This document provides a generic template that may serve as a model for a critical analysis of current literature (Qualifying Literature Assessment, QLA). The QLA is to be written in the format of a journal review article. The QLA contains your original analysis of the literature on a topic of your own selection (preferably related to your intended Ph.D. research).

- 25 page limit
- Double spaced
- 12 pt font
- 1” margins
- Include page numbers
- Include continuous line numbers for entire document
- Use reference style from *Annals of Biomedical Engineering* where references appear as numbers within the text of the document and are alphabetized in reference section at the end
- Pages pertaining to the title, abstract, and references are not included in page limit

The QLA is due to the BME Graduate Office on the Tuesday of the week prior to the start of the imminent semester before 4pm. Two hard copies of the QLA must be provided. In addition, the student must email a PDF version of QLA to WeldonBMEGrad@purdue.edu and submit the QLA to SafeAssign software to be screened for plagiarism.

An acceptable QLA must (i) contain a complete and relevant literature review, (ii) present a logical and sound analysis of that literature, (iii) conclude with an engineering problem specification or hypothesis, and (iv) be presented in an organized manner demonstrating graduate-level written communication skills. An insufficiency in any of these four areas will result in an unacceptable QLA.

The content listed for each section below must be addressed somewhere within your QLA. However, the organizational scheme is only one suggested format. You may modify the suggested template below to fit your particular selected topic.

Following after the template is further information from the PQP Committee in which they advise you to consider your first set of experiments, but not to include them in the QLA document that you submit. This information and other points of emphasis from the PQP Committee are contained within the current PQP Document located on the website.

[https://engineering.purdue.edu/BME/InfoFor/CurrentStudents/Graduate/PQP](https://engineering.purdue.edu/BME/InfoFor/CurrentStudents/Graduate/PQP)
Title [a clear and descriptive title is required]

Author

Abstract

The abstract provides a summary of the entire document. It should begin with a brief description of the topic and the general problem/gap identified in the Introduction. It should then summarize only the most important aspects of the topic presented in the Discussion of Literature section. It should conclude by stating a specific engineering design specification or hypothesis that, once designed or tested, will help fill the gap. The abstract should not exceed 300 words.

Note that the abstract is not the first and introductory paragraph of your Introduction section. Brief statements included in your abstract that introduce your topic, the gap addressed, and the importance of addressing that gap should be a summary of more developed statements found in your Introduction.

Introduction

The introduction should be written in general text accessible by a broad audience of Biomedical Engineers. It may include relevant background information that clarifies the importance of the topic reviewed and should clearly identify the general engineering question or gap that was revealed through the literature review. It may conclude with a brief explanation of the content and organization of the rest of the QLA.

Discussion of Literature

This section should begin with a paragraph or subsection that describes the scope and methods of your review (e.g., list the databases searched, the search terms used, other approaches such as identification of additional papers cited in papers retrieved from the database searches, etc.). This
section should also present the criteria used to reject or include papers in your review. Alternatively, this subsection could be a separate section titled "Methods of Literature Review" and be placed just before the "Discussion of Literature."

The "Discussion of Literature" should be a summary of the literature analysis and not simply a serial description of the papers. All text, figures, and tables should be clearly related to the question or its significance and relevance to your literature assessment topic. The PQP Committee also recommends that you consider creating your own figures and tables, where appropriate, to show relationships between information gathered from references, but you must be certain to cite the original source(s) of data used. This section may have as many subsections as you deem necessary to organize and present the material in a logical manner. The organization of this section should help the reader see that you have conducted a thorough and balanced review and analysis of the current state of the chosen research field and that your literature analysis supports the question or the existence of the gap that you asked or identified in the Introduction.

Conclusions (Concluding Engineering Problem Specification or Hypothesis)

This section should restate the general gap in what is known about your topic and then identify the specific gap you propose to study. This section also must clearly build on the analysis presented in your review and must justify and state a formulated engineering problem specification or hypothesis that addresses the specific gap.

For a successful QLA you must ensure that the question posed (hypothesis) or specifications for design are at the level of critical analysis appropriate for a PhD-level engineering research problem. The QLA is part of a PhD qualifying process. Second, you must include design criteria in the engineering specifications; for example, where appropriate show evidence that all necessary parameters of a design, such as sensitivity, reproducibility, materials, biocompatibility, etc. have been
considered. Finally, you must ensure that there are significant engineering concepts present in your hypothesis or engineering design specification. This is a biomedical engineering graduate program. If you have questions or concerns about any of these important parameters, please discuss with the PQP Committee Chair.

References

All references must be properly and fully cited. This section is not included in page number limitation and can be single spaced. The reference style used by many biomedical journals from the National Library of Medicine at NIH can be found at:

http://www.nlm.nih.gov/bsd/uniform_requirements.html

Additional Suggestion from PQP Committee, Spring 2007

The PQP Committee provides the following suggestion to assist you in preparing a successful QLA document. Critically consider* what the first experiments or design implementations may entail as a way to ensure thoroughness in analysis throughout the QLA. Particular attention should be given to the various approaches that may help in testing the questions posed (hypothesis) or design specifications and considerations of possible outcomes. You should ask yourself “What might the results/outcomes reveal about the proposed approach?” After referring back to the original hypothesis or design specification, you should then ask “Are my ideas still sound?” The purpose of this exercise is to make you think beyond simply stating the hypothesis or design specification; is what you propose realistic? Have you considered all the necessary specifications and potential trouble areas?

*IMPORTANT NOTE: inclusion of this draft of proposed first experiments in the submitted QLA is not a requirement. More than likely, there will not be room to include this. The exercise is meant to enhance, strengthen and clarify the questions posed (hypothesis) or specifications for design. The main objective of the QLA is to critically analyze literature and then from this analysis, propose a specific area in a research field that requires further investigation. While this objective may be accomplished from literature analysis alone, thinking about experiments to support proposed ideas will help to both strengthen the ideas and to ensure a level of realism that will ultimately help you with endeavors in the laboratory.