

## Conduct of Doctoral Comprehensive Exams

Ph.D. students must pass both written and oral exams to be admitted to doctoral candidacy. No exceptions are made. The Chair of the student's Advisory Committee is responsible for the administration of the comprehensive exams. All the members of the student's Advisory Committee shall have the opportunity to submit both oral and written examination questions.

### Timing

The doctoral student should take the comprehensive exam (1) after completing at least 30 hours, but no more than 45 hours of course credit and (2) before enrolling in the last 10 hours of dissertation research. Exceptions may be granted only with approval of the student's Advisory Committee Chair and the Program Director.

The student should consult with their Advisory Committee Chair to determine readiness to take the exam. The Chair should provide guidance on what is expected of the student in the examination. The student is encouraged to consult with other members of their Advisory Committee to ascertain their exam performance expectations.

In practice, the oral portion of the comprehensive exam is usually combined with the presentation of the student's dissertation proposal. The student may present the proposal in a public forum, after which the public is excused and the Advisory Committee commences the oral questioning in a closed meeting, as described below.

### Notification

When a student believes that s/he is ready to take the comprehensive exam, the student will notify the Advisory Committee Chair in writing and send a copy of the notice to the Program Director. The Chair will consult with other committee members to develop a list of questions and formulate an examination schedule. The Chair will inform the student of the schedule and specific examination format. The ESGP Program Coordinator should also be notified if there is a need to reserve a room for the defense; additional advance notice is needed if teleconferencing or videoconferencing is necessary.

### Examination Content

*Core Competency Areas:* Every student must demonstrate competence in the knowledge and skills covered by the core curriculum. The comprehensive exam should be designed to elicit evidence of adequate competence in these areas.

*Area of Claimed Expertise:* Since environmental science is interdisciplinary, parts of the comprehensive exam can vary substantially from one student to another. Therefore, the exam will be tailored to the student's own professional specialization and plan of study. The examination should inquire into the student's area of claimed expertise, in addition to the core competency areas.

### Written Examination

*Recommended Format:* The written examination must include questions from all committee members. The questions should be designed to elicit evidence that the student has obtained satisfactory mastery of the substantive knowledge and research methods relevant to the student's claimed area of expertise. The written exam should require the student to present answers that are well-articulated, rational, concise, responsive, and persuasive. As a result, closed-book exams are discouraged. Generally, two or three essay questions and/or problems (each can contain multiple parts) are provided by each committee member to the Advisory Committee Chair. This format requires the student to provide responses in the form of short papers (3-5 pages for each question) which include citations to relevant literature. Two to seven days should be provided between sets of questions; thus, the written portion of the exam takes place over a number of weeks.

*Grading:* Each question on the written exam should be graded as "high pass," "pass," "low pass," or "no pass" by the committee member who authored the questions. The member should then forward the grades, with comments, to the Advisory Committee Chair. The Chair will review the grades and comments and send a summary of the comments and the consensus grades to the student and the other committee members. If a student earns a "no pass" on any question, the Chair should consult with other committee members and reach consensus on whether to allow the student to proceed to the oral portion of the exam. If the student is not allowed to proceed, then the Chair will issue a failing grade on the written exam and communicate this to the student, along with the grades and comments provided by committee members. The student must be given a choice to retake the exam in its entirety or withdraw from the

program. *Only one retake is permitted.* If the student wishes to retake the exam, he or she must wait *at least three months*. The Chair must inform the Program Director that the student did not pass the written exam and indicate whether the student wishes to retake the exam or withdraw from the program. If the committee decides that the student should proceed to the oral exam, then the Chair will so inform the student and provide the grades and comments offered by committee members.

### Oral Exam

**Scheduling:** The oral examination should be held no sooner than two weeks nor later than four weeks after receipt of the grades and comments on the written exam. The Program Coordinator should also be notified if there is a need to reserve a room in which to conduct the exam.

**Recommended Format:** The oral exam should be limited to two hours and held in executive session (not open to the public). The Advisory Committee Chair is responsible for the conduct of the meeting. All committee members must participate in the oral examination. Generally, each committee member is allotted about 20 minutes to ask questions, which can include not only follow-up questions to the written examination but also other questions that the committee member believes is relevant to the student's claimed area of expertise. The Chair usually asks his or her questions after all other members have completed their examinations. The remaining time should be dedicated to an open-ended question and answer format.

**Grading:** At the conclusion of the questioning session, the student is asked by the Advisory Committee Chair to leave the room. The committee members then engage in a discussion to reach consensus on whether the student passed or failed the exam. The student is then be called back into the examination room and informed of the results by the committee. If the student passed, the committee Chair must so inform the Program Director by email, with a copy sent to the Program Coordinator. If the student did not pass the oral exam, then the Chair must inform the student of this and ask whether the student would like to retake the exam or withdraw from the program. *Only one retake is permitted.* If the student wishes to retake the exam, then the student must wait *at least three months and must retake only the oral examination.* The committee will provide to the student the appropriate steps to be taken for remediation. The Chair will inform the Program Director and Program Coordinator, by email, that the student has failed the oral exam and indicate whether the student wishes to retake the exam or withdraw from the program.

### Student Preparation

**Written Exam:** The student should review course material and relevant literature. Organize notes and literature to ensure that answers to questions can be developed quickly and efficiently. If an open-book format is selected for the written exam, the student should initially prepare an outline for an answer to each question. This outline should include references to literature. The student should then compose the answer organized around the outline (3-5 pages per answer should suffice in most circumstances). Finally, the student should edit the answer to ensure that a well-articulated, thorough, concise, accurate, and compelling response is developed. A list of references must be added at the end of the answer.

**Oral Exam:** The student should review the comments offered by the committee members on the written exam and be prepared to address them. Special attention should be devoted to those questions that the student received grades of "low pass" or "no pass." The Advisory Committee Chair should be consulted to determine whether the student will be permitted to bring notes to consult during the oral exam; however, even if permitted, excessive consultation of notes will indicate to the committee that the student is not sufficiently prepared and may result in a failed exam. The student should keep in mind that the purpose of the comprehensive exam is to determine whether the student possesses adequate knowledge of the claimed area of expertise and can articulate answers in a professional manner and prepare accordingly. The student's Chair should be consulted for additional advice on preparation for the exam, including set-up of the room.

If the committee Chair so desires, they may combine the oral presentation for the Research Proposal and conduct a combined defense in concert with the comprehensive examination defense. In this case, the presentation is open to the public for the presentation. After they have asked any questions that they may have, they will be asked to leave and the formal defense will begin.