<table>
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<th>Timeline/Checklist For Biochemistry Ph.D. Qualifying Examination</th>
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The qualifying exam process usually starts midway through the student's second year in graduate school and should be completed by July 1 of that same year.

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<tr>
<th>January/February</th>
<th>DGS meets with students taking the exam that year.</th>
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<tr>
<td>January/February</td>
<td>Student and advisor prepare list of possible committee members and get approval from DGS</td>
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<td>February</td>
<td>Student approaches possible committee members and secures commitments. When a committee is composed, the student should inform the DGS and Program Administrator of composition.</td>
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<td>February</td>
<td>Student should schedule a 1 hour pre-qualifying exam meeting with their committee (including advisor) to occur during March 15-April 15. Student should also go ahead and schedule the actual 2.5 hour qualifying exam within the timespan that extends from 4 weeks after the pre-Q exam meeting through June 1. The student should inform the Program Administrator of the scheduling of these two meeting dates. The student and the Departmental Administrator will work together to secure room reservations for both meetings. Please submit required Graduate School paperwork for scheduling your exam to the Program Administrator at least three weeks before your exam. Please locate and complete the Request to Schedule your Qualifying Exam form and the Request to Appoint your Dissertation Committee at the following website of the Graduate School: <a href="http://www.vanderbilt.edu/gradschool/form_locator">http://www.vanderbilt.edu/gradschool/form_locator</a>. Please submit both completed forms to the program administrator, who will then secure the signature of the DGS, make copies of the forms, and send both to the Graduate School for the Dean’s approval. Upon receipt of your form, the DGS will appoint a chair to your Qualifying Exam Committee and your dissertation committee.</td>
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<td>March 1</td>
<td>Student should submit Aims page to the DGS on or before March first. The DGS may suggest changes to the Aims before the pre-qualifying exam meeting.</td>
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<td>At least one week before pre-Q exam meeting</td>
<td>Student submits Aims pages for both Q exam proposal and actual (projected) Ph.D. thesis aims to committee.</td>
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<td>March 15-April 15</td>
<td>Pre-qualifying exam meeting. (Full Ph.D. committee. No longer than 1 hour). Some iterative e-mail between student and committee may be needed after the meeting if the aims need extensive revision. (No reporting to DGS needed).</td>
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<tr>
<td>No later than 1 week before qualifying exam</td>
<td>Student submits qualifying exam proposal to Ph.D. committee.</td>
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<td>Prior to qualifying exam</td>
<td>Advisor must submit letter of evaluation to the Chair of Exam Committee, with copies to DGS and Program Administrator. Student should make sure their advisor doesn’t forget.</td>
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<tr>
<td>Program administrator should provide student with exam outcome forms to be completed by exam committee. Also provide academic record of the student to Chair of Exam Committee.</td>
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<td>Student should remind committee of the date, time, and place of the exam a day or two before the exam.</td>
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<tr>
<td>Between 4 weeks after pre-Q exam meeting and June 1.</td>
<td>Qualifying exam (preferably 2 hours; 2.5 if needed). The student should bring the “Results of the Qualifying Exam” and “SACS Qualifying Exam” forms to the meeting. The committee Chair is responsible for completing forms and submitting them afterwards to the DGS or Program Administrator when a passes or fails. If the decision is “fail with an opportunity to re-take the exam” the forms must still be completed (indicating fail) and submitted. The committee Chair also should draft a letter indicating the committee decision and evaluation of student performance and then submit letter to the student, DGS, and Program Administrator.</td>
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Immediately after initial Q exam

If re-take is required, student should schedule the second 2.5 hour qualifying exam to take place within 30 day of the first exam and prior to July 1, if at all possible. The Departmental Administrator can help with room scheduling. Student will need to complete another Request to Schedule form to the Graduate School. This form can be submitted to the Program Administrator, who will secure the signature of the DGS, make copies, and return the form to the Graduate School.

A day or two prior to re-take of Q exam

Student should remind committee of exam date, time, and place. Student should remind the committee Chair to bring the needed paperwork.

Prior to July 1

Re-take of qualifying exam, if needed. This exam should be scheduled (as before) by the student with the help of the program administrator. The student should again bring the outcomes forms (Results of the Qualifying Exam and SACS Qualifying Exam) to the meeting. The committee Chair should complete and submit these forms to the DGS or Program Administrator and, with help of the full committee, should write final evaluation/outcome letter and send to student, program administrator.

Soon after passing Q exam

Student should schedule 1st regular (90 minute) committee meeting for August or early Autumn. Students usually schedule rooms on their own for this, as needed with assistance of the Departmental Administrator.

Each committee meeting

Each 90 minute meeting is scheduled by the student. Progress reports should be submitted by the student to committee members at least a week ahead of the meeting. Student should remind committee members of meetings 1-2 days prior to meeting. Students must bring required SACS committee meeting form to each meeting. Forms and evaluation letter (addressed to student) should be returned to program administrator by the committee Chair.

Full Description of Q Exam Process from the Program Description

Prior to the qualifying exam the DGS, mentor, and Department Chair will serve as the advisory committee for entering students.

After completion of the required Biochemistry course and, normally, near completion of the Graduate School requirements of 24 didactic hours, the student will take the qualifying examination, usually starting in March of the student’s 2nd year after beginning graduate studies.

Passing the qualifying exam admits students to Ph.D. candidacy. The qualifying exam is comprised of a 6 page written research proposal and an oral examination by an exam committee. The primary goals of the qualifying exam are:

1) To provide an assessment of whether the student has a satisfactory general knowledge of biochemistry and related areas of genetics, cell and molecular biology. This means a textbook-level knowledge of general biochemistry and an IGP Bioregulation-level knowledge of genetics, cell and molecular biology.

2) To determine whether the student is able to articulate and defend sound scientific hypotheses and specific aims to test such hypotheses. This includes mastery of the relevant background literature. Students are also expected to have mastered the literature related to their specific Ph.D. project, although the aims of the Ph.D. project are not the topic of the qualifying exam proposal (see below).

3) To assess the student’s aptitude and motivation for completing the Ph.D. degree.

4) To provide training in the proposal writing process.

5) To form a Ph.D. Committee to foster and monitor student development.

The following sections explain the procedures for the qualifying exam.
i). Students taking their qualifying exam will have completed Biochemistry 327 (Scientific Communication), usually during the Fall semester before their spring qualifying exam. This course includes specifics on how to prepare a grant proposal and in-depth discussions on good grant writing practices, common concerns and mistakes. The aims of the 327 proposal are the tentative aims of the student’s Ph.D. project, as determined by the student and her/his advisor.

ii) The DGS will hold a January or February meeting with all students preparing to take the qualifying exam to overview the process and address student questions.

iii) The topic for the qualifying exam is a mock-up proposal of the student’s own device. While it may be related to the research being undertaken in the Ph.D. lab of the student it must be distinct from the student’s Ph.D. aims or any other existing project known to the student. While the aims must come from the student, s/he is encouraged to use their advisor or other program faculty as a sounding board before finalizing.

iv) The student will first write and submit a preliminary Specific Aims page for his/her qualifying exam research proposal (1 page limit, 11 or 12 point font). This document should describe the hypotheses to be tested and list the specific aims designed to test the hypotheses. The general experimental approaches and methodologies utilized to test the hypotheses should be briefly described. The Specific Aims page should be submitted to the DGS on or before March 1. In rare extenuating circumstances, the DGS can approve a later deadline. The specific aims page should include the name of the student, the title of the proposal, and should indicate that these are qualifying exam aims.

v). For each student the Qualifying Exam Committee will be comprised of four members of the graduate faculty, three of whom must have primary or secondary appointments in the Department of Biochemistry, one of whom must be tenured. One committee member should not be a primary faculty in Biochemistry. The student’s advisor is not on the Exam Committee, but will join the other members of this committee to constitute the student’s full Ph.D. Committee. The student and advisor should first draft a list of 5-6 possible Biochemistry faculty in order of preference and 3-4 non-departmental faculty and present this list to the DGS for approval. Upon DGS approval, the student may then solicit commitments by faculty members on the list until the committee is composed. The DGS will then appoint the committee Chair (who must be a tenured primary member of the Department of Biochemistry).

vii) Approval of specific aims. Once their committee is composed, the student will provide two specific aims pages to each committee member. One specific aims page will be on the qualifying exam proposal (and should be marked as such). The other specific aims page should be on the student’s actual Ph.D. project aims. The student will also schedule a one hour pre-qualifying exam meeting with their committee within the March 15-April 15 time range. The Ph.D. advisor must attend this meeting. Once a time and date is found, the student will inform the Graduate Program Administrator, who will then schedule a room and confirm the date, time and place with the Exam Committee. At this pre-exam meeting the student will present their qualifying exam proposal aims to the committee in a presentation that includes no more than 1 introductory slide and one slide per aim. The committee will determine whether the student’s anticipated qualifying exam research proposal (based on the Specifics Aims) will be "defendable" in a qualifying exam. If not, the committee will help the student to craft aims that appear to be defendable. This adjustment of aims can take place either at that meeting or immediately following via iterative e-mail. The committee will also preview with the student the likely types of questions that will be asked at the actual oral qualifying exam. Near the end of this one hour meeting, the student should also present a slide that lists their actual Ph.D. project aims.

viii) Scheduling the qualifying exam. When the student schedules their pre-qualifying exam meeting, the student should also poll committee members to schedule a date and time for the oral qualifying exam. This meeting should normally take only 2 hours, but should be scheduled for 2.5 hours in case the committee needs extra time in special cases. This exam should be scheduled no earlier than 4 weeks after the pre-qualifying exam meeting and no later than June 1. The Graduate Program Administrator will be informed of the scheduling of the qualifying exam as soon as possible by the student and will reserve a room for a 2.5 hour block of time for the oral qualifying examination.

ix) Witten qualifying exam proposal. The written component of the qualifying exam is a grant proposal. The proposal section of the written qualifying exam is strictly limited to 6 pages, including all figures the Specific Aims Page, Background and Significance, and Research Plan. In addition to the 6 page proposal there is also a face page and references. The face page should include the name of the student, the name of the advisor, the title of the proposal, and the date, time and place of the oral exam. The student should assume a timeline of three to four years for the proposed experiments, which can realistically be accomplished with typically available resources. The student is responsible for all
scientific aspects of the proposal including background information, approach, experimental design, and methodology for all experiments. The student may consult with anyone concerning methodologies, format, references, etc. Students are free to orally discuss the proposal with their advisor or other faculty and also to have students or postdocs (but not faculty) critique the written proposal. Faculty are not allowed to attend practice qualifying exams.

The student should provide the qualifying exam research proposal to the qualifying exam committee no later than one week prior to the oral qualifying exam. The mentor should also provide the committee Chair with a letter providing an evaluation of the student’s performance to date, at least one day prior to the oral examination. In advance of the oral exam, the Graduate Program Administrator should provide the Chair of the committee with a copy of the student’s Vanderbilt academic record. The Administrator will also provide the examination outcome forms the student taking the exam. These forms are to be completed and returned by the committee Chair to the Program Administrator following the exam.

The student should present their proposal at the oral exam using no more than 15 simple-format slides. During the oral qualifying exam the student should demonstrate:

- Mastery of knowledge concerning the background, methods, and literature related to their specific project.
- A firm grasp of textbook-level biochemistry. This does not imply extensive memorization of metabolic pathways, etc., but does imply fluency in all major areas of biochemistry as defined by the consensus topical composition reflected by most biochemistry textbooks (for example, those authored by Stryer and Voet and Voet).
- An understanding of cell and molecular biology and of genetics at a level consistent with what is taught in the Bioregulation survey course sponsored by the BRET office.
- The ability to think critically, defend the proposed science, and communicate reasonably well.
- General student motivation and track record in terms of work ethic, lab aptitude, responsible conduct of research, general motivation, and scholarship are also expected to be satisfactory. These traits will be evaluated in part based on the advisor’s letter to the committee and their grades.

The possible outcomes of the qualifying exam are pass or fail, with a single opportunity to re-take a failed oral exam within 30 days (no later than July 1). A pass may in some cases be accompanied by a requirement by the committee that the student carry out certain tasks (such as completing specific research training or coursework) in order to be considered a Ph.D. candidate in good standing, as will be assessed at future Ph.D. committee meetings.

If a second oral exam needs to be scheduled, the student should poll the committee for this purpose, with the Program Administrator then helping to locate a suitable room. As for the initial exam, the student should provide their committee with their proposal (revised, if needed) at least a week prior to the exam.

Following the exam (or both exams, if the student takes the exam twice), a letter addressed to the student should be prepared by the committee Chair that summarizes committee discussion and states the outcome of the exam. This letter is sent to the student, the Ph.D. advisor, and the Program Administrator.