

# **Guidelines for Preliminary Qualifying Examination**

## **Bioinformatics & Integrative Genomics PhD Program**

**(Academic Year 2021-2022)**

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### **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 Ph.D. 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 for students from BIG Program). The student has one week to work on the exam: exactly one week prior to the exam, the program administrator will email the exam to the student; a week later, the student will meet with the committee who will hear a formal presentation of the student's response to the questions (no written report is required). The examiners will then ask questions related to the student's presentation as well as on any material that the student is expected to have mastered in their coursework. The exam will last approximately two hours. Students are not allowed to consult with anyone other than the program director and the exam chair about the exam.

### **EXAM COMMITTEE SELECTION**

The exam is administered by three faculty members. Given that the exam chair selects the paper(s) and creates the written questions, it is advantageous for the student to have as the exam chair a professor whose research area overlaps with the student's intended area of study. The PQE chair is also responsible for keeping the exam on course and ensuring that examiners pursue an appropriate line of questions. The student should contact the potential exam chair and committee members directly to inquire their willingness to serve on the committee.

Once a committee is formed, the student must submit the PQE Application Form to the BIG Program Office. This form is due six weeks before the desired exam date. Once the BIG Program Office receives the PQE Application Form, an exam chair from the PQE Committee will be confirmed; final selection of examiners will be at the discretion of the BIG Program Office. Before the committee is formed, inform the BIG office if there are faculty members that you know or believe should be excluded because of a conflict of interest.

Any BIG faculty members may serve on the committee, except for your thesis advisor (if known) or collaborators; the chair must be a BIG faculty member who has already served on a committee at least twice (please see the below list). In selecting the chair and the committee members, please note that some professors (e.g., those who teach BIG core courses) are asked to serve very often and may not be willing. If you are having difficulty finding examiners, please contact the program office for recommendations ([catherine\\_haskell@hms.harvard.edu](mailto:catherine_haskell@hms.harvard.edu)).

## **SCHEDULING THE EXAM**

You are required to take the PQE before June of your G2 year. Most students take the exam in the fall of G2, and 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 may take much longer than expected and you should plan well in advance (2-3 months). On rare occasions, an exam 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 on the committee may have. The committee chair will submit a written evaluation to the student and to the BIG office, signed by the committee.

**Pass.** No further work on the PQE will be required.

**Conditional Pass.** A student will receive a conditional pass if the committee feels that he/she would benefit from additional preparation before starting the thesis work. The conditions for changing the grade to "pass" will be determined by the exam 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 when the condition may be satisfied. It may be helpful for the student and the chair to communicate by email shortly after the exam to ensure that the expectations for the student are clear. In the past, the required work included additional coursework and writing of a review manuscript.

**Fail.** A student will receive a fail if there are serious concerns based on the oral exam. In this case, 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 may be required to withdraw from the program.

## THE NEXT STEP

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, Dr. Park, is available to answer questions, clarify expectations, and provide guidance at any point during the exam preparation process.

**BIG faculty members: Eligible exam chairs are in red below.**

Martin Aryee	Faisal Mahmood
Paul Avillach	Debora Marks
Michael Baym	Matthew Meyerson
Bonnie Berger	Miles Miller
Rameen Beroukhim	Leonid Mirny
Jason Buenrostro	Vamsi Mootha
Martha Bulyk	Cynthia Morton
Scott Carter	Benjamin Neale
Christopher Cassa	Martin Nowak
George Church	Peter Park
Stirling Churchman	Chirag Patel
Mark Daly	Luca Pinello
Stephen Elledge	Alkes Price
Maha Farhat	Pranav Rajpurkar
Jason Flannick	Soumya Raychaudhuri
Nils Gehlenborg	Pardis Sabeti
Gad Getz	Vijay Sankaran
Todd Golub	Chris Sander
Robert Green	Ayellet Segre
James Gusella	Christine Seidman
Alexander Gusev	Jonathan Seidman
Steven Gygi	Edwin Silverman
Nir Hacohen	Peter Sorger
Kevin Haigis	Kimberly Stegmaier
Joel Hirschhorn	Shamil Sunyaev
Rafael Irizarry	Peter Szolovits
Peter Kharchenko	Michael Talkowski
Zak Kohane	Eliezer Van Allen
Aleksandar Kostic	Ulrich von Andrian
Eric Lander [on leave]	Christopher A. Walsh
E. Alice Lee	Scott Weiss
Heng Li	Kun-Hsing Yu
Xiaole (Shirley) Liu	Timothy Yu
Po-Ru Loh	Cheng-Zhong Zhang
	Marinka Zitnik



## Preliminary Qualifying Exam Application Form

Student Name:

### **Suggestions for Committee Members**

Chair:

Alternative Chair:

Committee member 1:

Committee member 2:

Faculty that should not be used [please indicate reason (collaborator/competitor/etc.)]:

Please return to BIG Program Office ([Catherine\\_Haskell@hms.harvard.edu](mailto:Catherine_Haskell@hms.harvard.edu) , Countway suite 514)