Demographic

To preview the appropriate rubric, select Qualifying Exam, Thesis Proposal, or Thesis Defense for the Milestone question. Note that Criterion 4 is not in the rubric for the qualifying exam.

Student

Milestone

- Qualifying Exam
- Thesis Proposal
- Thesis Defense

Evaluator (faculty)

Faculty email

Date
**Criterion 1: Applies a breadth & depth of advanced biological knowledge at the graduate level towards solving bioengineering problems**

- **Exceptional**
  Consistently provides detailed answers on bio-mechanism without prompting
  Able to explain the biological aspects of the problem with deep insight
  Able to explain the biological system at the functional/structural/factual level

- **Very Good**

- **Proficient**
  Provides details but with some prompting
  Demonstrates insight, but needs prompting to demonstrate deep insight
  Able to explain the biological system at the structural/factual level

- **Needs Improvement**

- **Remedial**
  Fails to articulate simple concepts in cell/tissue or physiology
  Unable to explain how bio events inform design
  Unable to explain a biological system at its functional level
  Knows biological facts but can’t apply at engineering/quantitative level

**Criterion 2: Applies a breadth & depth of advanced engineering skills and knowledge towards solving bioengineering problems**

- **Exceptional**
  Consistently provides details of approach to problem without prompting
  Able to explain engineering principles as relevant to the biological problem
  Demonstrated the ability to gain insight into a biological problem using engineering principles

- **Very Good**

- **Proficient**
  Offers an approach but with some prompting
  Offers some general detail of engineering knowledge
  Able to identify engineering principles but not necessarily to solve a biological problem

- **Needs Improvement**

- **Remedial**
  Unable to see relationship between engineering and biological formulations of a problem
  Unable to solve basic engineering problems
  Knows techniques but not how to use them
**Criterion 3:** Integrates advanced biological and engineering concepts in solving complex biomedical problems

- **Exceptional**
  Consistently demonstrates awareness of how biology drives answers and checks that answers accurately reflect biological problem
  Able to develop and explain an experimental design
  Able to use new material to solve a problem on his/her feet

- **Very Good**

- **Proficient**
  Able to explain biological phenomena in engineering terminology
  Offers a design but unable to clearly explain it, some information irrelevant
  Slow to incorporate new material into the problem

- **Needs Improvement**

- **Remedial**
  Unable to deal with or incorporate new information
  Unable to demonstrate an understanding of the connections between an engineering and biological formulation of a problem

**Criterion 4:** Demonstrates an ability to read, analyze, and synthesize literature

- **Exceptional**
  Routinely recognizes whether experimental approaches are rationally designed toward addressing hypotheses
  Easily identifies errors & limitations
  Able to interpret results objectively, consistently differentiates objective interpretation from conjecture & speculation
  Regularly places body of work in larger contexts, typically integrates knowledge from multiple sources toward student’s own approach & the field at large

- **Very Good**

- **Proficient**
  Often analyzes research critically
  Mostly able to recognize errors & limitations
  Needs some assistance in making objective interpretations of data; occasionally recognizes conjecture and speculation
  Shows some ability to place work in a larger context; occasionally able to integrate knowledge from other sources toward own work or field at large

- **Needs Improvement**
Remedial
Demonstrates general trust in all published literature
Cannot detect a study's limitations and errors
Unable to place body of work into the big picture; difficulty integrating knowledge from multiple sources toward his/her own work or the field at large

Criterion 5: Utilizes a logical approach in the design, implementation, and evaluation of a research strategy to solve a complex biomedical problem

Exceptional
Able to clearly articulate rationale in defense of a claim without prompting

Very Good

Proficient
Gives a partial chain of logic
Needs prompting to translate technical terminology into easily understandable terms
Demonstrates understanding of rationale but needs prompting to apply

Needs Improvement

Remedial
Unfocused responses
Makes vague statements with no clear tie to question
Unable to defend statements

Criterion 6: Effectively and efficiently communicates ideas in an organized manner to both engineers and scientists, as well as expert and novice audiences

Exceptional
Develops a chain of logic that is transparent & easy to follow
Offers only relevant, targeted information
Engages committee in the clarification process
Able to restate question in own words
Easily uses technical terminology and concepts to make points
Able to explain technical information in lay terminology

Very Good

Proficient
Offers a chain of logic but it is not particularly transparent or easy to follow
Offers mostly targeted, relevant information
Is aware of technical terminology but has difficulty connecting it to explanations

Needs Improvement
Remedial
Rambles and sidesteps the question
Unable to make list of clear goals and questions
Responds to different question than asked

Comments

Overall Score
- Exceptional
- Very Good
- Proficient
- Needs Improvement
- Remedial

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