# BME GRADUATE MILESTONES EVALUATION FORM

**STUDENT:** __________________________  **PROGRAM:**  □ BME □ PKU  
**MATRICULATION TERM/YEAR:** ____________  
**RESEARCH TRACK:**  □ BIOMATERIALS □ CARDIOVASCULAR □ CELLULAR □ INTEGRATIVE BIOSYSTEMS  
□ MEDICAL IMAGING □ NEUROENGINEERING  
**MILESTONE:** □ QUALIFYING EXAM □ THESIS PROPOSAL □ THESIS DEFENSE □ OTHER ____________  
**FACULTY MEMBER:** ________________  **DATE:** ________________

## CRITERION

<table>
<thead>
<tr>
<th>CRITERION</th>
<th>EXCEPTIONAL</th>
<th>PROFICIENT</th>
<th>REMEDIAL</th>
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</thead>
</table>
| 1. Applies a breadth & depth of advanced biological knowledge at the graduate level towards solving bioengineering problems | • 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 | • 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 | • 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 1**
- □ 5-Exceptional  
- □ 4-Very Good  
- □ 3-Proficient  
- □ 2-Needs Improvement  
- □ 1-Remedial

| 2. Applies a breadth & depth of advanced engineering skills and knowledge towards solving bioengineering problems | • 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 | • 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 | • 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 2**
- □ 5-Exceptional  
- □ 4-Very Good  
- □ 3-Proficient  
- □ 2-Needs Improvement  
- □ 1-Remedial

| 3. Integrates advanced biological and engineering concepts in solving complex biomedical problems | • 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 | • 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 | • 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 3**
- □ 5-Exceptional  
- □ 4-Very Good  
- □ 3-Proficient  
- □ 2-Needs Improvement  
- □ 1-Remedial

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*Updated October 2015*
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<tr>
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<tbody>
<tr>
<td>4. Demonstrates an ability to read, analyze, and synthesize literature*</td>
<td>• Routinely recognizes whether experimental approaches are rationally designed toward addressing hypotheses</td>
<td>• Often analyzes research critically</td>
<td>• Demonstrates general trust in all published literature</td>
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<tr>
<td></td>
<td>• Easily identifies errors &amp; limitations</td>
<td>• Mostly able to recognize errors &amp; limitations</td>
<td>• Cannot detect a study’s limitations and errors</td>
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<td></td>
<td>• Able to interpret results objectively, consistently differentiates objective interpretation from conjecture &amp; speculation</td>
<td>• Needs some assistance in making objective interpretations of data; occasionally recognizes conjecture and speculation</td>
<td>• 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</td>
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<tr>
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<td>• Regularly places body of work in larger contexts, typically integrates knowledge from multiple sources toward student’s own approach &amp; the field at large</td>
<td>• 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</td>
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<tr>
<td>Criterion 4</td>
<td>☐ 5-Exceptional</td>
<td>☐ 4-Very Good</td>
<td>☐ 3-Proficient</td>
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<tr>
<td>5. Utilizes a logical approach in the design, implementation, and evaluation of a research strategy to solve a complex biomedical problem</td>
<td>• Able to clearly articulate rationale in defense of a claim without prompting</td>
<td>• Gives a partial chain of logic</td>
<td>• Unfocused responses</td>
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<td>• Needs prompting to translate technical terminology into easily understandable terms</td>
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<td>• Makes vague statements with no clear tie to question</td>
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<td>• Demonstrates understanding of rationale but needs prompting to apply it to the problem</td>
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<td>• Unable to defend statements</td>
</tr>
<tr>
<td>Criterion 5</td>
<td>☐ 5-Exceptional</td>
<td>☐ 4-Very Good</td>
<td>☐ 3-Proficient</td>
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<tr>
<td>6. Effectively and efficiently communicates ideas in an organized manner to both engineers and scientists, as well as expert and novice audiences</td>
<td>• Develops a chain of logic that is transparent &amp; easy to follow</td>
<td>• Offers a chain of logic but it is not particularly transparent or easy to follow</td>
<td>• Rambles and sidesteps the question</td>
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<td>• Offers only relevant, targeted information</td>
<td>• Offers mostly targeted, relevant information</td>
<td>• Unable to make list of clear goals and questions</td>
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<td>• Engages committee in the clarification process</td>
<td>• Is aware of technical terminology but has difficulty connecting it to explanations</td>
<td>• Responds to different question than asked</td>
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<td>• Able to restate question in own words</td>
<td>• Easily uses technical terminology and concepts to make points</td>
<td></td>
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<td></td>
<td>• Easily uses technical terminology and concepts to make points</td>
<td>• Able to explain technical information in lay terminology</td>
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<tr>
<td>Criterion 6</td>
<td>☐ 5-Exceptional</td>
<td>☐ 4-Very Good</td>
<td>☐ 3-Proficient</td>
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Comments (please use back of sheet if more space is needed)

Overall Score | ☐ 5-Exceptional | ☐ 4-Very Good | ☐ 3-Proficient | ☐ 2-Needs Improvement | ☐ 1-Remedial

Updated October 2015