

Guidelines for Ph. D. Qualifying Exams

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The graduate program in the Department of Chemistry involves a Ph. D. qualifying examination in the form of a written report and a public presentation of the candidate's research project. All faculty in the Department can provide comments on the presentation and report and vote on the "pass" or "fail" grade. The objective of the examination is to establish that the candidate has proposed a suitable project, and has a sufficient background, general and topic specific chemistry knowledge, and understanding of the objectives of the project to successfully complete the proposed research in a reasonable amount of time. The guidelines below are intended to provide a framework for conducting Ph.D. qualifying examinations.

1. The exam shall be a public "defense of the student's Ph.D. research proposal".
2. The presentation will be open to the University community. Members of the advisory committee (AC), Chemistry faculty, and graduate students will be encouraged to attend. An Examining Committee (EC) of four faculty + supervisor(s) will be chosen by the Graduate Affairs Committee (GAC) chair in consultation with the Department Head. This examining committee will typically consist of the one (MSc) or two (PhD) AC members + 3 (MSc) or 2 (PhD) other faculty members who have research interests that overlap with the student's research directions. The event will not be advertised outside of the department in any special way.
3. Several candidates will present their proposals over a one to three day session. It is envisaged that the examinations will be conducted twice per year: one occurring in the early spring (for M.Sc. to Ph.D. transfers and for direct entry Ph.D. students) and one in the summer (for those direct entry Ph.D. students who did not pass in their first attempt or were unable to take the first exam).
4. Well before the exam (e.g., two weeks), the student will submit a written report (describing the intended proposal and summarizing progress) to the Graduate Secretary for distribution to the AC (suggested format is appended below). Based on the written report, the AC shall have an option of deciding if the student is not ready for a public presentation – in such cases the exam will be rescheduled (for a direct entry PhD. student) or cancelled (for M.Sc. to Ph.D. transfers)
5. It is envisaged that each presentation should be ca. 30 minutes in length followed by at least two rounds of questions.
6. The proceedings will be chaired by a member of the GAC who is not also a member of the students' AC; however, the chair of the exam can also be a member of the EC. The first round of questions should be restricted to the material of the oral presentation. The Chair will recognize questions from the floor with first preference given to members of the Examining Committee (EC), second preference given to other Chemistry faculty present, and third preference to others in the audience. The second round of questions to the student will be in the presence of the EC and other faculty members only and can be based on material from the written report and/or other relevant issues. The Chair will ensure that questioning is kept to a reasonable period of time, however, it should be clear that questioning should not be cut short due to an arbitrary "time limit" - a longer question period might be necessary in some cases.
7. At the conclusion of the question period, the EC and any faculty in attendance will convene a meeting '*in camera*' to discuss the examination. Although the opinions expressed by all faculty should be taken into consideration, the Examining Committee shall determine (by vote) the outcome (normally "pass" or "fail"). On rare occasions where serious but specific deficiencies are noted, the final decision can be deferred for up to two weeks during which time the student can be asked to remedy the specified deficiencies by submitting additional written material and/or by meeting with the EC to answer additional questions. On receipt of the written material and/or at the conclusion of the supplementary EC meeting, the EC must determine the final outcome ("pass" or "fail"). In all cases, the Chair will prepare a written rationale for the recommendation for distribution to the student and EC members (copy to be placed in the student file) within two weeks of the formal presentation.
8. In the event of a failure: a student attempting to transfer from an M.Sc. program must complete the M.Sc. program to be reconsidered for a Ph.D. program; for direct entry Ph.D. students, with the permission of the Dean of the CGPS, a second examination will be scheduled, preferably early in the

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summer. A second failure will result in the student being required to discontinue from the program, which may be appealed to the Ph.D. Committee of the CGPS on substantive or procedural grounds.

9. The supervisor of the student can request that the Ph.D. qualifying exam be given not as a public presentation but in front of the EC only. Such requests will be evaluated by the GAC and will be treated as "exceptions". The GAC will recommend to the Department Head if such an exception should be granted - the decision to grant such an exception shall be made by the Head.

Recommended Format for Written Reports for the PhD Qualifying Examination

These guidelines describe most aspects of the Qualifying Examination but do not specify the format for the written report. Below is a suggested format. If there is some reason why you wish to deviate from this format, please contact the Chair of the GAC and the Graduate Secretary.

The written report is **NOT** merely a copy of the slides you plan to present during your exam. The report demonstrates to the committee that you have sufficient understanding of all aspects of the proposed project such that you will be able to pass the exam. It should contain the following:

- A brief **introduction** to the topic and its importance, with suitable references to existing literature.
- A clear statement of the **research goals**, including both short-term and long-term goals
- A brief description of any **initial results** you have obtained that contribute to this project. Lengthy details of these experiments do not need to be included but you should expect to be asked about such details during your exam.
- The **experimental plan and methodology**. This should include enough detail to demonstrate that you understand the experiments you plan to carry out.

The report should be double spaced and in 12-point typeface; the size of any included graphics should follow ACS guidelines. Consult the ACS Style Guide (<https://pubs.acs.org/series/styleguide>), which is also available in the Natural Sciences Library, for other aspects of scientific reporting.

In most cases, a report of about ten pages in length is sufficient (unless many large diagrams are required); however, length is not the critical factor. The suitability of the report (and presentation) will be judged on the degree to which it meets the objectives as described above.