

BIOCHEMISTRY AND MOLECULAR BIOLOGY TRACK **GRADUATE PROGRAM POLICY DOCUMENT**

The purpose of this document is to describe the organization and to define the policies of the Biochemistry and Molecular Biology Track with regard to the Track Graduate Program. The Policy Document has been written to embody both Track policies and the requirements of the Graduate School. The latter supersedes any policies in this document inconsistent with Graduate School policy.

History of the Biochemistry and Molecular Biology Graduate Program and Track

The Department of Biochemistry and Molecular Biology in the College of Medicine, UAMS, has offered Master of Science and Doctor of Philosophy degrees since 1943. In 2006, The Graduate School established the Interdisciplinary Biomedical Sciences (IBS) Graduate Program. Students seeking to obtain Masters or PhD degrees with Biochemistry faculty members had the option of doing so through the traditional department-based program or through the IBS program. In 2016, all of the basic science graduate programs at UAMS were reorganized into the Graduate Program in Interdisciplinary Biomedical Sciences (GPIBS), with specific Tracks corresponding to previous department-based programs. Recruiting, enrollment and administration of graduate students in the basic sciences are now centralized under the guidance of specific policies established by GPIBS.

Biochemistry and Molecular Biology Track Leader

The Biochemistry and Molecular Biology Track Leader is responsible for the coordination of Track-specific policies. The Track Leader also serves as the Chairperson of the Graduate Education Committee (GEC). This individual is responsible for handling the administrative details of information transfer between the Track and the Graduate School, including the scheduling of track activities related to the graduate program, such as course offerings, etc. The Track Leader shall carry out these duties within the guidelines of policies proposed by the GEC and adopted by the Graduate Faculty of the Track. The Track Leader will work with Department staff members and the Graduate School to ensure adequate records are maintained on current students and graduates for accreditation and other purposes. The Track Leader will be appointed for a term of office at the discretion of the Dean of the Graduate School, the GPIBS Director, with input from the BCMB Chairperson. In general, his/her successor should be an individual experienced in graduate education and administrative problems in this area.

Graduate Education Committee (GEC)

The GEC is charged with the responsibility of formulating and executing policies and practices dealing with graduate education in the Track. Major policy changes will be submitted to the Track Faculty and the Departmental Chairperson for approval prior to implementation, but implementation of existing policies will be the responsibility of the GEC and the Track Leader. The GEC will consist of the Track Leader, four (4) or more additional Graduate Faculty representatives from the Track, as appointed by the Departmental Chairperson. All members of the GEC will have voting privileges. In addition, two (2) graduate student representatives enrolled in the Track will serve on the GEC. These students will be nominated by the sitting student representatives and approved by the Track Leader. The graduate student representatives can fully participate in discussions of the GEC, at the discretion of the Track Leader, although discussions about specific students and/or personnel will generally be limited to faculty.

The GEC acts as the Track Graduate Student Recruitment Committee, responsible for the organization and coordination of the track's efforts to recruit quality graduate students. This effort includes but is not limited to coordination with the Graduate School on recruitment of students interested in the Biochemistry Track, design and maintenance of the Departmental web site, undergraduate research/recruitment presentations, and the summer undergraduate research fellowship program (SURF). The GEC is responsible for monitoring the quality of the Graduate Program of the Track. This responsibility includes the preview and review of courses offered, the introduction of new courses, the revision and deletion of existing courses, and any other changes in Track requirements and procedures necessary to maintain a quality program.

The Department Chairperson may serve on this Committee *ex officio* at his/her discretion. Actions taken by the GEC will be reported to the Track Graduate Faculty by the distribution of minutes for each meeting. Copies of these minutes, with discussions of personnel matters deleted, will be distributed to all departmental graduate students. Any action by the GEC may be appealed by submission of a written petition stating the objection(s) and the reason(s) for the objections. The Track will call within thirty (30) days of the petition's receipt, a general meeting of the Track Graduate Faculty to resolve the issue.

Programmatic Details

Biochemistry and Molecular Biology Track Curriculum

Year 1 Fall (12 credit hours)

- GPIBS Core (see Academic Requirements for PhD Degree in the GPIBS Policy Document for details)

Year 1 Spring (9+ credit hours)

- 1 credit hour Seminar (BIOC 5105)
- 1 credit hour Scientific Communication and Ethics II (PCOL 5119)
- 3 credit hours Methods in Biomedical and Translational Sciences (BIOC 5109)
- 3 credit hours Current Trends in Biomedical Sciences (BIOC 5106)
- 1 credit hours Research (BIOC5104)

Each summer until graduation

- 1 credit hour Research (BIOC5104)

Year 2 Fall (9+ credit hours)

- 2 credit hour Seminar (BIOC 5105)
- 1 credit hour Scientific Communication and Ethics III (PCOL 5120)
- 3 credit hours Biostatistics I (BIOS 5013)
- 3+ credit hours Elective and/or Research

Year 2 Spring (9+ credit hours)

- 2 credit hour Seminar (BIOC 5105)
- 1 credit hour Scientific Communication and Ethics IV (PCOL 5121)
- 6+ credit hours Elective and/or Research

Above includes 22 of the 24 credit hours of required coursework. Students must take a total of 4 credit hours of Special Topics in Biochemistry or Electives from outside the Track. A variety of Special Topics courses are offered and students should choose, with the advice and consent of his/her advisory committee, Special Topics courses that enhance his/her development as a scientist.

Elective courses administered by the Biochemistry Track that could be used to satisfy the Elective requirements include:

Special Topics in Biochemistry-Proteomics (*BIOC6102, 2 credit hours)

Special Topics in Biochemistry-Proteins and Enzymes (BIOC6102, 2 credit hours)

Special Topics in Biochemistry-Applied Systems Biology (BIOC6102, 1 credit hour)

Special Topics in Biochemistry-Cancer Biology (BIOC6103, 2 credit hours)

*When offered simultaneously, each BIOC6102 course has a different section assignment in GUS.

Year 2 Summer

- 1 credit hour Research (BIOC5104)

Candidacy Exam (research proposal submitted to committee followed by oral defense)

Years 3 to Degree Completion

- 2 credit hours Seminar each semester (BIOC 5105) excluding summer
- 8 credit hours of Dissertation Research (BIOC6104, until reach 18) and/or Research

Department Seminars

Graduate Student Seminars: All students in the Track must register for the credit amount appropriate for their degree program and participate in Biochemistry Seminar (BIOC 5105) for their tenure as graduate students. Students presenting seminars register for two (2) credits, students not required to present a seminar register for one (1) credit. Graduate student seminar is offered in the fall and spring semesters and is graded. Seminar topics are selected by the student and must be pre-approved by the student's major advisor and the course director. During an academic year, a student must present his/her own research topic once, while the second presentation must be in a topic area outside the student's current research pursuits. Adjudication of scheduling conflicts is the purview of the course director.

Track Research Seminars: All graduate students are required to attend and to participate in the discussion at these presentations. This seminar series includes Track faculty, faculty from other divisions at UAMS, and speakers from outside the UAMS complex. Academic credit is factored in with the graduate student seminar evaluations. Students are also strongly encouraged to avail themselves of the opportunity to attend seminars presented by distinguished scientists who are guests of other departments on the UAMS campus.

Additional Course Work

Advanced course work within this and other Tracks will be planned, in consultation with the student, by the Doctoral Advisory Committee to fit individual student needs. Available courses are listed in the UAMS Graduate Catalog. The graduate school will distribute a current listing of courses prior to graduate student pre-registration.

Major Advisor for Thesis or Dissertation

The regulations of the Graduate School regarding the selection of an advisor will be followed. Students may consult with the Track Leader and other faculty regarding the selection of a major advisor. The choice of a major advisor is one of mutual consent between the student and the individual faculty member. Major advisor selection will normally take place after the student has completed the first semester of graduate studies and completed the required laboratory rotations, but may be delayed until the second semester. After a student and a faculty member have agreed to enter the student/advisor relationship, the faculty member will seek approval from the GPIBS Director and the BCMB Track Leader. After approval of the student/advisor arrangement, the advisor will notify the student and the appropriate forms will be completed (GPIBS forms 2 and 3). The Graduate School will then be informed of this appointment in the appropriate manner.

The major advisor for the M.S. thesis or Ph.D. dissertation research will counsel the student on the selection of a Doctoral Advisory Committee of which the major advisor will be a voting member. Once selected, the student should complete GPIBS form 4 and return it to the GPIBS Director, the Track Leader, the Graduate School Office, and the BCMB Education Specialist. The major advisor, together with this committee, will advise the student on the selection of appropriate course work, and will monitor the progress of his/her research activities and the preparation of a thesis or dissertation. The major advisor will be the Chairperson of the student's advisory committee, and will be responsible for preparing a report of committee deliberations and recommendations to the GEC after each meeting of the committee. Students and mentors should consider expertise and familiarity with Departmental policies as criteria for selecting Doctoral Advisory Committee members.

The Candidacy Exam

Passing the Candidacy Exam is one of the biggest moments in graduate school. Preparing to discuss and defend your ideas in a scholarly setting is key to success. While it is the responsibility of the student and their mentor to prepare for the exam, the GPIBS Director and BCMB Track leader are available to assist in this process, as are the BCMB Track Student Representatives.

Information related to the Candidacy Exam can be found in the GPIBS Policy Document. What follows is a summary of the details, timeline, and guidelines associated with planning your Candidacy Exam.

Written Exam

- GPIBS PhD students entering their second year should begin formulating a central hypothesis, specific aims, and research objectives to lay the ground work for the NIH-style grant proposal they will write in Science Communication & Ethics III & IV.
- Consultation with your primary advisor is helpful at this stage. It is also a good idea to present your ideas for developing the grant proposal to your Doctoral Advisory Committee.
- Students are required to have at least one Doctoral Advisory Committee meeting before scheduling the Candidacy Exam. It may be wise to have an initial meeting in the Fall Semester of your second year to introduce the ideas and goals, then have a second meeting in the Spring to present a more refined version of the aims.
- Please note that you are not required to generate preliminary data for your proposal. There must be some basis for your hypothesis, either from data in the literature or results generated by your laboratory, but your main job is to develop a set of hypotheses and design experiments to test them. With that said, good data to support your ideas is always a plus!
- The grant prepared as part of Science Communication & Ethics III & IV can serve as the written portion of the Candidacy Exam.
- The grant (written exam) is typically sent to your Doctoral Advisory Committee sometime in the spring or summer of your second year. The Doctoral Advisory Committee has two weeks to decide if the grant is defensible. If the Doctoral Advisory Committee finds the grant to be inadequate, then they must return specific comments to the student and their mentor. The student has four weeks to revise the grant and resubmit it to the Doctoral Advisory Committee. Once the grant is deemed adequate, then the student should schedule the oral portion of the exam. Typically, this will be within 2-4 weeks of receiving comments from the Doctoral Advisory Committee.

Oral Exam

- Exams should be held prior to the fall semester of the student's third year in the GPIBS program. Most exams are held between May and August near the end of the second year.
- The student should bring a copy of GPIBS form 7 (the Candidacy Exam form) to the exam. This form should be signed and a copy transmitted to the GPIBS Director, the Graduate School office (Dr. Latrina Prince), the BCMB Track Leader, and Kathy Carlson (the BCMB Education Specialist).
- The student's Mentor, Doctoral Advisory Committee, and Track Leader will be present at the exam.

- The Track Leader serves as the moderator for the Oral Exam, unless they are the student's mentor or an advisor on the student's committee. In such a case, the GPIBS Director or another member of the Doctoral Advisory Committee will serve as the moderator for the exam.
- As noted in the GPIBS policy document, the Oral Exam will typically consist of a presentation of the proposal in the form of a short seminar. Members of the Doctoral Advisory Committee will ask the student questions related to the proposal, including questions related to the scientific premise, the methodology, and fundamental principles related to the science.
- Students should expect questions throughout the presentation, as well as once they have finished their talk. The total time for the completion of the Oral Exam varies but can extend well beyond one hour.
- The Candidacy Exam will be evaluated by the Doctoral Advisory Committee and will result in a grade of Pass or Fail. A passing grade requires 80% of the committee members to vote to pass.
- If the student fails to pass the Oral Exam, they will be given an opportunity to retake the exam within four weeks or at the discretion of the Doctoral Advisory Committee. Any student who fails to pass the Oral Exam after two attempts will be recommended for dismissal from the program.

Preparing for the Oral Exam

As noted above, the student and their mentor should work together to prepare for the Candidacy Exam. The BCMB Track leader is also available to provide help and guidance. The BCMB Student Representatives can help facilitate mock exams to help students prepare for the Oral Exam. Students are strongly encouraged to have at least one mock exam before walking into the real thing.

Meetings of the Student's Doctoral Advisory Committee

Graduate students will meet with their Doctoral Advisory Committee at least once a semester (Fall and Spring) as a prerequisite for registration for the subsequent semester. Either the student or the major advisor may initiate additional meetings. It is the major advisor's responsibility to ensure that a duly signed document attesting to a meeting is filed with the Track leader and the Graduate School each semester. The purpose of these meetings is to review a student's progress toward the degree, and to discuss future work. The student will prepare a written report of his/her research progress for these meetings and will distribute by e-mail a copy of this report to each member of the Doctoral Advisory Committee one week prior to the meeting. These written reports form the basis for advice by the committee as a means of evaluating his/her progress. Students will be examined orally on this report as well as any course work the student has completed, as it relates to research done that semester. The reports are stored in the student's departmental file, along with the committee's review form acknowledging the meeting.

The Doctoral Advisory Committee also guides students with regard to selecting courses and progressing toward fulfillment of other requirements of the Graduate School and the Track Program. The Doctoral Advisory Committee is responsible for monitoring the student's general biochemical knowledge, problem solving ability and preparation for the Ph.D. candidacy exam. After meeting with the student, the Doctoral Advisory Committee will discuss his/her progress and make suitable recommendations for the future. These recommendations will be summarized by the major advisor in the form of a Track Graduate Committee Report (GPIBS form 6). The student should send the signed and completed form to the Track leader, the GPIBS Director, the BCMB Education Specialist, and the Graduate School for inclusion in the student's file. A student's Doctoral Advisory Committee must ensure that the UAMS Graduate School's eighteen (18) credit hour dissertation requirement for Ph.D. students or the six (6) credit hour thesis requirement for the appropriate M.S. students is fulfilled.

Dissertation Preparation and Defense

The regulations of the UAMS Graduate School regarding the defense must be followed. In addition, the Track policy for arranging the dissertation defense begins with notification by the student of the intent to defend the dissertation. The following steps should be taken:

1. Three to 4 months prior to the target date for the dissertation defense, and with approval of the mentor, the student should orally present their planned dissertation defense to the Doctoral Advisory Committee members. This should include a written outline with sufficient detail for evaluation.
2. If the Doctoral Advisory Committee approves, then the student begins writing the dissertation. It is recognized that the student may have portions of the dissertation already written. If the Doctoral Advisory Committee does not approve, they will recommend what must be accomplished by the student prior to writing the dissertation.
3. Four (4) weeks prior to the targeted date for the dissertation defense, the student presents the final version of the dissertation, approved by the primary advisor, to the Doctoral Advisory Committee.
4. The Doctoral Advisory Committee members read the dissertation and either approve or disapprove of the dissertation within two weeks of receiving the document. Committee members may provide additional input regarding the dissertation to the student at the dissertation defense.
5. If the committee approves of the dissertation, then the student is given the 'go-ahead' to schedule and advertise the dissertation defense. If the Doctoral Advisory Committee does not approve of the dissertation, they will recommend what actions must be taken by the student prior to approval of the dissertation.
6. Following a public seminar, the Doctoral Advisory Committee will meet with the student to discuss the dissertation and presentation. The committee will then vote on the acceptability of the defense, and complete any required documents associated therewith. This documentation will be forwarded to the Graduate School, with copies to the Track Leader for inclusion in the student's file. The student will be notified of the results of these deliberations immediately following the meeting. Approval by the Doctoral Advisory Committee will require the concurrence of the committee with no more than one dissenting vote. The UAMS Graduate School requires approval by eighty percent (80%) of the committee membership for dissertations.

Promotion and Student Affairs

Promotional procedures

The GEC functions as the Track student promotions committee and monitors the progress of all Track graduate students in a general sense. Appropriate action can be taken by the GEC on the advice of the Doctoral Advisory Committee. Students in the Biochemistry and Molecular Biology Track Graduate Program must maintain a 2.85 overall grade point average (GPA). Failure to maintain this level of performance for two (2) consecutive semesters will result in dismissal from the program. A student may also be considered for dismissal if they fail to maintain adequate research progress as determined by their Permanent Advisory Committee. Academic dishonesty and other forms of unprofessional behavior may also result in dismissal, as outlined in the Graduate School handbook.

It is the responsibility of the student, together with their advisor and their Doctoral Advisory Committee, to monitor the progress toward the degree sought and to take corrective action before academic difficulties become insurmountable. Students having academic difficulties who have not yet formed a Doctoral Advisory Committee should seek the advice of the Track Leader.

Dismissal

Please see the GPIBS policy document for details related to dismissal from the program.

Withdrawal

Students seeking withdrawal from the Track Graduate Program must notify the Track Leader in writing, including an explanation of this action. Withdrawal from the UAMS Graduate School requires completion of an additional form by the student.

Student Grievances

Student grievances procedures relating to the Track Graduate Program are covered under the general Student Grievance Procedure of the University of Arkansas for Medical Sciences. This document defines the term "grievance" for the purposes of this section of the Policy Document. A copy of this document is available in the UAMS Graduate School Office. Students with a complaint should first seek to informally resolve it by contacting the responsible Faculty or staff member or advisory committee. The Track Leader will assist, if necessary, in informally resolving the problem. If the student still feels that his/her grievance has not been addressed, he/she may appeal in writing to the Track Leader for relief. The Track Leader will appoint an *ad hoc* committee of three Track Faculty members to investigate the situation. These Faculty members shall not include persons with any direct involvement in the issue to be investigated. The *ad hoc* committee will consider the problem and report its findings to the Track Leader within three weeks of the receipt of the written complaint. The Track Leader shall then rule on the departmental disposition of the matter. If the student still feels that the matter has been improperly resolved, he/she may then appeal to the GPIBS Director and the Dean of the Graduate School, as provided for in the campus document cited above.