

Please contact Mauro Calabrese with any questions or concerns at any time, including during or after the DOE itself (jmcalabr@med.unc.edu).

The Curriculum in Pharmacology Doctoral Oral Exam (DOE)

Goals of the DOE:

The primary goal of the DOE is to ensure that students become familiar with the scientific literature, the experimental approaches, and the methods of data interpretation that are each needed to complete their thesis project successfully. Preparing for this goal can be stressful. It is important to recognize that our ultimate desire for each student is that they pass – that is, they attain a strong working knowledge of the science in their chosen field, to the extent that they could reasonably expect to carry out some version of their proposed experiments, evaluate the outcomes accurately, and propose alternatives as needed, all with minimal input from their PI.

A secondary goal of the DOE is to help students learn how to speak in a professional setting in front of an expert audience. This too can be, and usually is, a stressful process. In addition to clearly communicating a prepared talk, speakers must often field questions from audience members -- who themselves will have varying levels of expertise and idiosyncrasies. The DOE helps students understand what it takes to prepare for a scientific “chalk talk” and provides them with a real-world (if not unusually stressful!) experience in which they are expected to answer questions extemporaneously.

Again, it is important to remember that the DOE is a valuable learning opportunity and that the curriculum and the department exists to support students in their maturation as pharmacologists. It may also be helpful to recognize that parts of preparing for the DOE might even be enjoyable. In studying for the DOE, students are granted dedicated time away from the bench to think deeply about the most important questions in their field. Presumably (and hopefully!) students are excited about their own thesis work and studying for the DOE gives them the chance to become familiar with some of their favorite topics in science.

Overview of the DOE process:

The DOE will be administered by a thesis committee of the students choosing. On this committee will be four professors in addition to the student's PI. Graduate school policy requires that 3 of the 5 professors have primary or joint appointments in the Dept. of Pharmacology. Exemptions to this policy are granted in situations where the student requests that professors from different Departments or Universities are included because of their critical expertise. However, the Curriculum requires that at least two members of the committee are primary or official joint members of the PHCO Department. The Chair should be a primary or official joint member of the PHCO Department. The student's PI will be present during the DOE but will not ask questions.

When the DOE meeting has convened, the committee chair will recap for the student and the committee the format of the DOE by reading the key points from the powerpoint presentation provided by the DGS. The student will then be asked to leave the room for a brief period. During this time, the committee will discuss the reviews from the DWE, and what areas, if any, they feel should receive special emphasis during the exam.

The student will then be asked to return to the room and introduce their project and aims in a 10-minute Powerpoint presentation.

After the 10-minute presentation, the student will turn off their computer and go to the white board.

At this point the Chair of the committee will orchestrate the question period.

During the question period, each committee member will ask their questions individually and in turn (10-15 mins of questions by each committee member). If during this time a related question arises, it is fair for another committee member to request to ask the related question. It is important that the student has a chance to answer the initial question and not be peppered with questions from around the room. Generally, one cycle of faculty questions is followed by a second, shorter round of follow-up questions. If it is clear that a student doesn't know the answer to a particular question, it is okay to move on to another question and the exam will continue.

The primary focus of the questions should be on the proposal and the experiments associated with it. The student should also expect questions that are designed to test general knowledge in their chosen field. It is fair to ask basic questions on material that was covered in courses (particularly 701/702), but knowledge in these and other broad areas are of secondary importance to the topics that are directly related to the proposal.

To prepare for the exam, we encourage students to start with the information contained within their proposal; be familiar with the references that were cited in their DWE; be familiar with the major questions in their field and the significance of addressing these questions; be familiar with the experimental approaches, controls, expected outcomes, caveats, and alternate approaches that are relevant to the DWE; be familiar with how their proposed experiments, if successful, will push their field forward or change current paradigms. After mastering these topics, the student should review the principles of pharmacology that are most relevant to their proposed research, especially those covered in 701/702. Depending on the topic of the DWE, familiarity with these secondary topics may not be required to pass the exam. However, such familiarity is always encouraged and is certainly beneficial for the student's development as a pharmacologist.

The student should schedule at least one practice exam with their lab members (including PI) prior to the DOE.

During the exam, students should expect to be asked questions that they are unable to answer. They also may be asked questions that have no known answer. This is a normal part of the exam.

After the questioning period is over, the student will be asked to leave the room. The faculty will then discuss the student's overall performance. A decision will be made of pass, fail, or in some cases conditional pass, if the student is weak in one area that can be reexamined later in a shorter focused exam. The decision does not need to be unanimous but it should be supported by a majority of the committee. The Chair of the Committee should report the outcome following the DOE to the DGS and Student Services Manager.

In a highly successful exam, the student should demonstrate an assimilation and application of scientific knowledge, both specific and general, as it pertains to the

research proposed. Specific knowledge includes familiarity with the literature and the systems utilized for the research plan. General knowledge would include material the student has experienced in various courses (especially 701 and 702). The student should also demonstrate an ability to develop alternative hypotheses and experimental approaches during the exam. Lastly, the student should demonstrate a working knowledge of procedures, protocols and appropriate controls for proposed experimental paradigms that is commensurate with their stage of graduate education.

Students should pass when a majority of the examining committee deems that they have met a minimum level of proficiency with the metrics above and should fail in cases when the minimum proficiencies have not been met.

If the student does not pass after their first attempt at the DOE, a meeting will be scheduled to discuss the reasons why the committee decided that the student should not pass. Attending this meeting will be the student, the student's PI, and the DGS. In this meeting, policies of the UNC Graduate School will be discussed along with options and outcomes that are available to the student. Afterwards, a second DOE will be scheduled for a date that gives the student ample time to prepare for the exam, but no less than three months after the first attempt and in accordance with graduate school policy. During the second DOE, if it is agreed upon beforehand, the student's PI will be present and will be able to ask questions (which is typically done in a leading way, to help the student draw upon their knowledge base to answer a question from the committee); however, the PI is not permitted to answer any questions that are asked of the student. If in this second case the student again does not pass their DOE, then the student, the student's PI, and the DGS will meet again to discuss the reasons why. They will also discuss the options for the student to continue in their educational journey.

UNC policy specifies that if a student does not pass a second qualifying exam, they are rendered academically ineligible and must apply for reinstatement through the graduate school to become re-enrolled. Final approval of reinstatement rests with the graduate school. Academic eligibility reinstatement solely to award the degree is generally not permissible.

In most cases, in the event of a second non-pass, the recommended course of action will be to apply for reinstatement to complete an examination in defense of a Master's thesis. In this case, the student's DWE can usually serve as a Master's thesis with only minor edits, and a short presentation of that thesis and the student's work in the lab would qualify as a defense of the thesis for a Master's degree. However, recognizing that each situation is unique, reinstatement to the Ph.D. program is possible, pending that the student, the PI, the DGS, and the Department Chair agree that is the best course of action.

Prior to taking their second qualifying exam for entrance into the Ph.D. program, the student also has the option of proceeding directly to defense of a Master's thesis. If this is the course of action desired by the student, a second discussion between the student, the PI, and the DGS will occur.

UNC Graduate School policies take precedence over department policies. For additional guidance, please see the Graduate School Handbook:

<https://handbook.unc.edu>