

ACADEMIC AND OPERATIONAL POLICIES
OF THE
GRADUATE PROGRAM
IN
BIOCHEMISTRY AND MOLECULAR BIOLOGY

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DISCLAIMER

This Program information booklet is not intended as a formal publication of the University of Texas Medical Branch. It is for Departmental and Program use only and, as such, should not be relied upon as the sole source of information regarding the Graduate Program. Refer to the Graduate School of Biomedical Sciences at Galveston Policies and Operations Manual for specific policy details and to the UTMB General Catalog for general information and a brief overview of the Biochemistry and Molecular Biology Program.

While every effort has been made to assure accuracy and timeliness of this Policy and Procedures, the University of Texas Medical Branch at Galveston is not responsible for any misrepresentation which might arise through error or its' preparation or through failure to give notice of changes in requirements, policies, tuition and fees, course offerings and other matters affecting students or applicants. The provisions of this booklet do not constitute an irrevocable contract between any student or applicant for admission and the University of Texas Medical Branch at Galveston.

The University reserves the right to withdraw courses at any time, to change fees and tuition, academic calendars, curricula, degree requirements, graduate procedures and any other requirement affecting students. Changes will become effective whenever the proper authorities so determine and will apply to both prospective students and those already enrolled.

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APPENDIX I - Membership Policy (Graduate Faculty Only)

ACADEMIC AND OPERATIONAL POLICIES OF THE
BIOCHEMISTRY AND MOLECULAR BIOLOGY GRADUATE PROGRAM

I. Standards for the Ph.D. Degree in BMB

1. Candidates should demonstrate a general knowledge of modern biological sciences and a detailed knowledge of their area of research.
2. Candidates should be familiar with the research literature of their particular area of research, should keep abreast of major developments and have the ability to acquire a working background in any area of biological research.
3. Candidates should demonstrate skill in the recognition of significant problems and questions in their research area.
4. Candidates should demonstrate technical and analytical skills in the laboratory.
5. Candidates should have acquired oral, written and other scientific communication skills.
6. Candidates should have demonstrated competence in designing experimental protocols, thinking independently and conducting productive self-directed research.
7. Candidates should complete degree requirements in a timely fashion.
8. Candidates should understand and practice professional and ethical standards of behavior.

II. Organizational Framework

A. *BMB Graduate Program Faculty*

1. The BMB Graduate Program will be the responsibility of the BMB Graduate Faculty.
2. Membership in the BMB Graduate Program Faculty requires:
 - a. membership in the Graduate Faculty of the University of Texas Medical Branch Graduate School of Biomedical Sciences
 - b. willingness and capability to teach graduate courses in the Program
 - c. willingness and capability to supervise degree candidates in the Program
 - d. willingness and capability to participate on Program Committees
3. Membership will be recommended by the Credentials Committee and by majority vote of the BMB Graduate Program faculty members and may be considered without respect to departmental affiliation (See Appendix I, BMB Membership Policy). The Dean of the Graduate School of Biomedical Sciences requires final approval before membership is granted.
4. Other faculty may participate in the Program as Special Members of the Graduate Faculty (for mechanism, see Graduate School Bylaws).

5. Specific responsibilities of the Graduate Program Faculty include:
 - a. recommendation concerning membership
 - b. recommendation of students for admission to the Program
 - c. recommendation of admission of students to Candidacy
 - d. recommendation for changes in graduate courses
 - e. designation of responsibilities for dissertations
 - f. recommendation for dismissal of students from the Program
 - g. serve on at least one Program Committee

B. *Graduate Program Director*

1. The BMB Graduate Program administrative officer shall be the BMB Graduate Program Director.
2. The BMB Graduate Program Faculty shall elect the Program Director from a slate of candidates submitted by the Graduate Dean. The candidates will be selected by the Graduate Dean from nominees solicited by the Dean. The Director shall serve a two-year term and may be re-elected.
3. The responsibilities of the Graduate Program Director include:
 - a. general administration of the Program, including *ex officio* membership on the Program Committees
 - b. the development of the Program
 - c. all matters pertaining to the advising of graduate students in the Program (with the assistance of the Evaluation and Supervisory Committees)
 - d. maintaining archival records of student performance as determined by the BMB Department Records Retention Officer in accordance with university policy
 - e. in conjunction with the Evaluation Committee, monitoring the grades and progress of each student to ensure early detection of problems
 - f. advising the Dean of the Graduate School as to the composition of the individual supervisory committees.
4. In the absence of the Program Director, the Dean of the Graduate School will appoint an Acting Program Director.

C. *Meetings*

1. Meetings of the Graduate Program Faculty will be called by the Program Director, either on his/her initiative or at the request of a Committee Chair. The frequency of meetings should be at least one per term. A quorum will consist of one-third of the membership.
2. Two (2) students will be treated as non-voting members at meetings of the BMB Graduate Program Faculty. These student representatives shall be chosen by the BMB graduate students, subject to Program Director approval, and shall include one person at the beginning level (before the Qualifying Examination) and one with advanced standing (having been admitted to Candidacy). Student representatives will be asked to leave the meeting when the business-at-hand may be construed as a conflict of interest for the student representatives; such cases would include consideration of student applicants to the Program, academic performance of students and application of faculty to the Program Faculty.

D. Policy Decisions

Policy matters will be decided at meetings of the Graduate Program Faculty in BMB. Proposals for policy changes may be made by the Program Director, committees or individual members (including student representatives). Normally, policy proposals should be acted on first by the appropriate committee and then voted on by the Graduate Program Faculty. Written notification of proposed policy changes shall be provided to the Program Faculty at least two weeks before the meeting at which the change is to be voted upon. Votes may also be conducted by email. Policies can be changed by a majority vote of the Program Faculty

E. Standing Committees

1. Advisory/Coordinating Committee

- a. The Advisory/Coordinating Committee will consist of the BMB Graduate Program Director, who will Chair the Committee, the BMB Departmental Chair or one of the Departmental Vice-Chairs and three (3) members of the BMB Graduate Program, to be elected at-large.
- b. The three (3) members of the BMB Graduate Program, elected at-large, will serve three (3) year terms that will be staggered so that under normal circumstances one new member will be elected each year.
- c. The Advisory/Coordinating Committee will appoint BMB faculty to serve on all the standing committees of the Program. Each member of the BMB Graduate Program shall serve on at least one committee. Initially, members will be appointed for one, two or three years of service. No individual shall serve concurrently on more than one of the following standing committees: Curriculum, Evaluation and Examination.
- d. It is intended that the elected members of the Advisory/Coordinating Committee and the appointed members of the various standing committees will reflect the different teaching and research interests of the Faculty.
- e.
- e. The same members will serve as the Advisory Committee to provide counseling to the Director.

2. Admissions Committee

- a. Admission of students will be recommended by the Program Admissions Committee, and subject to final approval by the Dean of the Graduate School. The Program Admissions Committee will be composed of at least four (4) graduate program members who will elect a Chair.
- b. The Committee will advertise the Program in concert with the Recruitment Committee.
- c. Screen applicants and make recommendations for admission or rejection of applicants to the BBSC Admissions Committee and/or Dean of the Graduate School.

- d. The Chair of this Committee will serve on the BBSC Admissions Committee with the approval of the Director of BBSC (See Appendix I)

3. **Credentials Committee**

- a. The Credentials Committee will consist of at least five (5) members. The Coordinating Committee will appoint the Chair.
- b. The Committee will examine the credentials of faculty wishing to become members of the BMB Graduate Program Faculty.
- c. Make recommendations concerning such applications.
- d. Make recommendations concerning removal of members from the BMB Graduate Program Faculty.
- e. Evaluate members every three (3) years.
- f. Review membership of faculty who leave the university.

4. **Curriculum Committee**

- a. The Curriculum Committee shall include at least five (5) faculty members and three (3) non-voting student members who have been admitted to Candidacy. The Committee will elect a Chair from among the faculty members.
- b. The Committee will make recommendations concerning course scheduling and staffing. The Committee will poll students in the Program every semester in order to better coordinate the elective courses to be offered in the subsequent semester.
- c. Make recommendations concerning development and approval of new courses.
- d. Monitor and evaluate courses, using student and faculty feedback.
- e. Make recommendations for modifications or deletion of courses.
- f. The Chair of this Committee will serve on the Graduate School Curriculum Committee.

5. **Evaluation Committee**

- a. The Advisory/Coordinating Committee will appoint the members of the Evaluation Committee.
- b. The Evaluation Committee will consist of five (5) members and will include BMB Graduate Program faculty who are actively teaching in BBSC courses or BMB required courses. If a faculty member has a student up for evaluation, that person must recuse himself/herself.

- c. Appointment to this Committee will be staggered and last for three (3) consecutive years.
- d. The Committee will evaluate each student's performance in course-work, laboratory rotations, Written and Oral Qualifying Examinations, seminar presentations, and other basic skills that make a successful Ph.D. candidate.
- e. Decisions by the Evaluation Committee must be made by a quorum of four (4) members.
- f. The Evaluation Committee will present its recommendation regarding the student's advancement to Candidacy to the full Graduate Program Faculty, to be voted on by a quorum.
- g. After admission to Candidacy, each student's progress will be monitored by his/her faculty mentor and Supervisory Committee.

6. **Examination Committee**

- a. The Written Examination Committee for Part I of the qualifying examination shall consist of faculty members knowledgeable in the different research areas of each of the students taking the qualifying examination. The Committee will elect a Chair.
- b. The Written Examination Committee will communicate the results of the examinations to the Oral Examination Committee. To provide continuity between Parts I and II of the qualifying examination, either primary or secondary reviewer shall serve on Oral Examination Committee.

7. **Orientation Committee**

- a. The Orientation Committee shall consist of a minimum of two (2) faculty and six (6) students, representing the different areas of concentration of the Program. Student members may not Chair the Committee. The Committee will elect a Chair.
- b. Will be responsible for introducing and orienting graduate students to the Program.
- c. The Committee will ensure incoming students become familiar with the faculty and the different areas of expertise of the faculty. Recruit faculty and students to assist in administering the activities during the Orientation weeks.

8. **Recruitment Committee**

- a. The Recruitment Committee shall consist of at least four (4) members, representing the different areas of concentration of the Faculty and two (2) student members. The Committee will elect a Chair. At least one member is encouraged to attend each Admissions Committee meeting to facilitate continuity of goals.
- b. The Committee will advertise the Program.

- c. The Committee will actively recruit outstanding student applicants provided by the Admissions Committee.

F. *Ad Hoc Committees*

The BMB Graduate Program Director may appoint *ad hoc* committees for specific purposes and for limited terms.

III. Admissions Policy

A. *General*

1. Admission of students into the BMB Graduate Program shall be contingent upon the person's qualifications and the availability of a position in the Program.
2. All admissions must conform to the requirements of the Graduate School of Biomedical Sciences and are subject to the approval of the Graduate Dean, but the Program may add additional requirements.
3. Due to the sequence and prerequisite requirements of core courses within the BBSC and BMB Graduate Program, applicants not holding a Master's Degree will only be accepted into the Program in the Fall semester, except under extraordinary circumstances. Graduate Assistantships are ordinarily not available except to students entering in the Fall semester.
4. This procedure will not apply to M.D./Ph.D. students who will be processed according to the Medical School schedule in the Fall.

B. *Specific Requirements*

The Program Admissions Committee evaluates applications on their own merits on a case-by-case basis as determined by the Graduate School guidelines.

C. *Graduate Record and TOEFL Examinations*

1. All students applying for admission to the Program, including foreign students, are required to take the GRE and to have official scores sent to the Graduate School, although the Program may evaluate the applicant without an official score. GRE scores will be used on a case-by-case fashion and further analysis of scores will be carried out as needed.
2. TOEFL requirements as determined by the Graduate School of Biomedical Sciences.

D. *Letters of Reference*

Individuals who can evaluate the integrity, accomplishments, academic potential and capabilities of the applicant; three (3) letters of reference should be sent directly to the Office of the Registrar.

E. *Interview*

Applicants are interviewed by telephone and may be asked to come to Galveston for a personal interview.

F. *Special Circumstances*

The BMB Graduate Program Faculty may, on occasion, recommend that a student who has not met all of the admission criteria be allowed to take courses as a Special Student as evidence of his/her qualifications for admission.

G. Admission is subject to the approval of the BBSC Admissions Committee, Director of Basic Biomedical Sciences Curriculum and the Dean of the Graduate School of Biomedical Sciences.

IV. **Course of Study for the BMB Graduate Program**

A. *General*

Ph.D. Degree

During the first year of the Program, students in the Ph.D. Program are assisted in acquiring a broad knowledge of biochemistry, biophysics, genetics, cell biology and molecular biology through a series of courses in these areas (see curriculum below). Students also pursue research projects under the supervision of faculty of their own choosing. After completion of the core curriculum, students are required to pass a Qualifying Examination prior to admission to Candidacy (generally in Term II of the second year). The Examination consists of both a written and an oral component and includes presentation and defense of a dissertation research proposal. Admission to Candidacy requires fulfillment of all Program requirements.

After successful completion of the Qualifying Exam, students will be allowed to register for Research (BMB 6097) a maximum of three (3) terms. Failure to be admitted to Candidacy by the end of the third term after successfully completing the Qualifying Examination is grounds for dismissal from the Graduate School

The student in consultation with his/her faculty advisor and the Evaluation Committee determines specific course requirements.

A dissertation describing the results of the student's original research is required of all Candidates. The research work will be conducted under the direct supervision of a faculty mentor and will be monitored by a Supervisory Committee consisting of at least three faculty members from this Program, one from another Graduate Program at UTMB and one from another institution. The Ph.D. Candidate will present the results of his/her findings in a publicly advertised seminar and defend the work before the student's Supervisory Committee, a Graduate Committee appointed by the Dean of the Graduate School. Completion of the Doctoral degree usually requires four to five years, depending on the prior preparation of the student and upon the choice of dissertation projects. Graduate School rules require that the defense of the dissertation must be completed within five years after admission to Candidacy.

If a student requests to change from a PhD to Masters and vice versa, a letter from the student to the Director explaining the reason why is required prior to approval.

If a student does this process from a different program, then this student must be reviewed by the Admissions Committee of the new Program. This committee has the power to decline this admission/transfer.

M.S. Degree

The Graduate Program in Biochemistry and Molecular Biology offers a Master of Sciences degree to a limited number of students. The M.S. program is not available upon admission but may be offered, with permission of the Program Director and approval by the Dean of the Graduate School, as an alternative to current students under special circumstances. Master's degree candidates participate in the core curriculum as prescribed for Ph.D. candidates, with the exception of BMB 6195.

The M.S. student carries out a research project which results in either a Master's thesis or a paper written by the student as a first author, which is published in a peer reviewed journal.

The Master's Thesis Proposal must strictly adhere to the following guidelines:

1. General formatting:
 - ❖ 25 page minimum (excluding title page, table of contents and references)
 - ❖ Font size 12
 - ❖ Double- spaced
 - ❖ 1-inch margins with page numbers
 - ❖ Submitted as a PDF file to Graduate Program Office
2. Title page: Include the title, your name and lab affiliation
3. Table of Contents
4. All figures and tables should be incorporated into the body of the text under appropriate sections with clear labels, figure legends and statistics where appropriate; define all abbreviations
5. Body of thesis (follow recommendations of master's committee for specifics):
 - a. Abstract
 - b. Introduction
 - c. Methods
 - d. Results
 - e. Discussion
 - f. References

Master's Degree Supervisory Committee

1. The student shall select a Supervisory Professor with the latter's consent. The Supervisory Professor will be a member of the BMB Graduate Program Faculty. An *Associate Member* may assume this role, subject to approval by the Program Director, the Credentials Committee and the Graduate Dean.
2. The Supervisory Professor will be in charge of the student's Master's thesis and will be a member of the Master's Supervisory Committee but may not serve as the Committee Chair.
3. The Master's Degree Supervisory Committee will consist of at least three (3) regular, associate or special members of the graduate faculty, two of whom are from the student's program (one being the supervisory professor), and one whose primary area of scientific expertise is different from that of the supervisory professor. In general, this person will be from a graduate program other than that of the student, but in some cases a faculty member who holds an appointment within the student's program may qualify. Approval by the Program Director and the GSBS Dean is required to ensure the appropriate scientific qualifications and diversity of the committee.
4. The Master's Degree Supervisory Committee shall ensure the student satisfies all of the requirements for the Master's degree. Final approval of the student's thesis is the responsibility of the Graduate Dean.

B. Curriculum Requirements

Ph.D. Curriculum Requirements

Overall Requirements:
6 credits (3 classes) from list of **Core** courses
8 additional credit hours of electives prior to graduation

BBSC courses/modules do *not* meet the elective requirement

Basic Biomedical Sciences Curriculum

Students must fulfill the Basic Biomedical Sciences Curriculum.

Core Courses

Students select and take 3 of the following core courses (total of 6 credits):

BMB 6207 - Cell and Gene Regulation in Stress Biology (2 Credit Hours)

BMB 6208 - Genomics, Proteomics, and Bioinformatics (2 Credit Hours)

BMB 6209 - DNA Repair, Mutagenesis, Replication, and Environmental Toxicology (2 Credit Hours)

BMB 6222 - Hormone Action and Cancer Cell Biology (2 Credit Hours)

BMB 6223 - Molecular, Cellular, and Genetic basis of Aging (2 Credit Hours)

BMB 6224 - Structural Biology and Biophysical Chemistry (2 Credit Hours)

Electives

Students also take 8 hours of elective credits prior to graduation. Elective credits can be through BMB or other GSBS graduate programs (except BBSC courses) and should be selected to provide the necessary knowledge base for the candidate's research project.

Additional Required Courses

BMB 6195 - student seminar course, taken in the spring semesters of the 2nd, 3rd, and 4th years. Students will attend student seminars and will present their own research once a year during the 3rd and 4th years.

BMB 6196 - Current Concepts in Biochemistry & Molecular Biology (Faculty Seminars), taken in the fall and spring semesters of 1st, 2nd, 3rd, and 4th years.

Typical Schedule

Below is a typical schedule for students in the BMB program. Students are registered for a minimum of 9 hours per term. Each academic year is divided into three terms starting in September, January, and May, respectively.

Year 1

Basic Biomedical Sciences Core Curriculum

BMB courses

BMB 6196 Current Concepts in Biochemistry & Molecular Biology

Year 2

Term I

BMB 6097 Research

BMB 6196 Current Concepts in Biochemistry & Molecular Biology

BMB Core Courses as needed

BMB or other Electives as needed

Grant writing workshop in late fall

Term II

BMB 6097 Research

BMB 6195 Seminar
BMB 6196 Current Concepts in Biochemistry & Molecular Biology
BMB Core Courses as needed
BMB or other Electives as needed
Qualifying exams

Term III

BMB 6099 Dissertation
OR
BMB 6097 Research
BMB Core Courses or Electives as needed

Years 3+

BMB 6099 Dissertation
BMB 6195 Seminar (spring) 1
BMB 6196 Current Concepts in Biochemistry & Molecular Biology
(fall & spring)
BMB Core Courses or Electives as needed

M.D./Ph.D. Curriculum Requirements

Overall Requirements:
6 credits (3 classes) from list of **Core** courses
4 additional credit hours of electives prior to graduation

BBSC courses/modules do *not* meet the elective requirement

Core Courses

Students select and take 3 of the following core courses (total of 6 credits):

BMB 6207 - Cell and Gene Regulation in Stress Biology (2 Credit Hours)

BMB 6208 - Genomics, Proteomics, and Bioinformatics (2 Credit Hours)

BMB 6209 - DNA Repair, Mutagenesis, Replication, and Environmental Toxicology (2 Credit Hours)

BMB 6222 - Hormone Action and Cancer Cell Biology (2 Credit Hours)

BMB 6223 - Molecular, Cellular, and Genetic basis of Aging (2 Credit Hours)

BMB 6224 - Structural Biology and Biophysical Chemistry (2 Credit Hours)

Electives

MD/PhD students also take 4 hours of elective credits prior to graduation. Elective credits can be through BMB or other GSBS graduate programs (except BBSC courses) and should be selected to provide the necessary knowledge base for the candidate's research project.

Additional Required Courses

BMB 6195 - student seminar course, taken in the spring semesters of at least the first two years in the program. Students will attend student seminars and will present their own research at least once.

BMB 6196 - Current Concepts in Biochemistry & Molecular Biology (Faculty Seminars), taken in the fall and spring semesters of the first two years in the program (at least 4 times).

Typical Schedule

Below is a typical schedule for MD/PhD students in the BMB program. Students are registered for a minimum of 9 hours per term. Each academic year is divided into three terms starting in September, January, and May, respectively.

Year 1 in BMB Program

Term I

BMB 6097 Research

BMB 6196 Current Concepts in Biochemistry & Molecular Biology

BMB Core Courses as needed

BMB or other Electives as needed

Grant writing workshop in late fall

Term II

BMB 6097 Research

BMB 6195 Seminar

BMB 6196 Current Concepts in Biochemistry & Molecular Biology

BMB Core Courses as needed

BMB or other Electives as needed

Qualifying exams

Term III

BMB 6099 Dissertation
OR
BMB 6097 Research
BMB Core Courses or Electives as needed

Years 2+ in BMB Program

BMB 6099 Dissertation
OR
BMB 6097 Research
BMB 6195 Seminar (spring) 1
BMB 6196 Current Concepts in Biochemistry & Molecular Biology
 (fall & spring)
BMB Core Courses or Electives as needed

C. *Elective Courses*

1. Elective courses may include graduate courses offered from other graduate programs.
2. Not all the elective courses will be given in any one-year. However, it is expected that all will be available during the time a given graduate student is in the Program. Courses not given within a 4-year period will be deleted.
3. BBSC courses/modules do *not* meet the elective requirement.

D. *Seminars*

Students must register for the Student Seminar course (BMB 6195) in years 2, 3 and 4 (three consecutive years or after they enter into the BMB graduate program) and the Faculty Seminar Course (BMB 6196 – Current Concepts in Biochemistry & Molecular Biology) every fall and spring of years 1-4.

E. *Curricular Guidelines for M.D./Ph.D. Students*

1. The BMB Graduate Program welcomes the opportunity to train students in the M.D./Ph.D. combined-degree program who wish to pursue doctoral work in the Program.
2. The requirements for M.D./Ph.D. students who have been accepted to the BMB Program are as follows:
 - a. The Program requires four (4) hours of advanced elective courses. These elective requirements can be met any time in the first four years of the M.D./Ph.D. Program, contingent upon approval from the BMB Evaluation Committee, availability of courses and the student's schedule. BBSC modules do *not* meet the elective requirement.
 - b. M.D./Ph.D. students in the BMB Program will not take the Seminar courses during basic science years of medical school. They will take Student Seminar (BMB 6195) when they are full-time graduate students and only need to take this two (2) times, presenting once, and will take BMB 6196 four times (fall and spring in first two years as full-time graduate students)
 - c. M.D./Ph.D. students are required to rotate through at least two (2) laboratories of faculty of the BMB Program.
3. Upon completion of the core curriculum in the Graduate Program, M.D./Ph.D. students will take the qualifying examination.
4. The Supervisory Committee shall be composed of three (3) faculty members of the BMB Graduate Program including the Supervising Professor (who may not serve as the Chair of this committee). The fourth (4) member shall be a faculty from outside the student's area of expertise/research, and the fifth (5) member shall be a faculty from another institution. The two (2) additional faculty member requirements of the M.D./Ph.D. Program can be satisfied with an M.D. faculty appointee with a primary appointment in a clinical department, or a member from the M.D./Ph.D. Program Advisory Committee.

Most students chose to satisfy the M.D./Ph.D. requirements within the five (5) members required by the graduate school. This committee will have a total of five to seven (5-7) members. The composition of the dissertation committee requires the approval of **both** the BMB Program Director and the M.D./Ph.D. Program Director before it is submitted to the Dean of the Graduate School of Biomedical Sciences. The Chair of the Supervisory Committee will be from within the BMB Graduate Program and selected by the Committee at the first meeting, subject to approval by the Program Director.

5. Completion of the dissertation research and final defense of the dissertation should take approximately 3 years.
6. All graduate work must be completed before the student can re-enter Medical School full-time for clinical training. (See “Policies and Information”, M.D./Ph.D. Combined Degree Program, p. 9)

F. *Qualifying Examinations*

1. Qualifying Examination

The Qualifying Examination will be divided into two parts:

- a. Part I Written Exam: the examination will usually be scheduled during early Term II (Spring term) of the student's second year. Students with advanced placement or direct admission into the Program may schedule their examination earlier, with approval from the Evaluation Committee.

Students will submit to the Examination Committee a written research proposal written as abbreviated “short format” NIH R01 grant (maximum of 13 pages in length - maximum 1 page for specific aims and 12 pages for research strategy) ; this limit does not include references or abstract). The Written Examination Committee will provide the students with a copy of a grant to use as a guide. The Written Examination Committee is charged to maintain a consistent standard in evaluating the quality of writing in all of the proposals.

The committee should address questions such as:

- What do you intend to do, what is the research hypothesis or is this discovery research? If so, explain why it is appropriate.
- Why is the work important and what is its significance/relevance to human health?
- What has already been done and is the literature review current?
- How are you going to do the work and is the background germane to the experimental design & methods?

Written Examination Committee

The Written Examination Committee is charged with maintaining a consistent standard in evaluating the quality of writing in all of the proposals. Emphasis should be placed on evaluating the logic, clarity and organization of the writing.

All proposals are to be sent to the BMB Graduate Program office; the office will then distribute the exams to the Written Qualifying Examination Committee.

Each proposal will be reviewed by at least two committee members who will be selected by the Program Director. All reviewers are given equal importance and will critique the grant independent of the others. A written critique will be prepared by each reviewer and these reviews will be discussed at a full committee meeting.

After this meeting, the reviewers will meet with the student, discuss the critiques and provide recommendations for revisions if necessary.

If a revised version is submitted, the reviewers will review the revised proposal, write a second critique, and make recommendations with regard to advancing to the Oral Qualifying Examination.

Students who do not successfully pass the written exam will be referred to the Program Evaluation Committee to evaluate the student's complete academic performance. They will make a recommendation regarding the student's advancement to the oral examination. This should occur within a two week period.

b. Part II Oral Exam: in order to advance to the Oral Exam, the student must successfully pass the written qualifying exam by majority vote of the Written Committee members.

Oral Examination Committee

The Oral Examination Committee will be formed by the student with the help of the proposed dissertation supervisor, and approved by the Program Director. This committee shall be composed of three (3) members of the BMB Graduate Program including the Supervising Professor (who may not serve as the Chair of this committee). The fourth (4) member will be one of the reviewers from the student's Written Examination Committee; this will provide continuity between the Written & Oral parts of the examination. A fifth (5) member, a faculty from outside the student's area of expertise/research, shall also serve on the Oral Examination Committee. This committee will have a total of five (5) members. The Oral Examination Committee members may continue to serve on the student's Dissertation Supervisory Committee.

In accordance with the exam timeline set by the BMB Program, the student and the committee members will determine the date of the oral examination. The written proposal must be submitted to each committee member, and to any Graduate Program faculty member who requests it, at least two weeks before the examination. At the oral examination, the student will give a formal presentation of the proposal and then will accept questions on any topic related centrally or peripherally to the proposal. The Oral Examination Committee will conduct a rigorous and in-depth examination of the scientific merits of the proposal, the student's scientific knowledge, and his/her ability to integrate scientific information. The Oral Examination Committee will communicate the results of the examination to the Evaluation Committee in writing.

Evaluation Committee

Once the student has completed both the written and oral parts of the Qualifying Examination, the Evaluation Committee will evaluate the student's complete academic performance and will present its recommendation to the full Faculty regarding the student's advancement to Candidacy. The full Faculty will vote on the recommendation.

1. The Program Director will inform the Dean of the Graduate School in writing if the student is recommended for advancement to Candidacy for the Ph.D. degree.
2. After admission to Candidacy, the student may register for Dissertation (BMB 6099)

G. *Supervisory Committee*

1. The student shall select a Supervisory Professor with the latter's consent. The Supervisory Professor will be a member of the BMB Graduate Program Faculty. An *Associate Member* may assume this role, subject to approval by the Program Director, the Credentials Committee and the Graduate Dean.
2. The Supervisory Professor will be in charge of the student's doctoral dissertation and will be a member of the Supervisory Committee.

This committee shall be composed of three (3) members of the BMB Graduate Program including the Supervising Professor (who may not serve as the Chair of this committee). The fourth (4) member shall be a faculty from outside the student's area of expertise/research. In general, this person will be from a graduate program other than that of the student, but in some cases a faculty member who holds an appointment within the student's program may qualify. The fifth (5) faculty shall be from another institution. Approval by the Program Director and the GSBS Dean is required to ensure the appropriate scientific qualifications and diversity of the committee.

This committee will have a total of five (5) members.

The Chair will be from within the BMB Graduate Program and selected by the Committee at the first meeting, subject to approval by the Program Director.

3. The Chair of the Supervisory Committee will be responsible for calling each meeting, presiding over these meetings and providing the Program Director and the student with a written report of the outcome of each meeting.
4. The 'on-campus' members of the Supervisory Committee shall meet one to two times a year with the student to monitor and evaluate the student's progress.
5. The student will prepare a written progress report in an appropriate scientific format to be presented to the Supervisory Committee. This report will be submitted to each Committee member no later than two (2) weeks prior to the date of the Supervisory Committee meeting.
6. The Supervisory Committee shall ensure the student satisfies all of the requirements for the Ph.D. degree. Final approval of the student's progress is the responsibility of the Graduate Dean.

H. Final Oral Examination (Defense of Dissertation)

1. A Dissertation is required of every student; it must be an original contribution to scholarship based on independent investigation
2. At least part of the Dissertation research shall be submitted for publication in peer-reviewed journal(s) prior to the student leaving the laboratory for a future position.
3. Copies of the Dissertation shall be made available to the Supervisory Committee one (1) month prior to the final oral examination for evaluation and approval.
4. The final oral examination may cover the contents of the Dissertation and the general field of the Dissertation, as well as other areas that are part of the student's Program. Successful completion of

the Defense is indicated by signature of the Supervisory Committee on the Signature Page of the Dissertation and the "Report of the Final Oral Examination".

5. The student must present a public seminar on the topic of the dissertation.

V. Student Affairs

A. Stipends

The Graduate Program Director will make recommendations about the continuation of stipends. Stipends to be awarded are contingent upon the student remaining in good academic standing. Stipends may be supplemented at the discretion of a Supervising Professor. Any supplementation has to be justified and approved by the Program Director and Dean of the Graduate School.

B. Teaching Experience

Since many students upon completion of this Graduate Program and appropriate postdoctoral work will enter a career in teaching and research, a student should develop teaching skills during the Program. Graduate students will have the opportunities to mentor high school and undergraduate students, in addition to tutoring of graduate students.

C. Supervisory Professor

A student selects a Supervisory Professor upon admission to Candidacy. To assist in selecting an appropriate Supervisory Professor, students are expected to spend time in the research laboratories of several different faculty (see Laboratory Rotation). The Supervisory Professor must be a member (or Special Member) of the Graduate Program in BMB and must communicate his/her willingness to serve in the role. A student may change his/her Supervisory Professor without prejudice to his/her standing in the Program.

D. Language Requirements

No language other than English will be required. However, a given student may benefit by knowledge of one or more foreign languages, depending upon his/her particular field of interest. The Program reserves the right to require students to take courses or tutoring in the English language.

E. Student Representation

In addition to informal channels of communication, two students will be elected by their peers, and approved by the Program Director, to participate without voting in meetings of the Graduate Program Faculty in BMB. The purpose to be served includes the provision of a formal mechanism for input from the students concerning the Program and proposed modifications. One of the students should have advanced standing (i.e., admitted to Candidacy) and the other should be in their first or second year of the Program (before having taken the Qualifying Examination).

Membership Policy
BMB Graduate Program

Preamble: The faculty of the BMB Graduate Program recognize three levels of participation, which differ in the expectations that the program faculty has of the individuals who are appointed to the different levels. Appointment to any level of participation in the BMB Graduate Program faculty is temporary and subject to periodic adjustment based upon a review to be carried out by the Credentials Committee. The purpose of this review will be to determine that each participant's contributions to the Graduate Program are consistent with the type of appointment held by that individual.

I. Levels of Participation: The three levels of participation in the BMB Graduate Program are designated *Member*, *Associate Member*, and *Special Member*.

A. A *Member* of the graduate faculty shall be qualified to supervise the research activities of a doctoral student in one or more of the areas of emphasis of the BMB Graduate Program. In addition, each *Member* must be a full-time participant in all of the activities of the Graduate Program. Specifically, a *Member* must participate continuously in classroom teaching, research supervision, and administration of the BMB Graduate Program. Although most *Members* will seek to maintain a balance between these three activities, certain individuals may emphasize different aspects of the program.

Research supervision is not limited to serving in the capacity of a preceptor for a doctoral student. Other levels of participation in research supervision may include service on research supervision and examination committees as well as informal advisory interactions with graduate students. It is taken for granted that all course work offered as a part of the BMB graduate curriculum is for the purpose of teaching the graduate students to assimilate, evaluate, and interpret data. Therefore, an individual who consistently functions in the capacity of a primary instructor in elective courses or an individual who serves as the director of a core course should be understood to be involved in research supervision. The primary graduate teaching commitment of each *Member* will be to students in the BMB Graduate Program.

The bylaws of the BMB Graduate Program require that each *Member* serve on one or more of the standing committees that administer the program.

B. An *Associate Member* must be fully qualified to supervise a doctoral student in one or more of the areas of emphasis of the BMB Graduate Program. An *Associate Member* will not be required to participate in the BMB Graduate Program to the same extent as a *Member*, although a degree of participation, on a regular basis, is expected. For example, an *Associate Member* should be involved in either teaching or administrative aspects of the BMB Graduate Program, and might be involved in graduate research supervision, but would not be expected to be continuously involved in all three aspects of the program.

C. A *Special Member* is appointed for a specified period of time to serve a defined purpose. For example, a special member could be appointed to serve on a research supervisory committee for a period not to exceed the tenure of the graduate student. The duties of the *Special Member* with respect to the BMB Graduate Program will be defined by the terms of the appointment.

II. Criteria for Appointment to the Levels of Participation in the BMB Graduate Program: In all considerations, the faculty will be guided by the principle that the Graduate Program exists to serve the students. Therefore, admission to the BMB Graduate Program, at any level, should be predicated upon a strong premise that such admission will provide some tangible benefit to the students. Each candidate for admission to the Graduate

Program faculty must provide evidence that such benefit will result from that individual's appointment. If such evidence is not convincing, then the best policy is to decline admission until such time as the candidate can provide a compelling case that admission will provide a direct benefit to the students. General guidelines for admission to each of the three levels are given below.

A. Admission as a *Member* of the BMB Graduate Program

The Credentials Committee will address three questions:

1. Is the candidate competent to train BMB graduate students? Applicants for appointment as *Members* will be evaluated for the quality of their research program. In the case of senior applicants (Associate or Full Professors), a record of sustained productivity should be evident. The quality of the published research should be evaluated as well as the relevance of the research topics to the educational mission of the BMB program. The senior applicant should also demonstrate that resources sufficient for graduate training are available.

Newly-hired assistant professors will be evaluated on the quality of the work done as pre- and post-doctoral researchers. The issue of resources available to junior faculty should be evaluated, although it is expected that such individuals will receive considerable departmental support for graduate students.

2. Is the candidate committed to graduate education? Commitment is most easily demonstrated by the extent to which the candidate has been involved in graduate education in the past. The candidate should be evaluated upon the basis of prior association with the BMB Graduate Program or with similar programs at other universities. As a general rule, senior faculty (Associate and Full Professors) should *NOT* be admitted as *Members* unless they can demonstrate sustained and effective prior involvement in graduate education in a discipline encompassed by the graduate training mission of BMB. In the case of newly hired individuals who were previously associated with institutions that do not have graduate programs, it is appropriate to evaluate the individual on the basis of recent experience supervising postdoctoral associates.

A newly-hired assistant professor may be considered for admission as a *Member* of the BMB Graduate Program faculty if all of the following criteria can be satisfied.

The candidate must 1) hold a recent Ph.D. in some discipline related to the educational mission of the BMB Graduate Program, 2) have recently completed post-doctoral training, and 3) be otherwise prepared to undertake a full-time commitment to the BMB Graduate Program.

A newly-hired assistant professor who does not hold a Ph.D. degree in a discipline related to the educational mission of the BMB Graduate Program and has not previously supervised a doctoral student should not be considered for appointment as a *Member* of the program.

3. Does the candidate plan to assume a full-time role in the BMB Graduate Program? The most important component of the evaluation should be the candidate's written plans for contribution to the Graduate Program. The review of each application should take into account the fact that *Members* are expected to commit full-time, to all aspects of the program including formal teaching, research supervision, and committee work associated with administration of the program. Each of these activities should be addressed in the candidate's application for membership.

In summary, in order to be admitted as a *Member* of the program, the candidate must demonstrate the necessary credentials, the resources, and the commitment to be a full-time participant in the BMB Graduate Program. If these attributes cannot be established beyond question, then it is advisable to consider appointment at the level of *Associate Member*. Although a primary or joint appointment to the faculty of the Department of Biochemistry and Molecular Biology is not a formal requirement for admission as a *Member* of the BMB Graduate Program, the requirement for full-time involvement in the Graduate Program will generally preclude those who are not so affiliated.

B. Admission as an Associate Member of the BMB Graduate Program

The *Associate Member* of the Graduate Program must be fully qualified to supervise a doctoral candidate in Biochemistry, Molecular Biology, Cell Biology, or Genetics. It is required that *Associate Members* will maintain some involvement in teaching or administrative activities within the program, although it is not expected that *Associate Members* be prepared to commit full-time to the BMB Graduate Program. For example, an *Associate Member* may have limited classroom teaching duties but no research supervisory role. Alternatively, an *Associate Member* may be involved in research supervision while maintaining a secondary role in teaching or administration of the program. *Associate Member* status is also appropriate for individuals who may have limited experience in supervising graduate students. However, individuals who have not demonstrated that they have the qualifications necessary to direct the research training of a doctoral student should not be admitted as *Associate Members*. In all such deliberations, the interests of the students are to be considered more important than those of the applicant.

C. Admission as a Special Member of the BMB Graduate Program

A *Special Member* is appointed for a specific purpose and for a defined period of time. Evaluation of candidates for admission as *Special Members* should address the purpose for which the candidate desires admission as well as the length of appointment. Appointment as a *Special Member* terminates upon completion of the stated objective.

III. Rights and Privileges Associated with Participation in the BMB Graduate Program: The rights and privileges that pertain to each of the levels of participation are described below.

A. A *Member* of the Graduate Program will have full rights as defined in the bylaws of the BMB Graduate Program. These rights include, but are not limited to, representation on standing committees of the program, an equal vote in matters of policy and election of officers, access to resources of the program, and the ability to recruit and train graduate students to the limits of the *Member's* resources, ability, and inclinations.

B. An *Associate Member* has all of the rights of a *Member* with the following exceptions. An *Associate Member* may not serve as director of the BMB Graduate Program, as chair of any of the standing committees, or as director of a core course in the BMB graduate curriculum. An *Associate Member* may serve as primary instructor of an elective course, although offering such a course on a regular basis should be considered as strong evidence of a full-time commitment to the BMB Graduate Program. An *Associate Member* may vote on all matters of policy. However, *Associate Members* may not participate in election of officers of the program and may not vote upon issues of admission or re-appointment to the BMB Graduate Program.

An *Associate Member* may serve as chair of a research supervision committee appointed for an BMB masters or doctoral student, under circumstances described in Section V. No more than one student may be supervised by an *Associate Member* at any time. Furthermore, a research supervision committee that is chaired by an *Associate Member* must include at least three *Members* of the program.

C. The rights of a *Special Member* are those associated with the specific objective for which the individual was appointed to the program. *Special Members* are not voting members of the BMB Graduate Program faculty and may not serve as chair of any committee associated with the BMB Graduate Program. *Special Members* may serve as voting members of student examination and research supervisory committees.

IV. Procedure for Admission to the BMB Graduate Program Faculty:

A candidate for admission to the BMB Graduate Program faculty should review the criteria for the various levels of membership. Questions should be addressed to the chair of the Credentials Committee or the Director of the BMB Graduate Program. Application should be made in writing to the Graduate Director. The formal application should include the candidate's *curriculum vitae* and a letter of intent which should summarize 1) **the candidate's experience in graduate education, 2) the availability of resources for graduate education, and 3) the candidate's plans for involvement in the BMB Graduate Program.** These plans should state precisely how the candidate plans to contribute to the training of BMB graduate students and why the candidate's talents, interests, and abilities represent a resource for the students.

The candidate's letter of intent, in the final form in which it is accepted by the Credentials Committee, will form a contract between the candidate and the program faculty. It is expected that each participant in the BMB Graduate Program will act according to the plans that were described

in the letter of intent. Failure to do so will result in re-evaluation of the terms of admission to the program.

The Director of the BMB Graduate Program will refer the application to the chair of the Credentials Committee who will ascertain that the documents are complete and consult with the candidate concerning the levels of membership that might be appropriate. The chair of the Credentials Committee will arrange that a seminar be presented by all candidates for appointment as *Member* or *Associate Member*. This seminar will be scheduled so that attendance by a majority of the Credentials Committee is assured. No candidate may be considered who has not, within one year preceding application for admission to the BMB Graduate Program, presented a seminar that was attended by more than half of those members of the Credentials Committee who will be involved in evaluation of the candidate.

The Credentials Committee will consider the application and make recommendation concerning the level of admission that is most appropriate. Recommendation for appointment as a *Member* or *Associate Member* will be referred to the *Members* of the BMB Graduate Program who must vote upon the appointment by written ballot. A majority of the *Members* of the BMB Graduate Program must concur with the appointment, which will then be referred to the Dean of the Graduate School for Biomedical Sciences. Both *Members* and *Associate Members* of the BMB Graduate Program must be members of the Graduate Faculty of the University of Texas.

Special Members may be appointed by the Director of the BMB Graduate Program upon advice of the Credentials Committee. Application for appointment as a *Special Member* should include a brief description of the specific task for which such appointment is sought as well as an estimate of the length of time required to accomplish this objective. The application will be reviewed by the Credentials Committee. Approval of the appointment will require a favorable vote by a majority of the Credentials Committee.

V. Supervision of Doctoral Students by Associate Members of the BMB Graduate Program:

An *Associate Member*, with the approval of the Credentials Committee and Director of the BMB Graduate Program, may serve as chair of a research supervisory committee. The *Associate Member* should apply to the program director. The application should identify the student who will be supervised and the members of the committee that will supervise the training. [Note that a research supervision committee chaired by an *Associate Member* must include at least three *Members* of the BMB Graduate Program faculty.] A brief description of the research project must be included in the application. The application will be reviewed by the Credentials Committee which will consider the resources available to the *Associate Member*, the extent to which the scientific expertise of the *Associate Member* is appropriate to the student's objectives, and the merit of the student's proposed project. The purpose of this review is to ascertain that the interests of the doctoral student are protected. The Credentials Committee will make recommendation to the Director of the BMB Graduate Program. If the Director does not concur with the recommendation, the issue will be resolved by majority vote of the BMB Graduate Program Faculty.

VI. Periodic Review of Participants in the BMB Graduate Program: Appointment to the BMB Graduate Program faculty is subject to periodic review. The purpose of the review will be to determine if the participation of the individual faculty members is consistent with their level of

appointment. For example, an *Associate Member* who has demonstrated full-time commitment to the program should be re-appointed as a *Member*. To the same extent, the committee should not re-appoint *Members* who have not been involved in the program full time. Such individuals should be re-appointed as *Associate Members*, a position commensurate with their level of involvement.

Associate Members who have not been involved in the program for some period of time may be dropped from the BMB Graduate Program faculty or offered the option of an appointment as a *Special Member*, provided that the individual can identify some specific objective to be accomplished in the service of the BMB Graduate Program. Under no circumstance should an individual who has not been actively involved in the program for some time be re-appointed without some adjustment in the level of appointment.

Special Members may not be re-appointed as such. Extension of the appointment is possible if the objective for which this individual was appointed remains to be completed and if the Credentials Committee feels such extension is in the best interest of the student or students involved. However, termination of appointment as a *Special Member* does not preclude admission as an *Associate Member* or *Member* if appropriate criteria are fulfilled.

Each affiliate of the program will be reviewed every five years. This review will be carried out by the Credentials Committee with the Director of the Graduate Program sitting *ex officio*. Review of individual participants in the BMB Graduate Program may be undertaken at any time, at the request of the Program Director or at the request of an individual who may desire re-evaluation of the level of appointment.

The Credentials Committee will solicit from the individual under review information concerning graduate teaching, research supervision, and administrative activities pertinent to the BMB Graduate Program. The Credentials Committee will make recommendation concerning re-appointment, based upon the extent of the individual's involvement in the Graduate Program. The *Members* of the BMB Graduate Program will vote, by written ballot, upon the recommendation of the Credentials Committee, and the appointment will become official upon concurrence of a majority of the faculty. The Dean of the Graduate School of Biomedical Sciences shall be informed of all re-appointments.

VII. Composition of the Credentials Committee: The Credentials Committee shall consist of five individuals. At least three committee members shall be *Members* of the BMB Graduate Program and at least one shall be an *Associate Member*. The Chair of the Credentials Committee shall be appointed by the Director of the BMB Graduate Program acting in consultation with the Coordinating Committee.