



PhD Program in
Biomedical Informatics

Guidelines for Preliminary Qualifying Examination

Biomedical Informatics PhD Program

THE GOAL

The primary goal of the Preliminary Qualifying Examination (PQE) is to ensure that you have mastered several topics and skills that are critical for successful completion of your PhD thesis. The PQE will assess your competence in genome sciences, bioinformatics methods, statistical analysis, and molecular biology/genetics, including material that is covered in your core BIG classes.

EXAM FORMAT

The PQE is anchored on a series of questions related to one or more recent papers. The papers and the questions are selected by the committee chair and typically require extensive reading and computation (examples available from the program office). You have one week to work on the exam: exactly seven days (24x7 hours) prior to the exam, the program administrator will email you the exam. On the day of the exam, you will meet with the committee to present a response to the questions (no written report is required). The examiners will then ask questions related to your presentation as well as on any material that you are expected to have mastered in your coursework. The exam will last approximately two hours. You may not consult with anyone other than the program director and the exam chair about the exam.

EXAM COMMITTEE SELECTION

The exam is administered by a three-member faculty committee. The PQE chair selects the paper or papers, prepares the written questions, and guides the exam to ensure that the questioning remains appropriate and on track. Since fall 2023, the program directors have appointed the chair and the other committee members based on each student's research field, ensuring that the chair's expertise aligns with the student's intended area of study. Under the previous system, in which students identified their own committee members, recruiting willing faculty proved difficult and the workload fell unevenly among faculty; centralized appointment was adopted to address both problems. By centralizing committee selection, the program can distribute the workload more evenly across faculty and reduce the burden on students. Students must submit their research field at least three months before the exam. Once the committee has been assigned, the student is responsible for contacting the examiners to schedule the exam. Any BIG faculty member may serve on the committee, except a student's thesis advisor, if known, or collaborators. The chair must be a BIG faculty member who has previously served on a committee at least twice.

SCHEDULING THE EXAM

You are required to take the PQE before January 31 of your G2 year (starting with the Fall 2025 cohort). Most students take the exam in the fall of G2; a minority of students take it in the spring or summer of their G1. It is your responsibility to schedule your oral exam. You may take the exam either before or after selecting your thesis advisor; if you have already selected your thesis advisor, that professor may not serve on your committee. Please note that selecting your committee members and scheduling the exam typically requires much more time than expected, and so you should plan well in advance (2-3 months). On rare occasions, exams have had to be

rescheduled at the last minute because of a change in a committee member's schedule.

THE OUTCOMES

You will be informed of the outcome (pass, conditional pass, or fail) at the end of the exam, along with any comments that the committee may have. The committee chair will submit a written evaluation—signed by the committee—to the program office, which will forward a copy to the student.

Pass: No further work is required.

Conditional Pass: The student has demonstrated partial readiness for doctoral research but must complete additional work before the result is converted to a pass. The conditions for changing the grade to “pass” will be determined by the committee. If possible, these recommendations will be given to the student at the end of the exam. The plan will be noted in the evaluation form, along with the expected time frame for satisfying the condition. The student and the chair are encouraged to communicate by email shortly after the exam to ensure that the expectations for the student are clear. In the past, the required work typically involved additional coursework or writing of a review manuscript.

Fail: Serious concerns were identified based on the oral exam. A follow-up meeting with the exam chair, PQE committee chair, program head, program advisor, and thesis advisor will be scheduled. After this meeting, a set of recommendations will be made to address the identified issues. The student will be given the opportunity to retake the oral exam following completion of the recommended work. If a student fails a second time, the student will be required to withdraw from the program.

POLICY ON AI

You are permitted to use any tools during the Preliminary Qualifying Exam (PQE), including AI systems and coding agents. However, you should disclose how AI or other tools were used, including which parts of your analysis they assisted.

You should be prepared to explain and demonstrate a clear understanding of all the material you present. Presenting AI-assisted analysis that you do not fully understand will be evaluated accordingly.

NEXT STEPS

After passing the PQE, you will assemble a Dissertation Advisory Committee (DAC). This meeting should happen within 3-4 months after passing the PQE. The program director is available to answer questions, clarify expectations, and provide guidance at any point during the exam preparation process.