

## **Guide for Genetics Oral Thesis-Proposal Defense preliminary exam UW-Madison Genetics Program**

The 'Oral' prelim examination provides a critical evaluation of a student's preparation for their research projects in the earlier stages of their thesis work. The Oral prelim should be completed by August 30 of the student's second year in the program (but can be done earlier in the second year). Therefore, the goal is **not** to evaluate students based on the abundance of preliminary results, but rather to evaluate students on their base knowledge of their field, ability to develop a plan for research activities, ability to construct solid research arguments by integrating literature knowledge and critical thinking, and ability to relate their research significance to a broader context.

Before the meeting, the student should identify a Chair for the meeting (other than the student's research advisor) and present the Chair with this document and other paperwork to prepare for the meeting. The Chair will run the meeting and provide the final research summary for the student. The goal is for the Oral prelim to assess the student, rather than their advisor. The Chair should help to ensure that the advisor does not dominate the discussion, in fact we encourage the advisor not to speak unless necessary.

The Oral Thesis-Proposal Defense should assess the following requirements:

1. Students should display a general knowledge of genetic principles.
2. Students should be able to display critical analysis skills. They should demonstrate ability to formulate relevant, testable models or hypotheses based on existing data and devise rigorous and reproducible experiments that specifically and directly test these models or hypotheses.
3. Students should achieve a thorough understanding of the key experiments in the field of choice. What is known already? What does the scientific literature suggest we need to know to further our understanding of this area? What are the gaps in knowledge in this field/research area?
4. Students should express a line of experimentation in the format of an NIH grant application (e.g. F31 application format), according to guidelines in the Graduate Handbook.
5. Students should develop critical thinking skills in evaluating the benefits and risks of specific experimental directions.
6. Students should effectively communicate and defend their ideas orally and visually before an examination committee.

Duties of the committee

1. The committee should evaluate if the student has met the criteria above.
2. The committee should relay to the student strengths and weaknesses for continued improvement.
3. The committee should make comments on the written document for preparation to submit as a real grant proposal (e.g. NIH F31). The goal is to help our students submit their work for funding while teaching them grant writing skills.

## **Evaluation**

After the oral defense, students will leave the room so that the Committee can come to a decision for the exam. There are three possible outcomes for the exam: (1) **Pass** with permission to continue thesis research as a dissertator student; (2) **Deferred decision**, in which the student has performed below expectation but the committee may consider steps to address the major weaknesses that were identified. The warrant should NOT be signed in the case of deferred decision; (3) **Fail**, in which student performance does not meet expectations of the program. Any of these decisions requires the approval of a majority of the Committee. Procedures for each outcome are outlined below.

**Pass:** The Committee should provide feedback to the student on areas of strength and areas for continued focus/improvement. The committee should give written comments on the grant document focusing on the quality of the written document, with the goal of both teaching students grant writing skills and improving the grant for actual submission for funding. The Committee should then sign the warrant.

**Deferred Decision:** If the student has performed below expectation but the committee believes that the student can make significant improvements and has potential to be successful in the doctoral program, the student will be given the option to retake the exam (in full or in part). Students should discuss with their committee the strengths and weaknesses of their presentation, what aspects were deficient, and how the student can meet requirements to pass the exam. A plan for reexamination should be developed at the conclusion of the oral exam. This could include rewriting all or parts of the written document, a second oral presentation of the exam, or other activities agreed upon by the committee. A timeframe for completion should be agreed upon at the meeting, ideally within 4 weeks of the original exam but not more than 6 months after the original exam. The Committee will then reassess student progress and vote for either a pass or a fail. The warrant should not be signed until completion of the agreed upon activities.

**Fail:** Students not performing to the satisfaction of the Prelim Committee will fail the exam. Under these circumstances, with the consent of the student's advisor, the student will be asked to take a Master's degree and exit the Genetics PhD program. The student has the right to petition the decision through the Graduate Program Steering Committee. The petition can include a request to change labs, in which case the Oral prelim exam in the new lab must occur within 12 months of the original meeting. The decision of the Graduate Program Committee will be the final decision on the outcome of the Oral prelim exam.