Georgia Tech | Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University | EMORY UNIVERSITY

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	EXCEPTIONAL	PROFICIENT	REMEDIAL
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

CRITERION	EXCEPTIONAL	PROFICIENT	REMEDIAL
4. Demonstrates an ability to read, analyze, and synthesize literature*	• 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	• 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	• 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 4	☐ 5-Exceptional ☐ 4-Very Good	☐ 3-Proficient	☐ 2-Needs Improvement ☐ 1-Remedial
5. Utilizes a logical approach in the design, implementation, and evaluation of a research strategy to solve a complex biomedical problem	• Able to clearly articulate rationale in defense of a claim without prompting	• 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 it to the problem	• Unfocused responses • Makes vague statements with no clear tie to question • Unable to defend statements
Criterion 5	☐ 5-Exceptional ☐ 4-Very Good	☐ 3-Proficient	☐ 2-Needs Improvement ☐ 1-Remedial
6. Effectively and efficiently communicates ideas in an organized manner to both engineers and scientists, as well as expert and novice audiences	• 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	• 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	• Rambles and sidesteps the question • Unable to make list of clear goals and questions • Responds to different question than asked
Criterion 6	☐ 5-Exceptional ☐ 4-Very Good	☐ 3-Proficient	☐ 2-Needs Improvement ☐ 1-Remedial
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

*** This criterion should NOT be included when scoring a student during his/her qualifying exam.**