preclude a later hearing. However, by the time a grievance is requested all informal methods of conflict resolution should have been exhausted so this option is rarely used. (See GSRR 5.4.6.)
- D. If the Hearing Board calls for a hearing, the Chair of the Hearing Board shall promptly negotiate a hearing date, schedule an additional meeting only for the Hearing Board should additional deliberations on the findings become necessary, and request a written response to the grievance from the respondent.
- E. At least **5** class days before the scheduled hearing, the Chair of the Hearing Board shall notify the respondent and the complainant in writing of the (1) time, date, and place of the hearing; (2) the names of the parties to the grievance; (3) a copy of the hearing request and the respondent's reply; and (4) the names of the Hearing Board members after any challenges. (See GSRR 5.4.7.)

- F. At least **3** class days before the scheduled hearing, the parties must notify the Chair of the Hearing Board the names of their witnesses and advisor, if any, and request permission for the advisor to have voice at the hearing. The chair may grant or deny this request. The Chair will promptly forward the names given by the complainant to the respondent and visa versa. (See GSRR 5.4.7.1.)
- G. The Chair of the Hearing Board may accept written statements from either party's witnesses at least **3** class days before the hearing. (See GSRR 5.4.9.)
- H. In unusual circumstances and in lieu of a personal appearance, either party may request permission to submit a written statement to the Hearing Board or request permission to participate in the hearing through an electronic communication channel. Written statements must be submitted to the Hearing Board at least **3** class days before the scheduled hearing. (See GSRR 5.4.9c.)
- I. Either party to the grievance hearing may request a postponement of the hearing. The Hearing Board may either grant or deny the request. (See GSRR 5.4.8.)
- J. At its discretion, the Hearing Board may set a reasonable time limit for each party to present its case, and the Chair of the Hearing Board must inform the parties of such a time limit in the written notification of the hearing.
- K. Hearings are closed unless the student requests an open hearing, which would be open to all members of the MSU community. The Hearing Board may close an open hearing to protect the confidentiality of information or to maintain order. (See GSRR 5.4.10.4.)
- L. Members of the Hearing Board are expected to respect the confidentiality of the hearing process. (See GSRR 5.4.10.4.and 5.4.11.)

**V. HEARING PROCEDURES:**

- A. The Hearing will proceed as follows:
  - 1. Introductory remarks by the Chair of the Hearing Board: The Chair of the Hearing Board introduces hearing panel members, the complainant, the respondent and advisors, if any. The Chair reviews the hearing procedures, including announced time restraints for presentations by each party and the witnesses, and informs the parties if their advisors may have a voice in the hearings and if the proceedings are being recorded. Witnesses shall be excluded from the proceedings except when testifying. The Chair also explains:
    - In academic grievance hearings in which a graduate student alleges a violation of academic rights, the student bears the burden of proof.

- In hearings in which a graduate student seeks to contest allegations of academic misconduct, the instructor bears the burden of proof.
- All Hearing Board decisions must be reached by a majority of the Hearing Board, based on a "clear and convincing evidence." (See GSRR 8.1.18.)

(See GSRR 5.4.10.1 and 8.1.18.) For various other definitions, see GSRR Article 8.)

2. If the complainant fails to appear in person or via an electronic channel at a scheduled hearing, the Hearing Board may either postpone the hearing or dismiss the case for demonstrated cause. (See GSRR 5.4.9a.)
3. If the respondent fails to appear in person or via an electronic channel at a scheduled hearing, the Hearing Board may postpone the hearing or, only in unusual circumstances, hear the case in his or her absence. (See GSRR 5.4.9-b.)
4. If the respondent is absent from the University during the semester of the grievance hearing or no longer employed by the University before the grievance procedure concludes, the hearing process may still proceed. (See GSRR 5.3.6.1.)
5. To assure orderly questioning, the Chair of the Hearing Board will recognize individuals before they speak. All parties have a right to speak without interruption. Each party has a right to question the other party and to rebut any oral or written statements submitted to the Hearing Board. (See GSRR 5.4.10.2.)
6. Presentation by the Complainant: The Chair recognizes the complainant to present without interruption any statements relevant to the complainant's case, including the redress sought. The Chair then recognizes questions directed at the complainant by the Hearing Board, the respondent and the respondent's advisor, if any.
7. Presentation by the Complainant's Witnesses: The Chair recognizes the complainant's witnesses, if any, to present, without interruption, any statement directly relevant to the complainant's case. The Chair then recognizes questions directed at the witnesses by the Hearing Board, the respondent, and the respondent's advisor, if any.
8. Presentation by the Respondent: The Chair recognizes the respondent to present without interruption any statements relevant to the respondent's

case. The Chair then recognizes questions directed at the respondent by the Hearing Board, the complainant, and the complainant's advisor, if any.

9. Presentation by the Respondent's Witnesses: The Chair recognizes the respondent's witnesses, if any, to present, without interruption, and statement directly relevant to the respondent's case. The Chair then recognizes questions directed at the witnesses by the Hearing Board, the complainant, and the complainant's advisor, if any.
10. Rebuttal and Closing Statement by Complainant: The complainant refutes statements by the respondent, the respondent's witnesses and advisor, if any, and presents a final summary statement.
11. Rebuttal and Closing Statement by Respondent: The respondent refutes statements by the complainant, the complainant's witnesses and advisor, if any, and presents a final summary statement.
12. Final questions by the Hearing Board: The Hearing Board asks questions of any of the participants in the hearing.

## **VI. POST-HEARING PROCEDURES**

### **A. Deliberation:**

After all evidence has been presented, with full opportunity for explanations, questions and rebuttal, the Chair of the Hearing Board shall excuse all parties to the grievance and convene the Hearing Board to determine its findings in executive session. When possible, deliberations should take place directly following the hearing and/or at the previously scheduled follow-up meeting. (See Section IV.D above.)

### **B. Decision:**

1. In grievance (non-disciplinary) hearings involving graduate students in which a majority of the Hearing Board finds, based on "clear and convincing evidence," that a violation of the student's academic rights has occurred and that redress is possible, it shall recommend an appropriate remedy to the Department Chair or School Director. Upon receiving the Hearing Board's recommendation, the Department Chair or School Director shall implement an appropriate remedy, in consultation with the Hearing Board, within **3** class days. If the Hearing Board finds that no violation of academic rights has occurred, it shall so inform the Chair or Director. The Chair of the Hearing Board shall promptly forward copies of the final decision to parties and the University Ombudsperson. (See GSRR 5.4.11.)

2. In grievance (non-disciplinary) hearings involving graduate students in which the Hearing Board serves as the initial hearing body to adjudicate an allegation of academic dishonesty and, based on "clear and convincing evidence," the Hearing Board finds for the student, the Hearing Board shall recommend to the Department Chair or School Director that the penalty grade be removed, the Academic Dishonesty Report be removed from the student's records and a "good faith judgment" of the student's academic performance in the course take place. If the Hearing Board finds for the instructor, the penalty grade shall stand and the Academic Dishonesty Report regarding the allegation will remain on file, pending an appeal, if any to the College Hearing Board within **5** class days of the Hearing Board's decision. If an academic disciplinary hearing is pending, and the Hearing Board decides for the instructor, the graduate student's disciplinary hearing before either the College Hearing Board or the Dean of The Graduate School would promptly follow, pending an appeal, if any, within **5** class days. (See GSRR 5.5.2.2 and 5.4.12.3)

C. Written Report:

The Chair of the Hearing Board shall prepare a written report of the Hearing Board's findings, including recommended redress or sanctions for the complainant, if applicable, and forward a copy of the decision to the appropriate unit administrator within **3** class days of the hearing. The report shall indicate the rationale for the decision and the major elements of evidence, or lack thereof, that support the Hearing Board's decision. The administrator, in consultation with the Hearing Board, shall then implement an appropriate remedy. The report also should inform the parties of the right to appeal within **5** class days following notice of the decision, or **5** class days if an academic disciplinary hearing is pending. The Chair shall forward copies of the Hearing Board's report and the administrator's redress, if applicable, to the parties involved, the responsible administrators, the University Ombudsperson and the Dean of The Graduate School. All recipients must respect the confidentiality of the report and of the hearing board's deliberations resulting in a decision. (See GSRR 5.4.12 and 5.5.2.2)

## **VII. APPEAL OF THE HEARING BOARD DECISION:**

- A. Either party may appeal a decision by the Hearing Board to the College Hearing Board for cases involving (1) academic grievances alleging violations of student rights and (2) alleged violations of regulations involving academic misconduct (academic dishonesty, professional standards or falsification of admission and academic records.) (See GSRR 5.4.12.)
- B. All appeals must be in writing, signed and submitted to the Chair of the College Hearing Board within **5** class days following notification of the Hearing Board's

decision. While under appeal, the original decision of the Hearing Board will be held in abeyance. (See GSRR 5.4.12, 5.4.12.2 and 5.4.12.3.)

- C. A request for an appeal of a Hearing Board decision to the College Hearing Board must allege, in sufficient particularity to justify a hearing, that the initial Hearing Board failed to follow applicable procedures for adjudicating the hearing or that findings of the Hearing Board were not supported by "clear and convincing evidence." The request also must include the redress sought. Presentation of new evidence normally will be inappropriate. (See GSRR 5.4.12.1, 5.4.12.2 and 5.4.12.4.)

### **VIII. RECONSIDERATION:**

If new evidence should arise, either party to a hearing may request the appropriate Hearing Board to reconsider the case within **30** days upon receipt of the hearing outcome. The written request for reconsideration is to be sent to the Chair of the Hearing Board, who shall promptly convene the Hearing Board to review the new material and render a decision on a new hearing. (See GSRR 5.4.13.)

### **IX. FILE COPY:**

The Chair of the Department shall file a copy of these procedures with the Office of the Ombudsperson and with the Dean of The Graduate School. (See GSRR 5.4.1.)

Approved by Faculty (June 1, 2015)