



## **Ph.D. Qualifying Examination Guidelines, Information and Suggestions for Students**

### **Logistics**

- A research paper derived from the recent literature will be the framework of your presentation.
  - The subjects of the papers distributed to each student eligible to take a QE will be related to the core curriculum and selective courses you took; research rotations and the identified research mentor will also be considered.
  - Each QE sub-committee consists of 3 faculty, including a content expert for the paper you select to present.
- Each student will be emailed 3 articles, seven days prior to their scheduled exam (i.e. Wednesday by 5 pm, if their exam is the following Wednesday).
- Students will have 48 hours to choose an article
  - When choosing a paper, some things to consider: Is there an identifiable hypothesis being tested or objective of the research described in the paper? Do you understand the general area? Are you interested in this field? Having some interest in the field and enthusiasm for the paper can have considerable impact on the quality of the presentation.
  - Although the faster you choose a paper, the more time you have to work on your presentation, do not make a hasty decision.
  - Email your choice to the QE committee chair within the 48 hour window.
- Practice your presentation
  - Make sure your slides work correctly in your presentation.
  - The computers in the classrooms are PC; make sure your file works on computers other than the one you created it on.
  - Have backups for your presentation and make sure it remains uncorrupted when copied onto other drives.
  - Many students put together a practice exam where they invite their peers to watch and critique it. Involving experienced students is permitted but not post-docs.
- Day of Exam
  - The room will be open ~30 minutes before scheduled time -- get there early and make sure everything works.
  - Attire: business casual, respectfully dressed. No jeans.
  - Bring your own water.
  - Do not bring anything such as food for the committee.
- The examination
  - You will be asked to leave the room before you begin your presentation and again after the presentation so the committee can plan questions.
  - Your formal presentation should take 40-50 minutes (see below for more details).
  - It is preferable to present your talk uninterrupted, although it is possible that someone will need a major point clarified.



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- Questioning will generally last ~1 hour. If you are unsure what the examiner is exactly asking you to address, consider repeating it back or rephrasing it in your own words.
- A whiteboard will be available to draw on.

#### **Recommended Structure of the Presentation**

While the chosen paper will define the field of interest and specific framework of your talk, the presentation should be centered on a testable hypothesis and/or scientific question. The question or hypothesis you create does not necessarily have to be stated or even implied in the paper, although this would be the easiest starting point and is acceptable. Data from the paper (and other sources if needed) is to be used as preliminary results or relevant findings related to the hypothesis or question, but there is no obligation to present all or even most of the data in the paper as if it were a journal club presentation. Following the data presentation, you should critically relate findings and/or conclusions of the paper to the proposed hypothesis/question ... were they supportive or counter to the hypothesis? ... did they answer the question? Your evaluation would then be the basis for proposing additional studies, also centered on a hypothesis or question, which could be unchanged or revised from the original idea but should take the findings of the paper in a new direction. Your proposal should be in the form of specific aims and related experiments, utilizing several approaches and meaningful controls, which could move the field forward. Predicting outcome(s) of these experiments as well as possible pitfalls or difficulties and alternative strategies to address these pitfalls would be appropriate.

<b>Outline of Presentation</b>	
<b>Section</b>	<b>Suggested Duration</b>
Background information necessary to introduce subject, hypothesis, and paper	3-5 minutes
Hypothesis/Question and its rationale in the context of background information	1-5 minutes
Data from chosen paper (and other sources if needed)	15 minutes
Summary and conclusions: authors' and yours and how well the hypothesis/question was addressed	2-4 minutes
Revised hypothesis/question and its rationale in the context of the data just presented and/or statement of a new direction	1 minute
Specific aims of your proposed studies	1 minute
Proposed experiments*	10-15 minutes
Expected results of proposed experiments/alternative strategies	5 minutes
Total presentation :	40-50 minutes

#### **\*Additional Suggestions Regarding Your Proposal**

- The proposal should not be an incremental step forward, only clarifying or supplementing the data in the paper



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- For example, if a group looks at something in a breast cancer cell line, don't simply propose to do the same experiments in another cell line.
- Your proposal should be a logical next step. Starting with what you think the paper really demonstrated, relate this to the original ideas underlying the study, and decide whether additional studies related to the same, revised or different hypothesis/question are warranted.
- You might want to propose question(s) the current paper left unanswered (i.e., what gap in knowledge remains). Often the authors make such statements in the Discussion section – this can be a legitimate focus of your proposal.
- Alternatively, you might propose new questions raised but not mentioned in the current paper.
- A good proposal that takes the work into a new direction should be based in part on other information that may exist related to this direction.
  - This could mean doing a literature search and reading other papers. While you could also refer to accepted “textbook information”, this justification should be judiciously employed.
  - Be sure to cite your references.

### Other Advice

- Make sure you understand the methods used in the presented data and in your proposed studies.
  - Even if a kit is used for the data you present, know the basic principles underlying it and how it works.
  - Know the concepts and assumptions underlying the methods and experimental systems you present.
  - It is expected that you will have knowledge and understanding of cell and molecular biology at the graduate level.
- You can ask faculty, postdocs, etc. for help in preparing the exam only if it is to understand a technique. You MAY NOT show any faculty (or anyone with a doctoral degree) any portion of your presentation or discuss proposal ideas with them. Violation of this policy may be grounds for failure of the exam.
- If you are given a paper with which you have had substantial prior exposure, immediately notify the QE chair.
- You may bring physical notes including the paper with you for reference during your presentation or question period, but searching through them to find answers would generally be inappropriate. It would be okay to glance at your notes.
- PowerPoint animations should be used only to enhance the points you want to make.