

Qualification Process for Ph.D. Students

Division of Environmental and Biomolecular Systems

*Biochemistry and Molecular Biology (BMB) and
Environmental Science and Engineering (ESE) Degrees*

The qualification process¹ for Ph.D. students consists of two sections: (i) a three-part subject exam on coursework, and (ii) a two-part research proposal.

Section 1. Subject Exam

The subject exam is a written test consisting of three parts corresponding to graduate courses taken by the student while in the program.²

In most cases, the three parts will correspond to the core classes for the degree (or track) the student is pursuing. If substitutions for any regular required courses have been approved by the student's advisory committee, then the student may take the exam on either course (the required course or the substitute).

The three parts of the subject exam are administered as separate 2-hour questions over the course of one day.³ All parts are "closed book" (including all electronic devices, except simple calculators) and "in classroom" (to be taken in the specified room on campus) unless specified otherwise.⁴

Students should take this section of the exam soon after they finish their core courses. To expedite this, students who matriculate in the fall will be scheduled to take the subject exam as a group during the following summer. Students who matriculate at other times of the year generally will take the exam during the first summer following completion of the required core courses.

Each part of the subject exam will be graded by the faculty member responsible for the corresponding course. Then, a committee of all the faculty involved in the exam will assign an overall grade of pass or fail.

¹ Terminology used here: the qualification process, consists of two sections (the "subject exam" and the "research exam", each with 2-3 parts. The parts of the subject exam are questions, and the parts of the research exam are the proposal and defense.

² The three parts aspect is the same as past BMB practice, but different than recent ESE practice, which used to require four parts at this stage.

³ The student gets one part at a time (different from past BMB practice) and turns that in before getting the next part. The student can take breaks between the questions, but must complete all three during the workday (e.g., 3 x 2-hr exams between 9 AM and 5 PM leaves 1-hr breaks between each). The questions usually will be given out in the same order for all students taking the exam at one time, and this order usually will match the order of the corresponding courses in the curriculum.

⁴ The breaks between parts of the subject exam make it possible for a part to be "open book" and even "take home", if a particular examiner choose to write a question to be taken that way.

If the student fails, the committee can recommend retaking all or part of the exam one time. This must be completed within 6 months (2 quarters) of the original exam.

Section II. Research Exam

The research exam consists of two parts: a written thesis proposal and an oral defense of the proposed research.

The written thesis proposal should include a literature review with justification of the problem to be investigated; goals, objectives, and hypothesis; summary of the methods that will be used; presentation and analysis of preliminary results; and assessment of the potential impacts of the results. The technical content of the proposal should reflect significant original contributions from the student, and the prose must be the student's writing.⁵

These sections should be contained within 10 pages with other material (references, appendices including preliminary data, etc.) not to exceed an additional 15 pages. The thesis proposal document is due to the committee members one week before the oral proposal defense.

The oral defense consists of an approximately 20-minute presentation of the proposed research by the student, followed by questioning of the student by the student's thesis proposal examination committee. Immediately after the oral examination, the committee will vote to pass or fail the student on the research section (both written proposal and oral defense) of the qualifying exam process.

The examination committee will consist of the student's thesis advisor and two other members of the School of Medicine (SOM) graduate faculty. Typically, the faculty members of the proposal defense committee become members of the student's thesis defense committee.

If the student fails the Research Exam, the committee can recommend retaking this section one time, and the retake must be completed within 6 months.

The research exam must be completed in time to meet the SOM time limit for the overall qualification process (see below). In most cases, it is expected that students will take the Research Exam in their second year in the Ph.D. program.

Final Certification

After a student passes the research exam, the results will be communicated by the student's thesis advisor to the Director for EBS academic programs. If the student has passed both exams of the qualification process, and all other SOM requirements for

⁵ It is understood that most students will have access to the proposal under which their work is funded. So, their thesis proposal must reflect substantial original contributions beyond what they were given.

Advancement to Ph.D. Candidacy⁶, the Program Director will recommend that the SOM advance the student to Ph.D. candidacy.⁷

The time limit pertaining to the overall qualification process is specified in the Bylaws for the SOM Graduate Council: students are “expected to take the examination for advancement to candidacy by the end of their 12th term of graduate study; or they will be recommended for dismissal for failure to progress academically”⁸ (Article IX, Section F, Ver. 9/3/09).

⁶ According to the SOM’s Advancement to Candidacy form (click [here](#), or ask Nancy Christie), this includes completion of at least 3 quarters, CON 650 (Ethics), and any other requirements specified by the program.

⁷ By completing the corresponding form and sending it to the SOM Office of Graduate Studies for the Associate Dean’s approval.

⁸ More precisely, we interpret this to mean “will complete and pass the exam within 12 terms of when they become a Ph.D. student, or they may be recommended for dismissal.” 12 terms = 3 yrs.