Human Factors and Ergonomics Qualifying Exam Procedures

Purpose and Format of the Human Factors and Ergonomics Qualifying Exam

The broad objective of the qualifying exam is to help the department determine whether an individual is likely to succeed in the PhD program. Graduate studies are different than undergraduate work and require both the skills and an interest in going beyond textbooks to create new knowledge. This requires an ability to understand and critically evaluate the literature, to create new ideas and questions by synthesizing the literature, as well as understanding what constitutes good research and how to design research that is likely to create new knowledge. We do not expect students to be ready to demonstrate all of these capabilities during the qualifying exam, but we do want to assess their aptitude and interest.

The specific aims of the qualifying exam are for students to integrate ideas from a set of papers and demonstrate: 1) an understanding of the human factors context of their research topic, 2) an ability to assess the state of knowledge regarding their topic, and 3) an understanding and appreciation of different viewpoints related to their topic. We assess the aptitude and interest of students by asking them to integrate ideas from a set of approximately 30 papers related to their intended research area. The written exam consists of three questions, one from each committee member focusing on the readings provided by that committee member. The oral exam provides an opportunity to discuss the links between papers and concepts from readings and questions posed by each of the three committee members.

- The exam consists of a written take-home exam, followed by a one-hour oral discussion with the examination committee.
- The written exam consists of three questions (one question from each of the three committee members) with the expectation that answers to each question will NOT exceed three double-spaced pages, for a total of nine double spaced pages.
- Students receive their questions from the ISyE Department Graduate Coordinator one week prior to the scheduled qualifying exam date for the department.
- Students must complete their take-home exam within a week and should send their answers to the ISyE Department Graduate Coordinator, as well as their committee members, at the end of the day of the departmental exam.
- Students must coordinate with their committee to schedule their oral discussion to occur within two weeks after the written portion of the exam has been completed.
- The oral exam is normally closed to other students, but the student being examined can request that it be open. In that case, it would be open for all to attend.
- Passing the exam requires a judgment of passing by two of the three committee members for both the written and oral portions taken together. Students may withdraw after the written portion but it would count as failing the exam. It is expected that some students will be stronger in written or oral presentation. The grading is based on the ability to integrate, evaluate, and discuss the literature; to discuss the links between the papers rather than present the contents of the individual papers.
Timeline for Human Factors and Ergonomics Qualifying Exam

**February:** Student notifies the ISyE Department Graduate Coordinator of their intent to take exam in September. Student also informs the ISyE Department Graduate Coordinator of their committee members.

**March:** Each committee member e-mail reading list of approximately 10 papers and a question to the ISyE Department Graduate Coordinator.

**March:** The ISyE Department Graduate Coordinator distributes the reading list and questions to the committee members who then review their questions, review each other's questions and finalize questions. The ISyE Department Graduate Coordinator e-mails reading list to student, the reading list and questions to the committee, and then post the reading list (not the questions) on HFE Qualifying Exam website.

**August:** Students work with committee and the ISyE Department Graduate Coordinator to schedule the oral component of the exam. Students should schedule the oral component to occur within two weeks of the completion of the written component of the exam.

**September (second Monday):** Students receive their questions from the ISyE Department Graduate Coordinator e-mails questions to students by 9AM.

**September (third Monday, the day of the departmental exam):** Students e-mail answers to The ISyE Department Graduate Coordinator and the student’s committee members by 9AM.

**September (within two weeks of written exam):** Oral discussion of student’s answers occurs within two weeks after the written portion of the exam has been completed.

Immediately following the oral discussion, the committee meets and grades the qualifying exam. The advisor emails the ISyE Department Graduate Coordinator the grade. Once the ISyE Department Graduate Coordinator has received all of the grades for all of the HFE qualifying exams, the Coordinator then emails students their grade. This means students might not receive their grade until the first week in October, depending on when the last HFE student completes their oral discussion.
Human Factors and Ergonomics Qualifying Exam Policy

The qualifying exam requires that students satisfy both the course requirement and the exam requirement.

**Course Requirement:** To take the qualifying exam, a student will have to have received a grade of AB or better in at least one course in each of the following three areas:

**a. Cognitive Ergonomics**
ISyE 549, ISyE 555, ISyE 556, ISyE 559, ISyE 691 (depending on topic), ISyE 699 (depending on topic), ISyE 859 (depending on topic)

**b. Sociotechnical Systems / Macroeconomics**
ISyE 449, ISyE 555, ISyE 556, ISyE 559, ISyE 610, ISyE 652, ISyE 653, ISyE 691 (depending on topic), ISyE 699 (depending on topic), ISyE 753, ISyE 854 (depending on topic)

**c. Physical Ergonomics**
ISyE 555, ISyE 564, ISyE 565, ISyE 662, ISyE 691 (depending on topic), ISyE 699 (depending on topic), ISyE 764

Other courses may qualify, such as courses taken during undergraduate studies. Students may submit courses to the HFE Area group for consideration. Transfer students should submit a course syllabus or description and transcript for any courses from other institutions that they would like to have considered for satisfaction of this requirement. The HFE Area group will make this decision.

**Exam Requirement:** Prior to taking the exam, students must have completed an in-depth reading list of a specific HFE topic. The specific topic should be one of interests to the student (e.g., topic related to a dissertation proposal) and approved by the student’s examination committee.

i. The examination committee consists of the student’s advisor and two other HFE faculty.

ii. The reading list should be developed based on consultation between the student and the student’s advisor, as well as the other HFE faculty on the committee.

iii. The readings should prepare the student to integrate and evaluate the literature in their selected topic.

iv. The reading list should be submitted by the student’s committee members to the department within 6 months (generally by the end of March) prior to the Fall exam date. Each committee member one exam question with their reading list. The exam will be administered during the beginning of the following fall semester in accordance with the department procedure IEP 08.1.

v. The exam protocol is as follows:

A take-home exam and a one-hour oral discussion with the examination committee.

The exam consists of three questions with the expectation that answers to each question will NOT exceed three double-spaced pages, for a total of nine pages.

Students should pick up the exam from the department office one week prior to the scheduled exam date for the department.

Students should complete their take-home exam within a week and should turn in their answers on the day of the departmental exam.

Students should schedule their oral discussion to occur within two weeks after the written portion of the exam has been completed.

Passing the exam means a judgment of passing by two of the three committee members for both the written and oral portions taken together. Students may withdraw after the written portion but it would count as a fail. It is expected that some students will be stronger in written or oral presentation. The grading is not on presentation but on the demonstration of the ability to integrate and evaluate the literature; to present more than an echo of what was in the individual papers themselves.

The oral exam is normally closed to other students but the student being examined can request that it be open. In that case, it would be open for all to attend.

vi. Written exam questions from previous exams will be posted.

Coordinator: HFE area group convener