

# **Guidelines for Biomedical and Health Informatics PhD Qualifying Exam**

## **(2016 edition)**

### **Purpose:**

The purpose of the qualifying exam is to determine whether a student is ready to form a Dissertation Supervisory Committee. Successful completion of the qualifying exam is required before students can proceed with the formation of their Supervisory Committee. Accordingly, the exam aims to assess two aspects of students' abilities: Their knowledge of the breadth of the field, and their readiness to carry out PhD-level research.

### **Prerequisites:**

Students cannot schedule their qualifying exam until they have successfully completed all core courses and have received a letter indicating satisfactory annual progress.

### **Assessment:**

The qualifying exam assesses students'

- knowledge of the breadth of the biomedical and health informatics field (as defined by scope below)
- ability to synthesize material across the field
- ability to clearly and concisely demonstrate their reasoning skills in both oral and written form pertaining to the research and practice of biomedical and health informatics
- ability to answer unanticipated questions (within the scope as defined below)

The qualifying exam will consist of a written and an oral component.

### **Scope and field:**

The scope of the qualifying exam is defined and limited. It is defined by the curriculum that the student took (acknowledging that the curriculum is a dynamic entity that may change or expand over time). In addition to the material covered by the curriculum, the faculty have agreed that any material contained within the 4th edition of the Shortliffe textbook ("Biomedical Informatics: Computer Applications in Health Care and Biomedicine", 2014, Shortliffe & Cimino) may be within scope for this exam. Students are welcome to but not required to include information outside of this scope in answering questions, but use of such additional information is not necessary for passing the exam.

References should be included in written responses.

### **Format:**

There are two components to the exam: a written component and an oral component.

#### **Written exam**

The written component is a take-home, open-book/Internet exam. The written exam should be your own sole-authored work; treat it as you would a sole-authored publication. General discussion with others is permitted, but asking for input from others on the specific questions on the exam is not. You should receive no critiques or feedback by anybody on the document itself. Students will have 7 days to complete the exam.

Course instructors will contribute draft questions to the written exam, and a subset of those questions will be selected and revised by the qualify exam committee. The written exam will contain multiple questions, some of which will be required, and some of which will allow the student to choose which to answer. The answers may vary in length, depending on the type of question asked, but guidelines will be provided for approximate length of answer expected for each question. The total page limit for the exam will be specified. The exam responses should be in a 12-point font, 1" margins, and single spaced. References will not count against the page limit.

During the written exam, students should direct any questions about the exam to [bhquals2016-17@uw.edu](mailto:bhquals2016-17@uw.edu)—the list of quals committee faculty and students who are taking the exam. If a question or concern is considered urgent, please note that in the subject of the email.

### **Academic integrity**

The department of BIME strives to adhere to the highest standards of academic integrity and professionalism for students, faculty and staff. To understand expectations and help avoid unintentional misconduct, please read and make sure you understand the following resource:

UW's guide to Students' Academic Responsibility:

<http://depts.washington.edu/grading/pdf/AcademicResponsibility.pdf>

Plagiarism is often a matter of sloppiness or a misunderstanding about how and when one must give credit to others' work. Please be careful in your written exam! The qualifying exam committee members may choose to submit students' written material into plagiarism-checking software such as "Vericite" (see <https://www.vericite.com>).

In any situation, if you have a question, please feel free to ask. Such attention to ideas and acknowledgment of their sources is central not only to academic life, but to life in general.

### **Oral Exam**

The oral component of the exam is a closed session where the student is expected to answer questions from multiple faculty members. The oral exam will be related to the written exam questions and will thus occur approximately a week after the written exam is turned in and graded. The format will consist of each faculty member in turn having a chance to ask the student a set of questions. The oral exam is an opportunity for the faculty to probe iteratively some of the student's answers to the written exam. Each oral exam will take between 30-60 minutes.

### **Committee:**

The committee will use the syllabi of the core courses and the scoping textbook while they are creating the written exam. They will solicit feedback from other faculty on the clarity and appropriateness of the written questions that they create.

### **Grading:**

All students will take both the written and oral portions of the exam. Evaluation will take into account performance on both parts. The written exam will be submitted electronically and distributed to the committee members. Written exam graders will be blinded to the identity the students (e.g. exams will be labeled with a number or letter in place of a name). Multiple committee members will independently grade each student's responses. The committee will then meet to come up with an overall grade for each student for each question and for each student's written exam overall. After grades are assigned, the exam is unblinded, to prepare for the oral exam. Each student will be graded individually and not in comparison to others.

For each written exam question, the committee will prepare a grading rubric. The purpose of the rubric will not be to define the "right" answer, but to highlight likely concepts that should be covered in adequate and superlative answers. Thus, not every bullet point in a grading rubric will have to be included precisely, and concepts not in the rubric could prove to be acceptable answers

The committee will discuss the oral exam performance for each student immediately after the student completes the oral exam. The performance of specific questions and overall performance on the oral exam will be discussed as well as the grade for the exam overall. As per below, grading is Pass, Conditional Pass, or Fail for the exam overall.

**Outcome:**

After completion of the oral and written component of the exam, the faculty will meet to determine the outcome. Specific feedback will be provided to each student about their performance on the various components of the qualifying exam. Possible outcomes of the exam are: (1) pass, (2) conditional pass with certain conditions/reservations requiring further study, (3) fail. If students pass the qualifying exam, the faculty have determined that they are ready to identify their own area of research and to form their Supervisory Committee. If a student passes conditionally or does not pass the qualifying exam, the faculty must identify where the student has deficiencies and provide guidance to the student to overcome those deficiencies. The student will need to rectify those deficiencies either by retaking the qualifying exam if he/she failed or by satisfying an alternative requirement if he/she received a conditional pass. Students are not allowed to form their Supervisory committee until they have passed the qualifying exam.

The outcome will be available by the end of the day of the last day of oral exams.