

Timeline for Completion: March 1st – June 30th (submission of document to committee members)

The written component of the Qualifying Examination provides students with an opportunity to demonstrate their understanding of the background and current literature in their field of study, as well as the clarity of their research goals and strategies. The written document should show critical thinking, clear communication, and a well-structured presentation of the research project. This document will be evaluated by the Thesis Advisory Committee prior to the oral examination.

Content, Format, Citations, and Visuals

- **Document Format:**

- The document should adhere to format:
 - **Font:** 11-point Arial, Helvetica, or Times New Roman
 - **Spacing:** Single-spaced with 1 inch (2.54 cm) margins
 - **Sections:** The document should include the following main sections:
 - *Literature Review/Background*
 - *Research Strategy*
 - *Findings (if applicable)*
- Relevant headings should be used to guide the reader through the document
- The total length of the document should not exceed 10-12 pages (excluding references)
- See the ACS Style Guide for details on scientific and editorial style conventions in formal scientific writing: <https://pubs.acs.org/doi/book/10.1021/acsguide>

- **Citations:**

- References should follow the [ACS \(American Chemical Society\) style](#), and the student should include at least 10 relevant citations (though more are encouraged).

- **Visuals:**

- Visuals (figures, schemes, tables) should be included as appropriate and placed near their first mention in the text
- Each visual should be clear, properly sized, and include a caption
- All visuals should be referenced within the text and ordered logically
- Formatting and construction of visuals should meet professional standards for the student's research area

Key Areas of Assessment

The Written Qualifying Examination assesses the student's abilities in the following areas:

1. *Scientific Content*

- **Literature Review and Background (5-7 pages):**
 - The student should provide a comprehensive and relevant review of prior literature in the research area.
 - The review must show evidence of critical analysis, including independent interpretation of key advances and limitations within the literature.
 - The literature should be organized logically, beginning with the broader relevance of the research and narrowing down to key advances and unanswered questions relevant to the student's project.
- **Research Strategy Discussion (3-5 pages):**
 - The student must clearly distinguish their project from prior work, demonstrating how their research asks new questions or explores novel approaches.
 - The goals of the project should be clearly and succinctly stated.
 - The chosen research strategy, including techniques and conceptual framework, should be fully described and justified.
 - Any discussion of preliminary findings should be grounded in the prior literature, demonstrating the student's mastery of fundamental concepts and methodologies within their subfield.

2. *Writing Quality*

- The document should be free of grammatical errors, with clear and concise writing.
- Abbreviations and technical terms should be defined upon their first use.
- The language used should be appropriate for technical writing—professional, yet accessible to committee members not in the student's exact research area.
- Paragraphs should maintain thematic consistency, and the overall document should have a logical flow.

Evaluation Rubric for Written Document

| Criteria | Exemplary (4) | Proficient (3) | Developing (2) | Needs Improvement (1) |
|---|--|---|--|--|
| Literature Review and Background | Comprehensive, relevant, and shows critical analysis | Relevant, though some gaps in coverage and/or critical analysis | Adequate but lacking depth, some relevance, and/or evidence of critical analysis | Poorly organized, lacking key literature, or provided literature is missing relevance, critical analysis missing |
| Research Strategy | Clearly distinguished project with well-justified strategy | Reasonable strategy but lacks some depth in explanation | Adequate, but lacks clear goals or methodological justification | Incomplete or lacks clarity in strategy and goals |
| Findings & Discussion | Demonstrates mastery of concepts and provides strong link to literature | Provides reasonable discussion but lacks some depth and/or link to literature | Basic understanding, but incomplete or superficial, link to literature missing | Lacks clear understanding of results and their context |
| Writing Quality | Clear, concise, and grammatically correct | Clear, but with minor issues in grammar or flow | Understandable, but requires substantial revisions to improve clarity or grammar | Poorly written, numerous grammatical errors, and difficult to follow |
| Format & Citations | Fully adheres to formatting and citation requirements | Mostly adheres, minor formatting or citation issues | Substantial formatting or citation errors | Fails to follow formatting or citation requirements |
| Visuals | Clear, well-labeled, meet professional standards, and enhance the document | Effective but could be improved in clarity, refinement, or placement | Adequate, but some visuals are unclear or misplaced or need more refinement | Poor visual quality, unclear, or missing entirely |

Final Evaluation Options

Committee members will have up to three weeks to read and evaluate the submitted document, upon which they will send their comments and scores to the student's research advisor, who will provide a final evaluation based on the provided scores. The evaluation options, along with expected student actions, are as follows:

- **Accept as is:** No revisions required.
- **Accept with minor revisions:** Requires small changes but otherwise acceptable.
 - **Action:** Make reasonable changes and provide a revised document to their committee members no later than one (1) week prior to their scheduled oral exam. A clean version of the revised written report should be submitted, along with the originally submitted document annotated with changes made based on committee members' feedback and a letter responding point-by-point to criticism from faculty.
- **Requires major revisions:** Substantial changes needed to scientific content and/or writing.
 - **Action:** Take no more than six (6) weeks to address committee comments and resubmit. A clean version of the revised written report should be submitted, along with the originally submitted document annotated with changes made based on committee members' feedback and a letter responding point-by-point to criticism from faculty.
- **Unsatisfactory:** Significant issues in content, structure, and/or clarity.
 - **Action:** Complete rewrite required. Students will have six (6) months from this first failure to rewrite and resubmit their document.