MS Proposal Rubric (Each graduate advisory committee member completes after the thesis <u>proposal</u> meeting/defense)

Level of Achievement (2 and 4 are intermediate scores)

Assessment Criterion	1 (poor)	2	3 (adequate)	4	5 (excellent)	raw score (1 5 integer)
1a: Ability to synthesize scientific literature	Unfamiliar with and/or unable to meaningfully summarize the current state of knowledge based on relevant scientific literature		Familiar with and understands some key relevant references, but lacks comprehensive knowledge of relevant scientific literature		Thoroughly familiar with and understands current state of knowledge based on relevant scientific literature	
1b: Ability to critically evaluate scientific literature	Unable to identify specific strengths/weakneses of individual scientific references and/or to identify key gaps in the literature		Able to identify *some key* relevant high-quality references and some *major problems* with poor-quality references		Able to distinguish publications of varying quality and to explain specific strengths and flaws	
2a: Ability to formulate hypotheses	Requires extensive guidance to formulate a general scientific question <u>and</u> unambiguous testable hypotheses		Limited ability to formulate and state a general scientific question <u>and/or</u> unambiguous testable hypotheses		Able to formulate and clearly state a general scientific question <u>and</u> unambiguous testable hypotheses	
2b: Ability to design appropriate experiments	Requires extensive guidance to design appropriate experiments to unambiguously test their hypotheses		Able to design, with moderate assistance, appropriate experiments to unambiguously test their hypotheses		Able to design, with minimal assistance, appropriate experiments to unambiguously test their hypotheses	
					Overall Total (4-20):	

MS Thesis Rubric (Each graduate advisory committee member completes after the thesis defense)

Level of Achievement (2 and 4 are intermediate scores)

Assessment Criterion	1 (poor)	2	3 (adequate)	4	5 (excellent)	raw score (1-5 integer)
3a: Ability to collect data	Requires extensive supervision with laboratory and/or field data collection; and/or poor data quality/integrity		Able to collect reliable laboratory and/or field data with moderate supervision.		Able to collect reliable laboratory and/or field data with little supervision.	
3b: Ability to analyze data	Requires extensive assistance to thoroughly and correctly analyze thesis data		Able to thoroughly and correctly analyze thesis data with moderate assistance		Able to thoroughly and correctly analyze thesis data with little assistance	
3c: Ability to interpret data	Requires extensive assistance to thoroughly and correctly interpret thesis data		Able to thoroughly and correctly interpret thesis data with moderate assistance		Able to thoroughly and correctly interpret thesis data with little assistance	
4a: Expertise in area of specialization	Written thesis and defense reveal serious deficiencies in comprehension of thesis topic and relevant literature		Written thesis and defense reveal adequate comprehension of thesis topic and relevant literature		Written thesis and defense reveal exceptional comprehension of thesis topic and relevant literature	
4b: Understanding how thesis contributes to field	Written thesis and defense reveal serious deficiencies in understanding how thesis contributes to the field		Written thesis and defense reveal adequate understanding of how thesis contributes to field		Written thesis and defense reveal exceptional understanding of how thesis contributes to field	
5: Effectively communicate scientific findings in writing	Numerous problems with thesis/manuscript composition		Adequate thesis/manuscript composition, lacking in one or more minor aspects.		Thorough, coherent, focused literature review; complete, concisely described methods; clear data presentation and explanation; rigorous data anlysis and interpretation	
					Overall Total (6-30):	

MS Public Defense Rubric (all PBEE faculty and graduate advisory committee members complete after the thesis seminar)

Level of Achievement (2 and 4 are intermediate scores)

Assessment Criterion	1 (poor)	2	3 (adequate)	4	5 (excellent)	raw score (1 5 integer)
6: Effectively communicate scientific findings in oral presentations						
6a: Clarity of speaking	Insufficient loudness, overly rapid or slow pacing, lack of confidence, etc.		Adequate audibility, pacing, confidence, etc.		Exceptional audibility, pacing, confidence, etc.	
6b: Effective visual aids	Some graphs/tables/videos are uninformative, unnecessary, difficult to understand, cluttered, or illegible		Most graphs/tables/videos are informative, necessary, easily understandable, uncluttered, and visible/ legible throughout room		All graphs/tables/videos are informative, necessary, easily understandable, uncluttered, visible/legible throughout room	
6c: Clarity of scientific explanation	Poor explanation of broader context, approaches, results and data analyses		Average explanation of broader context, approaches, results and data analyses		Exceptionally clear and concise explanation of broader context, approaches, results and data analyses	
6d: Ability to understand and appropriately respond to questions	Difficulty with understanding multiple questions, and/or responses are inadequate or do not directly address question		Adequate understanding of and responses to all questions		Thorough, concise and informative responses to all questions	
					Overall Total (4-20):	