Biomedical Sciences Degree Program
for the
Doctor of Philosophy (PhD)
Concentration in
Biochemistry and Molecular Biology

at East Carolina University
The Brody School of Medicine
Greenville, NC 27834
(Member of the University of North Carolina System)

Policies and Procedures
Handbook for Students

Assembled by the Graduate Committee
Department of Biochemistry and Molecular Biology
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POLICIES AND PROCEDURES
For The Graduate Concentration in
Biochemistry and Molecular Biology, PhD in Biomedical Sciences (begun Jan 2017)

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I. GENERAL INFORMATION REGARDING THE GRADUATE PROGRAM

A. Introduction

This booklet defines the guidelines and policies governing the doctoral program in the Department of Biochemistry and Molecular Biology, East Carolina University and is supplemental to the current university graduate catalog. The information has been prepared for the graduate faculty, graduate students and applicants to the graduate program in biochemistry and molecular biology. All faculty and students should be familiar with the information provided and should adhere to these policies and procedures in formulating the student's program of education.

B. Biochemistry and Molecular Biology Graduate Committee (BGC)

This committee of the faculty of the graduate program in biochemistry and molecular biology is responsible for implementation and management of the graduate program, as described in this pamphlet, and for formulating new or amended policies and practices that are subject to approval by vote of the graduate faculty. The BGC shall consist of at least two members who mentor graduate students (or have recently done so) appointed periodically by the departmental chair, and the Director for the Biochemistry and Molecular Biology PhD Program/Concentration, who shall act as BGC chair.

The BGC will report at each Department of Biochemistry and Molecular Biology faculty meeting. These reports will be to make the graduate faculty aware of all biochemistry and molecular biology graduate students and their progress; and to discuss and act on policy changes. New policies formulated by BGC become binding only after they have been approved by two-thirds of the departmental graduate faculty.

C. Application for Graduate Study in Biochemistry and Molecular Biology

Admission to the graduate program in the Department of Biochemistry and Molecular Biology requires recommendation by the BGC, and approval by the departmental chair. Preference is given to applicants who present academic potential for biochemistry as demonstrated by their previous academic achievement. Selections are made after consideration of individual qualifications and availability of facilities and resources. Final admission to the graduate program is granted by the dean of the Graduate School.

Admission requirements for graduate studies in biochemistry and molecular biology are flexible; however, a knowledge of general and organic chemistry, cell biology, college physics, and mathematics through calculus are considered essential to pursue advanced studies. Students are also encouraged to acquire knowledge of analytical chemistry, statistics, and computer science. Specific requirements for admission to the graduate program are given in the university catalog. Applicants enrolled in another program are expected to complete their current program prior to matriculating into our program. Students from other departments in the Brody School of Medicine must obtain permission in writing from the BGC.

Applicants may apply for admission to begin studies in either the second summer session or the fall semester of the academic year. Specific application instructions can be found on the Graduate School’s web site at: https://gradschool.ecu.edu/application-process/ Applications must
be supported by official transcripts from each institution attended since high school, at least one letter of recommendation from a person able to assess the applicant's potential as a research scientist, and Purpose Statement (1-2 pages) from the applicant describing their future career goals. Foreign applicants who do not use English as their native language must take the "Test of English as a Foreign Language (TOEFL)" examination and should achieve a score of 20 or higher on each section. Inquiries regarding admission to the graduate program in biochemistry and molecular biology should be referred to the chair of BGC for processing.

D. **Vacation Policy**

Graduate students receive 10 working days of vacation, in addition to the 12 holidays given to state employees each year. Prior to taking vacation leave, graduate students must notify in writing/email their advisor for approval at least one week prior to the beginning. Notification of the Program Director is optional.
II. INFORMATION FOR FIRST YEAR STUDENTS

A. Advisors and Research Rotations for New Students

During the process of selecting potential research rotations (see below), the chair of the biochemistry and molecular biology graduate committee will serve as temporary advisor to all students who have not chosen a dissertation advisor.

During the first year of study, students without a master’s degree will conduct research rotations with graduate faculty members whose research areas are of interest. These research rotations provide students with the opportunity to work closely with faculty to gain laboratory experience in a field of their choice. The BCG chair, after consultation with the BGC, will assign the student to a laboratory in which the first research rotation will be conducted. The student will enroll in BIOC 7330 Intro to Research for the first Fall semester. During the first few weeks following entry into the doctoral program, new students meet with departmental faculty members in order to become apprised of research opportunities in the faculty member's laboratory. After meeting with the faculty, students will select research rotations. The chair of the BGC will be responsible for assisting each student in the selection of proposed research rotations. Students will submit the Research Rotation Request form to the Program Director identifying the proposed mentor and an alternate for the second laboratory rotation. Assignment of rotations is made by the Program Director. In subsequent semesters, the student will enroll in BIOC 8333 Research for 3 credit hours, or BIOC 8336 for 6 credit hours, per rotation semester. Students are required to spend a minimum of 20 hours per week in the laboratory. Incoming students with a BS degree will complete 2-3 rotations of 10 weeks each. Rotation schedule will be as follows:

- 1st Rotation, mid August to end of October
- 2nd Rotation, beginning of November to end of January (excluding holiday breaks)
- 3rd Rotation (as needed), beginning of February to mid April
- Note: First year students may choose to arrive at Brody early, prior to the beginning of Fall Semester, and begin laboratory research with a mentor of their choice. If this research begins in earnest by July 1 continues until the beginning of classes in mid August, it will be counted as fulfillment of one Rotation.

Near the end of the 2nd rotation, both rotation mentors will meet with the Program Director to discuss if a 3rd Rotation would be beneficial/required for the student. At the completion of each research rotation, the advisor will discuss the student’s performance with the BGC and assign a grade, communicated to the Program Director. Students may also be required to make a brief oral presentation on the work accomplished in their rotations during their assigned Seminar (BIOC 7335) presentation. With the approval of the BGC, students may request to take a 3rd or 4th research rotation in the spring semester and summer if a dissertation mentor has not yet been chosen.

Students who enter the biochemistry and molecular biology graduate program with a Master’s degree (MS) may waive the requirement for Rotations. They will, however, register normally for BIOC 7330, 8333 and 8336, as described above. MS students may elect to choose a dissertation advisor during the fall semester. With the approval of the Program Director, BGC and department chair, they may thus start their dissertation research immediately.
B. **Selection of a Dissertation Advisor**

Following the completion of at least two research rotations or the completion of a master’s degree, a dissertation advisor will be selected by the student. The chair of the BGC will be responsible for assisting the student in selecting a dissertation advisor appropriate to the research interests and professional goals of the student. Importantly, the selection must also be consistent with the resources of the proposed dissertation advisor and the department. Selection should be weighted toward grant-funded laboratories.

All full time students in the graduate program in Biochemistry and Molecular Biology should have a dissertation advisor no later than Fall semester of their second year. The assignment should be mutually agreeable to the student and to the advisor. The student should submit a signed “Agreement: Selection of Dissertation Lab and Mentor” form to the Program Director. The student may be suitable for no dissertation lab recommendation; in this case the student will be asked to transfer from the Program. Students without a dissertation advisor and dissertation committee are unable to stand for the Candidacy Exam for the PhD (Section IV).

With their signature on the “Agreement” form, the faculty member selected as advisor signifies in writing to the BGC, department and chairperson their willingness to assist the student and to accept the responsibility of directing the doctoral dissertation. After reviewing the request, the BGC will make a recommendation to the departmental chair for approval of the appointment. To change the advisor-advisee relationship, a revised “Agreement” form must be approved by the BGC and the departmental chair.

C. **Graduate Advisory Committee**

Prior to the semester of the student’s candidacy, the student with council from his/her advisor will recommend members to serve on their Graduate Advisory Committee to be submitted to the BCG for approval. The student's advisor will normally serve as the chair of the student's Graduate Advisory Committee. This committee is composed of at least four graduate faculty members. Three of these must be members of the graduate faculty in the Department of Biochemistry and Molecular Biology, one of whom must be tenured and trained at least 1 student or served on several student committees. The fourth committee member must be a member of the graduate faculty of another department or another university. Qualifications and responsibilities of members are outlined in the “Best Practices for Thesis and Dissertation Oversight” document found at the ECU Graduate School website and in the Program Director’s handbook. Committee members names and signatures will be submitted by the student in the “Appointment of Student’s Graduate Advisory Committee” form to be submitted to the Program Director.

The student's Graduate Advisory Committee is responsible for administering the candidacy examination, establishment of the student's program of study in final detail, approval of the research program, counseling the student, monitoring student's progress, and administration and evaluation of the dissertation defense. It is recommended that a program of study for the Ph.D. degree be formulated and approved by the student's Graduate Advisory Committee in consultation with the student. The Advisor carries the responsibility to keep the Graduate Advisory Committee abreast of the students progress during regular advisory meetings (see below).
The student’s Graduate Advisory Committee will meet at least once a year. Meetings are generally held immediately after the student presents their research results in the Student Seminar Series in the spring semester. The student generally should be present for at least a part of all meetings. The student’s mentor is encouraged to send a written summary/email of each meeting to the Program Director and provide copies to the student and to each committee member. This report shall include a description of the overall achievement and development of the student.

If the advisor leaves this institution, the advisor and the student's Advisory Committee must insure that the student's progress toward the degree can continue at this or another institution. If the advisor goes on sabbatical or becomes incapacitated, another faculty member must assume the role of acting chair of the Advisory Committee with the approval of the BGC and departmental chair.

D. Responsibilities of Student’s Advisory Committee Members

The Graduate Advisory Committee is formed from members of the graduate faculty in accord with departmental or interdisciplinary program policies. Through its regular meetings, the committee is responsible for evaluating research skills with respect to the student’s potential for independent and creative research. Each committee member bears a responsibility to the student and to East Carolina University for maintenance of academic standards within the graduate school. The committee should also ensure consistency in standards and expectations among graduate students. To achieve these objectives, committee members are expected to regularly provide critical evaluation of the student’s research and advocate for progress toward completion of an independent research project. Each committee member has a responsibility to attend all committee meetings (at least one per year), and to discuss with the student their critical evaluation of the dissertation prior to the final examination.

The following are specific expectations for Graduate Advisory Committees at the Brody School of Medicine.

1. Serve as the Candidacy Examination Committee which will be chaired by a faculty member that is not on the Graduate Advisory Committee.
2. Approve the student’s dissertation project.
3. Provide on-going critical advice to the student on his/her research project.
4. Critically evaluate the student’s progress and performance.
5. Critically advise the student on the development of the dissertation to its final form.
6. Approve the dissertation at least one week prior to the scheduling of the defense.
8. Encourage the student’s professional development through sponsorship of membership in professional societies and communication of research findings at professional meetings and in publications.
III. GRADUATE CURRICULUM IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

A. Research Requirement

All PhD students in Biochemistry and Molecular Biology are required to conduct an original, independent research project under the supervision of their advisor. The research project is a major component of the PhD curriculum. A dissertation reporting the results of the investigation in relation to the existing scientific knowledge must be written. The student will be expected to present portions of the dissertation research at regional, national or international scientific meetings in addition to the preparation of at least one manuscript which the student's Advisory Committee deems worthy of submission to a suitable refereed journal.

B. Course Requirements

Students in the Biochemistry and Molecular Biology concentration must meet all requirements outlined in the Biomedical Sciences PhD catalog under BMB concentration in order to obtain a degree. However, the student's Graduate Advisory Committee can elect to alter the approved program requirements when such changes are beneficial to the student. Recommended changes in the program of study must be submitted in writing to the BGC for review and forwarded to the departmental chair for approval.

All doctoral programs of study must include the following (or provide evidence of having successfully completed equivalent courses): - Molecular Biochemistry (BIOC 7310); Biochemistry II (BIOC 8320); Research Proposal Strategies (BIOC 7365); Ethics and Research: Humanities and Basic Medical Sciences (HUMS 7004); Problems in Biometry (PHAR 7777) and a minimum of 4 credits in Seminars in Biochemistry and Molecular Biology (BIOC 7335). Students are expected to attend departmental seminars throughout their course of study whether or not they are enrolled for credit in any given semester. Additional electives (min. 17 credit hours) in graduate courses from the Department of Biochemistry and Molecular Biology as well as courses from other departments' offerings are required. Dissertation Research (BIOC 9000; min. 27 credit hours accumulated after Candidacy) are required. Maximum credit for BIOC 7330, Introduction to Research, is limited to 3 credits, and BIOC 7355, Topics, to 12 credits. The above limits will be used to determine the minimum 76 credits for the degree. Core courses and first and second year elective courses will be used for calculating grade point averages required to remain in good standing in the department. The details of an individual student's progress in course curriculum and completion of requirements are the responsibility of the student's Advisor. A typical curricular program for the PhD in Biomedical Sciences, concentration in Biochemistry and Molecular Biology follows:
## A TYPICAL PROGRAM OF STUDY

(updated Nov 2022; BDK v.1)

### CONCENTRATION IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>SH Credit (maintain 10-17 CH per term)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall ______</strong></td>
<td><strong>FIRST YEAR</strong></td>
<td></td>
</tr>
<tr>
<td>BIOC 7301</td>
<td>Biochemistry I</td>
<td>3 elective</td>
</tr>
<tr>
<td>BIOC 7310</td>
<td>Molecular Biochemistry</td>
<td>3 required</td>
</tr>
<tr>
<td>BIOC 7330</td>
<td>Introduction to Research</td>
<td>3 required</td>
</tr>
<tr>
<td>BIOC 7335</td>
<td>Seminar in Biochemistry (Section 2)</td>
<td>1 required</td>
</tr>
<tr>
<td>HUMS 7004</td>
<td>Ethics in Research</td>
<td>2 required</td>
</tr>
<tr>
<td></td>
<td><strong>Total CH</strong></td>
<td><strong>12</strong></td>
</tr>
<tr>
<td><strong>Spring _____</strong></td>
<td><strong>FIRST YEAR</strong></td>
<td></td>
</tr>
<tr>
<td>BIOC 7335</td>
<td>Seminar in Biochemistry (Section 2)</td>
<td>1 required</td>
</tr>
<tr>
<td>BIOC 7355</td>
<td>Current Topics (e.g. SciComm, Stem Cells, other)</td>
<td>(#) 1 elective</td>
</tr>
<tr>
<td>BIOC 8320</td>
<td>Biochemistry II</td>
<td>4 required</td>
</tr>
<tr>
<td>BIOC 8333</td>
<td>Research</td>
<td>3 required</td>
</tr>
<tr>
<td>PHAR7777</td>
<td>Problems in Biometry</td>
<td>3 required</td>
</tr>
<tr>
<td></td>
<td><strong>Total CH</strong></td>
<td><strong>12</strong></td>
</tr>
<tr>
<td><strong>Fall ______</strong></td>
<td><strong>SECOND YEAR</strong></td>
<td></td>
</tr>
<tr>
<td>BIOC 7335</td>
<td>Seminar in Biochemistry (Section 1)</td>
<td>1 required</td>
</tr>
<tr>
<td>BIOC 8336</td>
<td>Research</td>
<td>6 required</td>
</tr>
<tr>
<td>HUMS 7004</td>
<td>Ethics in Research (alternate placement)</td>
<td>2 required</td>
</tr>
<tr>
<td>PHYL 7705 or</td>
<td>e.g. Translational Physiology,</td>
<td>3 or elective</td>
</tr>
<tr>
<td>BIOL 7881</td>
<td>Bioinformatics, or other elective</td>
<td>4 elective</td>
</tr>
<tr>
<td></td>
<td><strong>Total CH</strong></td>
<td><strong>10-15</strong></td>
</tr>
<tr>
<td><strong>Spring _____</strong></td>
<td><strong>SECOND YEAR</strong></td>
<td></td>
</tr>
<tr>
<td>BIOC 7335</td>
<td>Seminar in Biochemistry (Section 1)</td>
<td>1 required</td>
</tr>
<tr>
<td>BIOC 7365</td>
<td>Research Proposal Strategies</td>
<td>2 required</td>
</tr>
<tr>
<td>PHAR 7777</td>
<td>Practical Problem in Biometry (alternate placement)</td>
<td>3 required</td>
</tr>
<tr>
<td>BIOC 8333/6</td>
<td>Research</td>
<td>3/6 required</td>
</tr>
<tr>
<td>BIOC 8305,</td>
<td>e.g. Physical Biochemistry,</td>
<td>2-4 elective</td>
</tr>
<tr>
<td>PHLY 7704</td>
<td>Physiological Proteogenomics or other elective</td>
<td></td>
</tr>
<tr>
<td>BIOC 7355</td>
<td>Current Topics (e.g. SciComm, Stem Cells, other)</td>
<td>(#) 1 elective</td>
</tr>
<tr>
<td></td>
<td><strong>Total CH</strong></td>
<td><strong>12-14</strong></td>
</tr>
<tr>
<td><strong>Fall ______</strong></td>
<td><strong>THIRD YEAR</strong></td>
<td></td>
</tr>
<tr>
<td>BIOC 7335</td>
<td>Seminar in Biochemistry (Section 1)</td>
<td>1 required</td>
</tr>
<tr>
<td>BIOC 9000</td>
<td>Dissertation</td>
<td>9 required</td>
</tr>
<tr>
<td></td>
<td><strong>Total CH</strong></td>
<td><strong>10</strong></td>
</tr>
<tr>
<td><strong>Spring _____</strong></td>
<td><strong>THIRD YEAR</strong></td>
<td></td>
</tr>
<tr>
<td>BIOC 7335</td>
<td>Seminar in Biochemistry (Section 1)</td>
<td>1 required</td>
</tr>
<tr>
<td>BIOC 9000</td>
<td>Dissertation</td>
<td>9 required</td>
</tr>
<tr>
<td></td>
<td><strong>Total CH</strong></td>
<td><strong>10</strong></td>
</tr>
<tr>
<td><strong>FOURTH YEAR and beyond</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOC 7335</td>
<td>Seminar in Biochemistry (Section 1)</td>
<td>1 required</td>
</tr>
<tr>
<td>BIOC 9000</td>
<td>Dissertation</td>
<td>9 required</td>
</tr>
<tr>
<td></td>
<td><strong>Total CH</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>
Graduate students in biochemistry and molecular biology are expected to develop a working knowledge of laboratory safety, data management, and the principles of statistics. An individual student's program of study must include both formal or informal studies to provide the knowledge required. The Graduate School requires that candidates for the PhD degree demonstrate proficiency in "research skills". A working knowledge of statistics and literacy within the scientific literature, both appropriate to the student's research project, constitute the research skills requirements of the Department of Biochemistry and Molecular Biology. This requirement is generally met by the completion of PHAR 7777 and BIOC 7335. Certification of completion should appear on transcripts (DegreeWorks) prior to scheduling the dissertation defense.

C. Transfer of Graduate Coursework

Graduate work completed prior to the admission to doctoral program will be evaluated by the Program Director and BGC. Transfer of credit is subject to further approval by the dean of the Graduate School. With the approval of the BGC and departmental chair, the doctoral candidacy examination requirement may be waived for transfer students who have successfully passed an equivalent candidacy examination in their former graduate program.
IV. ADMISSION TO CANDIDACY FOR THE DOCTORAL DEGREE

Doctoral students must successfully pass the doctoral candidacy examination. A student's eligibility for the examination will be determined by the student's mentor and Advisory Committee. This examination will address the student's originality and ability to design a research study in the area of their dissertation research. The role of the mentor is to help the student formulate the specific aims that should reflect their preliminary data on the project. The composition of the written proposal is solely the responsibility of the student, based on the draft proposal they created in the Research Proposal Strategies (BIOC 7365) course (or a subsequent rewrite if the project has changed). Mentors are encouraged help students with planning and ideas only; students may approach faculty other than the mentor for help with editing. With international students it is the advisor’s responsibility to mentor the student through the grammar and formatting. The proposal and presentation should reflect the student’s own approach to the science rather than the approaches of the mentor to experiments, design or conclusions; this is part of the learning process. The mentor should listen to the presentation to focus the students ideas and presentation skills. It should be noted that the proposal is simply a vehicle to permit examination over a broad area of biochemistry and molecular biology. The Proposal is not a contract containing the research that must be completed by the student. The actual dissertation research, while it may contain elements of the proposal, will change and be refined as data are collected. After passing both portions of this examination (see below) the student is recommended for admission to candidacy for the PhD degree. The Candidacy Exam is expected to be completed by the end of August of the second year. Deviations from this timetable must be discussed with the Program Director.

A. Candidacy Examination

The candidacy examination will require the student to compose a research proposal, prepared in the format of a National Institutes of Health or National Science Foundation grant application. The area of research proposed should be in the area of their proposed dissertation research. The research section should be 12 pages in length, excluding the Specific Aims page and references. The budget and ancillary pages need not be completed. The final version of the grant application will be submitted to the student’s Advisory Committee. Once the written proposal is approved it is to be presented in the form of a seminar to the Advisory Committee. The format will be:

1. Student provides an oral presentation of the proposal, 20 to 30 min. The seminar portion of this examination is given to the Advisory Committee in a closed formal presentation.
2. Immediately after the student’s presentation, she/he will defend their grant application and the scientific principles upon which it is based. The meeting will be chaired/moderated by a departmental faculty member, not on the committee, who is simply present to ensure that the exam is run appropriately and intervene if questioning is stalled or appears unfair to student or mentor. The Moderator will keep track of time and does not participate in formal questioning. Questioning is generally done by simply going around the table, letting each committee member ask questions for 10-15 min during the first round. This is followed by a brief break. A second round of questioning allotting about 5-10 minutes per member is frequently done, which allows for follow-up questions.
3. The student is then excused of the room to permit the committee to discuss their performance on the exam.

4. Approval of the student's performance will be by a roll call vote of all faculty members in attendance with no abstentions. A passing vote consists of no more than one negative vote. Members are asked to recommend pass/fail grade on the written proposal and oral presentation separately. Students may pass both portions, one or the other, or neither portion. The Moderator will invite the student back into the room and relate the result to the student based on Advisory Committee consensus.

5. The Moderator/Chair will be responsible for submitting the form: "Results of Doctoral Candidacy Examination" in paper form to the Program Director specifying which portions of the exam were successfully passed.

6. Students have two opportunities to pass both portions of the exam. Only the failed portion must be repeated for approval by the Advisory Committee. Once approved by the Committee, the student will initiate Advancement to Candidacy status via the DocuSign online signature process <https://gradschool.ecu.edu/wp-content/uploads/sites/118/2020/02/CANDIDACY_FORM_DOCTORAL_and_INSTRUCTIONS_Jan2023.pdf>.
V. DOCTORAL DISSERTATION

A. Dissertation Requirements

Following the requirements of the Graduate Catalog of East Carolina University, each candidate shall prepare a dissertation proposal. The dissertation proposal should meet the guidelines specified in The Graduate Catalog, Section 8, Brody School of Medicine, Doctoral Dissertation:

1) A review of the literature pertinent to the research,
2) A short statement on the nature of the project and the objectives of the proposed research,
3) An outline of a feasible research program.

The dissertation proposal must be approved, and may be altered as needed, by the student's Graduate Advisory Committee.

The dissertation must reflect original, independent research, which contributes new knowledge to the candidate's major field. A high quality of experimental design, research technique, and communication must be demonstrated along with a clear perception of historical foundations, strengths, weaknesses, and implications of the results.

The student will write a dissertation under the direction of their mentor. With the Advisory Committee's approval, the student will submit a complete draft of the dissertation (as a PDF file) to each advisory committee member. The timing of thesis submission to defense date should follow a 1 week plus 2 week timing schedule:

1. Student submits the complete dissertation draft to all committee members 3 weeks prior to the projected defense date. Advisory Committee members have one week for an initial read to assess whether the document is sufficient consideration. Revisions are not suggested at this time unless the document is deemed indefensible.
2. After that first week, the student collects verbal approvals from Committee members and submits the “Request to Schedule Student Defense” form via DocuSign (BSOM Office of Research and Graduate Studies website) that will require approval of each member. The mentor and student must agree on a defense date at least 2 weeks from the DocuSign Request to Schedule online submission. If prior revision is necessary, the same 1 week plus 2 week timing is expected.
3. After successful completion of the defense, the committee may request moderate corrections from the student. The revised dissertation is circulated (PDF file) to all Advisory Committee members for verbal approval to the student and mentor. The student then initiatives the DocuSign Dissertation Signature approval from all Advisory Committee members (https://gradschool.ecu.edu/forms/).
4. The student must include these corrections in the electronic submission to the ECU Graduate School in the Vireo portal (https://vireo.ecu.edu/).
In cases where there are serious extenuating circumstances (e.g. acute health issues, unavailability of student funding, etc.), the timing may be altered by consent of the student’s mentor, the Program Director and the Department Chair.

Electronic submission of theses is required by the ECU Graduate School through the VIREO system. Details pertaining to the preparation and electronic submission of the dissertation are specified on the graduate schools web site (https://gradschool.ecu.edu/forms/).

B. **Dissertation Defense**

The dissertation defense will consist of an oral presentation of the dissertation research in a publicly announced departmental seminar (scheduled by the BSOM Office of Research and Graduate Studies; see above) to which all interested persons are invited. The open seminar will be followed by a closed student Advisory Committee meeting. The candidate should successfully defend the research findings by responding to all questions and criticism. If the presentation is unsatisfactory the defense will be re-scheduled. If the research findings contain major weaknesses, the candidate will be offered an opportunity to obtain additional data before re-scheduling a defense. Immediately following the seminar, the student's Advisory Committee will convene in private to ask additional questions if deemed necessary and to vote on the student's dissertation. The vote will be recorded by a representative of the Office of Research and Graduate Studies. Voting shall be a roll call vote with no abstention. Successful defense requires no more than one negative vote. Recommendation to the Dean of the Graduate School to award the degree will be made by the committee and the departmental chair.

The doctoral degree program must be completed before the end of the twelfth semester, excluding summers, following initial enrollment. If special circumstances require, a student may request an extension from the BGC with endorsement from his Advisory Committee by contacting the Program Director. The BGC will review the request and will make a recommendation to the Program Director.

The doctoral degree program is considered complete when the dissertation has been successfully defended and approved via the DocuSign signature page fully signed by all Advisory Committee members and the dissertation uploaded to the ECU thesis/dissertation repository, Vireo and approved by the Dean of the Graduate School. These electronic submissions to the Graduate School should be done in a timely manner to allow time for approval prior to the semester’s scheduled graduation date.
VI. ACADEMIC PERFORMANCE

A. **Grade Point Average**

Students in the doctoral program must maintain a program grade point average (GPA) of at least 3.0 for graduate courses. The GPA will be calculated in the department based on courses in the student's program of study that do not exceed the maximum credits allowed for courses that may be repeated for credit (see III. B.). At the discretion of the student's Graduate Advisory Committee, the BGC, and the department chair, additional course work may be added to the program of study to allow the student to bring the cumulative GPA to 3.0. A cumulative program GPA of 3.0 is a prerequisite for the administration of the doctoral candidacy examination. Only core (required) courses with a grade of "B" or better may be used to satisfy the minimum 58 credit hours required for the Ph.D. degree. Any required course in which a student makes a “C” grade must be repeated, and a grade of B or better must be obtained.

If a student receives a grade of "F", the student must initiate a petition to continue his/her program. The petition must be approved by the student's Graduate Advisory Committee, the BGC and the departmental chair in order to allow the student to continue in the program. If approved, the student must repeat the course and earn a grade of "B" or better before the dissertation defense. The course (credits and grade) can be counted only once for graduation.

B. **Progress Evaluations**

The BGC annually reviews each student's progress. The reviews will consider all aspects of a student's performance. Examples of unsatisfactory performance include poor grades, non-compliance with regulations, irresponsibility, or insufficient effort on dissertation research, unsatisfactory progress on writing the dissertation, scientific misconduct, and unethical behavior. If the student's progress is unsatisfactory, the BGC, in concert with the advisor, may require remedial action or may request that the departmental chair remove the student from the biochemistry and molecular biology graduate program.

C. **Student Appeal Policy**

Graduate students may appeal decisions concerning unsatisfactory performance on comprehensive assessments, academic probation for reasons of unsatisfactory progress toward the degree other than insufficient grade point average, termination of or election to void an assistantship for reasons set forth in the terms and conditions applicable to graduate assistant appointments, or dismissal from the graduate program. This policy does not apply to the appeal of decisions regarding course grades. The procedure can be found in the ECU Graduate Catalogue at: [http://catalog.ecu.edu/content.php?catoid=11&navoid=812](http://catalog.ecu.edu/content.php?catoid=11&navoid=812).

The policy to appeal a grade can be found in the ECU Graduate Catalogue at: [http://catalog.ecu.edu/content.php?catoid=11&navoid=812#Grading_System](http://catalog.ecu.edu/content.php?catoid=11&navoid=812#Grading_System).
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