

## COMPREHENSIVE EXAMINATION GUIDELINES FOR PH.D. STUDENTS IN THE DEPARTMENT OF PHYSIOLOGY AND PHARMACOLOGY

The comprehensive examination for Ph.D. students in the Department of Physiology and Pharmacology is designed to focus not only on the student's particular area of interest, but also to include studies in related areas deemed to be appropriate by the student's Supervisor(s), Graduate Advisory Committee and Graduate Studies Committee.

### a) Timing

The comprehensive examination is scheduled to take place no later than 18 months from starting the Ph.D. program (or from the transition of M.Sc. to Ph.D. status), and following the successful completion of the grant-writing course (PhysPhar 9620). The organization of the exam will be implemented upon recommendation by the student's Advisory Committee, and is contingent on appropriate student progress. Comprehensive examinations should normally take place within 4 months after recommendation by the Advisory Committee. Normally, the time dedicated to prepare for the Comprehensive exam and the grant-writing course (PhysPhar 9620) will not overlap.

### b) Criteria for postponement of examinations

The comprehensive examination should take place at the date scheduled by the GSR. Comprehensive exams may only be rescheduled in the event of illness or for valid compassionate reasons, such as a death in the student's family. A doctor's note is necessary in the case of student illness, and documents such as a death certificate or pastor's note are acceptable in the case of a relative's death. Approval for postponement must be obtained from the Chair of the Graduate Studies Committee.

### c) Examination topics and composition of the examination committee

Three topics for examination are identified by the student's Advisory Committee, during the meeting just prior to the exam. The topics must not include areas directly related to the student's doctoral research, but rather areas that will complement the student's knowledge relevant to the his/her broader areas of expertise. The examination topics recommended by the Advisory Committee should neither be too broad (e.g. avoid topics such as "Developmental Biology" or "Inflammation") nor too narrow (e.g. avoid topics such as "Role of phosphodiesterase E4D in lung inflammation"). All PhD comprehensive exams must include at least one topic area that incorporates physiology, and at least one topic area that incorporates pharmacology.

The comprehensive examination is administered by an ad hoc Examination Committee, which is approved by the Graduate Studies Committee. After identifying the three topics for examination, the academic supervisor, in consultation with the Advisory Committee and the student will identify three faculty members (and alternates) to serve as examiners. The main criterion to select examiners is their expertise in the topics to be covered. Examiners may belong to graduate programs other than those in the Department of Physiology and Pharmacology. *When a student is registered in a specialty interdisciplinary program, one of*

*the tutor-examiners will normally be a core faculty member from that program. The supervisor and the student's GSR are not eligible as examiners. Examiners should not conduct collaborative work with the student and, whenever possible, should not include members of the Advisory Committee either. The exam is organized and chaired by the Student's GSR. The Graduate Studies Committee may modify the lists of topics and/or examiners, and is responsible for final approval of the lists. The student is informed of the list of topics and the examiners at least four weeks prior to the examination.*

#### **d) Steps in preparation for the exam**

Once the student's Advisory Committee identifies the examiners, the GSR will forward their names and areas of expertise, as well as relevant information on the student's research, to the Chair and the Administrative Assistant of the Graduate Studies Committee (GSC) for approval by the GSC (please see attached form). When the Examining Committee is approved, the GSR will contact all parties involved (examiners, student and supervisor) to determine their availability, to inform them of the exam topics, and to set a date for the exam. The exam should take place within 2-3 months, and no longer than 4 months, from the date of approval of the examining committee.

**The student shall not contact potential or approved examiners to arrange the exam or to discuss any other issues relevant to the comprehensive examination prior to being instructed to do so by the GSR.** The student will discuss the assigned topics with each examiner in person. There must be at least 2 and no more than 5 meetings, of 30-60 minutes duration, between the student and each examiner during the 2-3 months preceding the exam. Each examiner will initially address a relatively broad body of material relating to the assigned topic. *Examiners will avoid assigning students a series of specific papers, as this would excessively narrow the topics of learning.* Exceptions to this rule are recent seminal or key historic papers in the area under study, which would allow appropriate preparation of the topic. Examiners may initially assign extensive reading of a range of literature, which may include review articles, book chapters, key original research articles of historical or current importance, clinical practice guidelines, and methods or protocol papers. The student may suggest material to the examiner. However, it is ultimately at each examiner's discretion to allow inclusion of those suggested readings, and they will only incorporate these suggestions into the examination material if they deem them to be sufficiently challenging and complementary to the student's own area of research. During meetings between students and examiners, topic areas should be discussed in detail. However, while guidance and direction for further study can be given by the examiner, the examiner must not disclose the questions and/or line-of-questioning which will be pursued during the exam.

#### **e) Format and Procedure**

The comprehensive exam consists of an oral examination during which each of the examiners asks questions related to their topics. The exam consists of two rounds of questions. The order of questioning will be determined just prior to the exam, by the chair (student's GSR) and the exam committee members. Only members of the examination committee are permitted to ask questions; other faculty may attend but do not participate. The candidate's supervisor is encouraged to be present for the oral examination but does

not participate in questioning or balloting. In the unexpected absence of an examiner for the oral component of the comprehensive due to illness or unforeseen circumstances, the exam will proceed with the two remaining examiners. In this case, the Chair of the examination will cast the deciding vote, if necessary.

After introductions, the student will be asked to leave the room, at which time the format of questions, and the order of examiners shall be determined. The format of questions will include two rounds, the first round 20-25 min and the second round 10-15 min.

- The student will be invited back into the room and the examination will begin.
- The chair will ensure that the time constraints are followed.
- At the conclusion of the examination, the candidate will leave the room.
- The Chair invites the Supervisor(s) to comment on the candidate and the exam.
- The Chair will invite discussion by the examiners of the student's performance, prior to calling a vote.
- Votes on performance on the examination are collected by written ballots from members of the examination committee (see **e) Grading** below). A simple majority decides the outcome of the examination.

The following outcomes are possible:

1. Pass.
2. Fail, with the recommendation that the exam be re-taken.
3. Fail. In this case, the student's Advisory Committee shall meet to determine whether student should be required to withdraw from the program.
  - At the conclusion of the examiners' deliberations, the Chair will verbally inform the student of the outcome and transmit any comments the examiners might suggest.
  - The Chair of the examining committee will provide the student and advisor with a copy of the examination report from the Chair, stating the results of the examination and, where appropriate, comments on the student's performance and recommendations, if applicable (see form on following page).
  - A copy of the comprehensive examination report is to be included in the student's progress report for their next advisory committee meeting.
  - Should it be necessary, the second attempt (and final opportunity) should take place no longer than one month after the first examination.

## **f) Grading**

The examiners' assessment will be based on the ability of the candidate:

- To demonstrate a knowledge of general concepts and principles of the discipline of study, and their application to scientific investigation
- To answer questions of fact in the specified subdisciplines
- To be aware of the historical developments and recent advances in the specified subdisciplines
- To be familiar with current research methods and use factual information to appropriately address novel problems in his/her own and related fields.

- At the conclusion of the oral examination, the committee will hold *in camera* discussions on the student's overall performance. **The student must demonstrate appropriate knowledge of all three topic areas under examination.** A "Fail" grade is automatically assigned to the examination if the student does not demonstrate appropriate breadth and depth of knowledge *in one or more of the three topics* examined.
- If a student receives a "Fail" grade due to insufficient knowledge *in only one area*, a second exam will be scheduled in which only the area deemed to be deficient will be subjected to examination.
- During the *in camera* discussion, each examiner will assign a "Pass" or "Fail" grade for the exam, based on the criteria outline above. A "Pass" grade for the comprehensive exam requires majority, not unanimity. In case a student receives a "Pass" on the exam, but weaknesses or gaps in knowledge are identified, the examining committee may also recommend further study of a given area. These recommendations will be recorded by the Chair of the examining committee in the examination report form. The student will be notified of the results and any recommendations by the Chair of the Examining Committee at the conclusion of the *in camera* discussions.

#### **g) Number of Attempts**

If the oral exam is failed, a student may be permitted one additional attempt at the examination. In this case, the student must meet with the examiner(s) in charge of the failed topic(s) once, within 7 days from the first attempt. A new oral exam will be scheduled by the GSR, no later than one month after the first attempt. All examiners will attend the second attempt, but the examination will be exclusively focused on the topics that received a "Fail" grade during the first attempt. After two unsuccessful attempts, the student will meet with the Advisory Committee to determine a course of action, which will normally involve withdrawal from the graduate program.

**DEPARTMENT OF PHYSIOLOGY AND PHARMACOLOGY**

**Ph.D. COMPREHENSIVE EXAMINATION**

**Date:**

**Student:**

**Examining Committee:**

Chair:

Examiners:

- 1.
- 2.
- 3.

**Comments:**

**Pass/Fail:**

**Recommendations:**

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**Chair of Examination Committee**