



UNIVERSITY OF ARKANSAS

College of Engineering
Department of Biomedical Engineering

STUDENT: _____ DATE OF EXAM: _____

MATRICULATION SEMESTER/YEAR: _____

PROGRAM: **M.S. (Thesis)**

MILESTONE: **THESIS DEFENSE**

CRITERION	EXCEPTIONAL		SATISFACTORY		REMEDIAL
1. Conceiving, designing, analyzing, and implementing research systems, processes and experiments related to improving human health and healthcare.	<ul style="list-style-type: none"> • Able to analyze the literature with a critical eye • Formulates a concise and clear research problem • Efficiently places his/her work in larger contexts, typically integrates knowledge from multiple sources toward his/her own approach & the field at large • Able to develop and explain an experimental designs that are rationally designed toward addressing hypotheses based on preliminary data • Identifies errors & limitations [quantitative evidence for errors – e.g. power analysis] and formulate future possible future recommendations • Able to interpret results objectively, consistently differentiates objective interpretation from conjecture & speculation 		<ul style="list-style-type: none"> • Explains research problem with some prompting • 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 • Offers a design but unable to clearly explain it, some information irrelevant • Demonstrates understanding of rationale but needs prompting to apply it to the problem • Needs some assistance in making objective interpretations of data; occasionally recognizes conjecture and speculation 		<ul style="list-style-type: none"> • Demonstrates general trust in all published literature • 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 • Unable to form a clear research problem • Unable to formulate a hypothesis/design an experiment • Cannot detect his/her study's limitations and errors • Makes vague statements regarding analysis approaches with no clear tie to question • Unable to defend statements
	<input type="checkbox"/> 5 - Exceptional	<input type="checkbox"/> 4 – Very Good	<input type="checkbox"/> 3 - Satisfactory	<input type="checkbox"/> 2 – Needs improvement	<input type="checkbox"/> 1 - Remedial
2. Functions in multi-disciplinary teams to find solutions to complex technical problems and/or the design of new products and processes to improve human health	<ul style="list-style-type: none"> • Demonstrates outstanding evidence of working in multidisciplinary collaborative teams • Formulated team based on required expertise/relevance to project 		<ul style="list-style-type: none"> • Some evidence of teamwork • Team was lacking in some required expertise for project 		<ul style="list-style-type: none"> • Has never worked in or attempted to form a multidisciplinary team for their project
	<input type="checkbox"/> 5 - Exceptional	<input type="checkbox"/> 4 – Very Good	<input type="checkbox"/> 3 - Satisfactory	<input type="checkbox"/> 2 – Needs improvement	<input type="checkbox"/> 1 - Remedial

3. Using modern analytical, simulation, and diagnostic tools and techniques used in healthcare industry	<ul style="list-style-type: none"> • Excellent ability to utilize analytical/simulation/diagnostic tools that are commonly used in the healthcare industry 		<ul style="list-style-type: none"> • Some ability to utilize analytical/simulation/diagnostic tools that are commonly used in the healthcare industry 		<ul style="list-style-type: none"> • Lack of knowledge or ability to utilize analytical/simulation/diagnostic tools that are commonly used in the healthcare industry
	<input type="checkbox"/> 5 - Exceptional	<input type="checkbox"/> 4 – Very Good	<input type="checkbox"/> 3 - Satisfactory	<input type="checkbox"/> 2 – Needs improvement	<input type="checkbox"/> 1 - Remedial
4. In-depth and up-to-date knowledge within a specialized field in Biomedical Engineering	<ul style="list-style-type: none"> • Consistently provides detailed answers on BMEG approaches/mechanisms/principles without prompting • Able to use new material to solve a problem on his/her feet 		<ul style="list-style-type: none"> • Able to explain the biological system and engineering principles at the structural/factual level; needs prompting to utilize engineering principles to solve a biological problem • Requires some prompting to integrate new material to solve a problem 		<ul style="list-style-type: none"> • 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 • Unable to solve basic engineering problems • Unable to deal with or incorporate new information
	<input type="checkbox"/> 5 - Exceptional	<input type="checkbox"/> 4 – Very Good	<input type="checkbox"/> 3 - Satisfactory	<input type="checkbox"/> 2 – Needs improvement	<input type="checkbox"/> 1 - Remedial
5. An understanding of ethical and professional responsibility	<ul style="list-style-type: none"> • Able to clearly articulate potential ethical issues relating to research 		<ul style="list-style-type: none"> • Requires prompting to identify ethical issues relating to research 		<ul style="list-style-type: none"> • Unable to articulate concepts of ethics and responsibility as it relates to research
	<input type="checkbox"/> 5 - Exceptional	<input type="checkbox"/> 4 – Very Good	<input type="checkbox"/> 3 - Satisfactory	<input type="checkbox"/> 2 – Needs improvement	<input type="checkbox"/> 1 - Remedial
6. To effectively communicate their findings/ideas to a technical and non-technical audience	<ul style="list-style-type: none"> • 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 		<ul style="list-style-type: none"> • 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 		<ul style="list-style-type: none"> • Rambles and sidesteps the question • Unable to make list of clear goals and questions • Responds to different question than asked
	<input type="checkbox"/> 5 - Exceptional	<input type="checkbox"/> 4 – Very Good	<input type="checkbox"/> 3 - Satisfactory	<input type="checkbox"/> 2 – Needs improvement	<input type="checkbox"/> 1 - Remedial

