

# **Cognitive Neuroscience Area**

## **Comprehensive Examination Regulations**

A comprehensive exam is designed to meet two objectives: (1) to examine the problem-solving skills of Ph.D. candidates, and (2) to test the ability of Ph.D. candidates to articulate, both verbally and in writing, concepts and facts relevant to the area program. To meet these goals, each student will be assigned four 'take-home' questions chosen by the student's Comprehensive Examination Committee.

These questions will address four themes:

1. Ethical issues or historical events or science policy as set by granting agencies, government organization, etc. that affect the pursuit of research in the area.
2. A current topic in the student's field of specialization.
3. Cross-disciplinary studies that illustrate the interactions between two or more fields of specialization. This question can include scientific disciplines outside the area, such as physics, mathematics, economics, computer science, etc. where contributions from these disciplines have directly influenced the advancement of research in the area.
4. A topic in from the area chosen by the committee that is directly related to the career aspirations of the student.

### **Written Exam**

The student will have four contiguous weeks to complete the written component of the exam. Each answer should be no longer than 20 pages (double spaced, including figures, tables but excludes references). *No help with writing, editing, or proofreading is permitted and doing so would risk failure of the comprehensive exam.*

### **Oral Exam**

An oral exam, based on the above four questions, will be conducted normally within 3 to 5 days (and no more than 14 days) of submitting the written exam. The oral exam will normally not exceed three hours in duration. This exam will be structured in the form of a defense. The examiners will confine their questioning to issues which have arisen from the written answers. Questions should be used to assess the student's understanding of concepts rather than details. Minutes of the examination will be taken by the chair of the committee, who will record the subject area of questions, as well as the responses to the student and comments of the examiners. The minutes remain on file in the Graduate office for twelve months. As in a thesis defense, the chair offers members of the examination committee the opportunity to ask follow-up questions in a brief second round of questioning. At the end of the examination, the student will be asked to withdraw while the committee members discuss the student's performance. The chair will communicate the committee's decision to the student, as well as any major or minor deficiencies identified by the committee. This communication will occur first orally immediately after the committee has reached a decision, and subsequently in writing, within two days of the examination.

## **Student Assessment**

The student's performance will be graded as either a "Pass" or "Required to repeat". The assessment, "Required to repeat", will be used if (a) the student obtains a failing grade (less than B-, consistent with the regulations of the School of Graduate Studies and Research) in 2 or more questions, or (b) the student obtains a failure in 1 question and an overall average of less than B-. This strategy is designed to foster a proactive learning environment and is equivalent to interaction between authors, reviews and journal editors that occurs during the review process of manuscripts. In cases in which a repeat exam is required, the second comprehensive exam will normally be scheduled within 2 months of the first exam. This period can be extended to up to 12 months if both the supervisor and the area chair agree. The second exam will be organized in the same manner as the first exam, but will be restricted to only those questions where a mark of less than B- was obtained. Failure to pass or complete this exam within a specified deadline will result in a recommendation to withdraw from the program.

## **Timeline**

Students will be expected to write the Doctoral Comprehensive Examination by the end of the first year of Ph.D. studies, and must indicate their intent to do so on the Annual Student Report. Notice of intent should specify the student's field(s) of study.

Before the questions are written, the student will aid the committee to compose questions tailored to the student's needs by submitting *a 1-page description of future goals and career aspirations*. This could include the type of career (industry vs. academia) as well as the general topic of interest that the student wishes to pursue in their PhD thesis and beyond. The student can discuss with the Comprehensive Exam Chair (typically the Chair of the Cognitive Neuroscience Area) the preferred dates and decide upon a submission date for this description.

## **Composition of the Comps Committee**

The Comprehensive Committee is selected by the Supervisor upon consultation with the area chair. The committee consists of 4 members:

- The student's supervisor
- One Member of the student's Thesis Advisory Committee (optional)
- Two additional members (ideally one outside the area)

The committee is chaired by the area chair or another individual selected by the area chair.

## **Selection of Questions**

The chair asks for 2 questions from each of the four committee members. The supervisor provides their questions in the student's field of specialization (#2 specified above). The member from their advisory committee provides questions about a broader topic related to the student's career aspirations (#4 specified above). The other two members are asked to provide the ethics questions and cross-disciplinary questions (#1 and #3 specified above, respectively). The chair will then select 1 question from each committee member (4 in total) that will be used in the examination.

## **Good Practices**

Committee members may wish to consult with the supervisor or the student when formulating their question. Students are strongly encouraged to consult with their examiners prior to writing their answers so as to discuss the scope of the question and range of material that should be covered.