Students enrolled in the Ph.D. in Engineering program in the Bioengineering Department are required to take the preliminary exam described in this document. The preliminary exam consists of a written document followed by an oral exam focusing on the written document. The details of the exam are described below:

1. Exam eligibility
Students in the doctoral program who have completed four required core graduate courses (or their equivalent) with a grade of B- or higher:

Four out of five of the following core courses must be completed prior to, or in the same semester as when the preliminary exam is taken:

i) ENGR 5011 Engineering Math (required)
ii) BIOE 5719 Introduction to Bioengineering
iii) BIOE 5721 Cell Biology for Engineers
iv) BIOE 5737 Systems Physiology for Engineers
v) BIOL 5312 Biostatistics

2. When to take the exam
Students admitted to the 30-credit-hour option of the Ph.D. in Engineering program should take the exam no later than the end of their third semester in the doctoral program. Students admitted to the 60-credit-hour option should take the exam no later than the end of their fifth semester. Students are encouraged to take the exam earlier if the above coursework requirements are satisfied.

3. Registration for Preliminary Examination Credits ENGR 9994
A doctoral student must be registered for at least 1 semester hour (s.h.) of BIOE 9994, Preliminary Examination Preparation, in the semester in which the examination is taken, including the Summer session. A doctoral student who has completed all coursework for the degree, but has not passed the preliminary examination, must register each Fall and Spring semester for at least 1 s.h. of course number BIOE 9994. A student retaking the preliminary examination must re-register for 1 s.h. of 9994 in the semester in which the examination will be retaken.

4. Formation of the Preliminary Examination Committee
The student and their doctoral adviser shall select three examiners (Committee Members) who must be approved by the Department Chair or Graduate Program Director. The Committee will be chaired by a Bioengineering faculty member. All three committee members must have the academic status of Graduate Faculty. No more than one member can be closely connected to the research program of the adviser or the student. The advisor may serve on the Preliminary Examination Committee, but cannot chair it. Note, the Preliminary Examination Committee is not the same as the Dissertation Committee.
5. Examination steps
(a) The student and their advisor select six published papers not related to the student’s research topic (off-topic) and forward them to the members of the examination committee.
(b) The committee has two weeks to select three of these six papers; the student will then synthesize and present these papers.
(c) The student has up to three weeks to submit to the committee a 5-7 page single-spaced paper (1’ margins, 11 pt Times New Roman font), and must take the oral exam by the end of the next week.
(d) The paper should include a summary of the material covered in the three articles, followed by a proposal for a novel research project based on the open questions that arose in the articles.
(e) The presentation will be public, followed by a private examination by the committee.

6. Passing Criteria
The exam is pass/fail. At least two out of the three members of the committee must vote in favor of the student passing the exam. The dissenting committee member will state his objections in writing.

7. Retaking The Exam
(a) If a student fails in his/her first attempt, the student must retake the exam within one semester of the previous attempt.
(b) The same preliminary exam committee will examine the student on a different topic (to be chosen as above) during the second attempt.
(c) If a student fails the exam the second time, per Graduate School policy, the student will be dismissed from the program.

8. Documentation
(a) The student and advisor must initiate the Bioengineering Department Preliminary Exam Record Form when the Preliminary Exam Committee is formed and topic is chosen. At that point, this form must be signed by the Department Chair or Graduate Program Director and filed in the student’s permanent file.
(b) Upon completion of the exam, the Preliminary Exam committee members must complete Section V of the form and return the form to the Department Chair or Graduate Program Director for signature.

Footnotes:
1. Students can register for Preliminary Exam credits in the semester that they complete their course requirements.
2. Bioengineering Faculty members include Core and Adjunct Faculty
<Title of your Ph.D. Research Proposal>

<Complete name of PhD candidate>

Advisor(s)

<Name of the advisor, department, university>

Submitted: <Date of submission>

Department of Bioengineering

Temple University
ABSTRACT

- Keep your abstract concise and objective.
- A reader with a general science background should easily read and understand your research plan and objectives.
- You do not need to cite references in this section.
- Limit your abstract to ~ 250 words.
- The abstract should include the problem statement, overall objectives and significance

KEYWORDS

Alphabetically order a list of fit words (up to ten) to express what you would introduce in the document. Imagine you would use the same keywords to find a paper or dissertation very similar to your document.
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ABBREVIATION LIST

LIST OF TABLES

LIST OF FIGURES
CHAPTER 1
BACKGROUND AND LITERATURE REVIEW (two to three pages)

- Show you have gained a strong knowledge and understanding of the field.
- Show you have identified the key literature.
- Refer to the authors who have laid the groundwork of your research.
- Critically review previous work done by others.
- Clearly describe the significance of the proposed work, and state what is missing in the previous research. This part will lead into your research objectives.

CHAPTER 2
RESEARCH OBJECTIVES AND APPROACH (two to four pages)

- This is an explanation of the research objectives based on the State of the Art and relevance of your research to previous work done by others. How will your work extend that of others?
- List Specific Aims and Hypotheses.
- Give an overview of your research plan for each Aim.
- Describe in some detail the necessary experiments to accomplish your proposed research.
- Describe the expected outcome and the significance of the expected results for each step.
- Include a section on statistical analysis

CHAPTER 3
CURRENT WORK AND PRELIMINARY RESULTS (one to three pages)

- Give a concise description of what you have done already, and which Aim/Hypothesis the work relates to.

CHAPTER 4
FUTURE WORK PLAN (one to two pages)

- Establish specific milestones for completion of the rest of the work.
- Set timelines and preferably create a Gantt diagram.
- Include your goals for publications and attending conferences, and for meetings with your committee.
- Provide a reasonable date for submission of your dissertation based on your timeline.

REFERENCES
Use reference formatting software such as Endnote. We recommend the ACS (American Chemical Society) format or similar for references.
Journal Article:
Author, A. A; Author, B. B; Author, C. C. Title of Article. Journal Abbreviation (italics) [Online if online] Year (boldface), Volume (italics), Pagination.

Book:
Author, A. A.; Author, B. B. Book Title (italics), Edition (if any); Publisher: Place of Publication, Year; Pagination.

Book Chapter:
Author, A. A.; Author, B. B. Chapter Title. In Book Title (italics); Editor, A. A., Editor, B. B., Eds.; Series Information (if any, including series number); Publisher: Place of Publication, Year; Volume number (if any), Pagination.

Handbooks:
Editor, A. A., Editor, B. B., Eds. Handbook Title (italics), Edition number [Online if online]; Publisher: Place of Publication, Year; Pagination or other identifying information.

Websites:
Author, A. A. (if any). Title of Site. URL (accessed date), other identifying information. (No need to include URL of subscription sites).