Rubric for Assessing Graduate Student Work in Crop and Soil Sciences

COMPETENCY (SATISFACTORY) = 4.0 FOR M.S. STUDENTS AND 5.0 FOR PH.D. STUDENTS

1. KNOWLEDGE OF FIELD. Understands the breadth and depth of knowledge associated with their discipline.

6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	0
Clearly understands most or all of the concepts associated with the discipline as well as the challenges and embedded issues. Demonstrates accurate and nuanced use of disciplinary language, definitions, and terms appropriate to the audience the work is intended for. Demonstrates appropriate breadth AND depth of knowledge associated with the discipline.		Understands some of the key concepts associated with the discipline. May or may not describe embedded issues. Use of technical language, definitions and terms is generally accurate and appropriate for the audience the work is intended for. Demonstrates appropriate breadth of knowledge associated with the discipline but lacks depth (or visa versa).		Does not understand the key concepts, challenges, or embedded issues associated with the discipline; or does so minimally. Often misuses technical terms and concepts, and/or relies on overly general layperson's language. Demonstrates limited breadth and depth of knowledge associated with the discipline.		Unable to rate based on this work
Comments:						

2. SCIENTIFIC REASONING. Designs, conducts, analyzes and interprets research important to their discipline.

2a. Literature: Search, Selection, & Review.

6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	0
Uses appropriate, relevant, and high quality info sources to create a presentation that is current, well balanced and richly supported by the cited sources. Evaluates most or all sources for quality, perspectives, relevance, and currency. Identifies gaps in the literature and/or relevant gaps in their own knowledge or skills. Good knowledge of previous and current research in their discipline.		Uses a moderate number of respectable sources that, for the most part, cover the needed info. Some sources may be irrelevant or out of date, and/or key area(s) of the issue may not be addressed. Only minimally evaluates sources for quality, relevance and currency Shows some signs of evaluating info gaps in the literature or in their own knowledge or skills. Gaps in knowledge of previous and current research in their discipline.		Minimal or no evidence of search, selection, or source evaluation skills. No evaluation of info sources is present. Does not identify the info gaps or what they still need to know. Limited knowledge of previous or current research in their discipline.		Unable to rate based on this work
Comments:						

2b. Defining the Problem.

6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	0
Identifies a focused, unique, original problem that is challenging and well defined. Potential for significant contribution of the research to their discipline		Identifies a somewhat focused problem that is interesting but not particularly challenging or is simplistic. OR the problem is unsatisfactorily defined and characterized, with important omissions of key considerations. Limited potential for contribution of the research to their discipline or with more focus could prove to contribute significantly.		The problem, if identified, is confused or simplistic. Contribution of the research to their discipline is not clear.		Unable to rate based on this work
Comments:						

2c. Methodology & Data Presentation.

6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	0
Approach and methodology are complete, appropriate and correct for the problem. Has knowledge of emerging methodologies in their discipline. Data collected and presented demonstrates a clear understanding of the info and its relationship with the problem. Data presented appropriately - graphs and/or tables are complete, accurate, relevant, and contain appropriate headings, descriptors, significant figures, etc. Use of statistics is appropriate and presented clearly and completely. Interpretations drawn from statistical presentations are accurate.		Approach and methodology are related to the problem but do not fully address the problems due to flaws or inappropriate approach. Has limited knowledge of emerging methodologies in their discipline. Data collected and presented adequately. Relationship of the data to the problem are not entirely clear. Data presented are generally appropriately - graphs and/or tables contain relevant headings, but some details may be missing or unclear, such as units, significant figures, etc. Statistical information is generally understood and interpreted correctly.		Poor/inappropriate methodology approaches demonstrated, or approach and methodology are unrelated to the problem. Has no knowledge of emerging methodologies in their discipline. Limited data collected or data/approach demonstrates little attention to or understanding of the problem Data presentation are incomplete, poorly labeled, confusing, or missing all together.		Unable to rate based on this work
Comments:						

2d. Data Analysis and Interpretation.

6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	0
Use and interpretation of info are accurate and thorough, including interpretation of data given in graphs and tables, as well as the overall results and conclusions given by each source. Logical and highly insightful inferences from the info presented. Excellent job in integrating literature and data in appropriate and creative ways. Analysis demonstrates firm understanding of data. Alternate interpretations of, or inferences from, data are discussed appropriately and in detail.		Accurately uses and correctly interprets most of the info obtained from sources, including data given in graphs and tables, as well as the overall results and conclusions given by each source. One or more minor points may be overlooked or misinterpreted. Generally makes logical inferences from the info presented, with only few or minor mistakes. Demonstrates a basic understanding of the data and some ability to connect literature and data to analyze evidence, but analysis is confusing in some spots or contains inaccuracies. Analysis generally reflects evidence reviewed, collected and presented. May provide brief, appropriate mention of alternative interpretations.		Little or no interpretation of data, instead is simply a restatement of facts and ideas found elsewhere. Misunderstands or misrepresents info given in their sources. Limited or no logical inferences from the info presented. Does not appear to understand the info.		Unable to rate based on this work
Comments:						

2e. Conclusions and Recommendations.

6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	0
Conclusions are accurate, appropriate, and clearly linked to problem and data presented. Conclusions and recommendations are balanced and qualified to account for uncertainties in the data or unpredictability of the system, and student's own biases.		Conclusions are reasonable but may not take into account all critical factors. In a limited way, students consider uncertainties or other limitations of the conclusions or evidence.		Conclusions are inaccurate and/or unreasonable, do not reflect the research and data presented, or are merely a simplistic summary not tied to the original problem. Conclusions and recommendations are biased and do not reflect the research and data, suggesting views were established before or in spite of the evidence.		Unable to rate based on this work
Comments:						

3. COMMUNICATION. Communicates effectively to a diverse group of people using appropriate traditional and emerging technological media.

6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	0
Captures and communicates the intended idea(s) accurately and clearly.		Captures and communicates the intended idea(s) accurately but parts are not clear.		Inadequately/inaccurately captures and communicates the intended idea(s) due to gaps and digressions. Little attention is paid to accuracy.		Unable to rate based on this work
Main points connect with the audience and are smoothly tied together.		Generally easy to identify main points and transitions are usually smooth.		Difficult to identify main points. Transitions may be rough.		
Compellingly conveys why the issue matters.		Background and context sufficient to indicate the issue is important.		Limited background info and context so not at all clear why issue matters.		
Visuals (graphs, tables, diagrams, etc) are clear, concise, and relevant.		Visuals (graphs, tables, diagrams, etc) generally support the written component, but some may be overly complex, simplistic, or redundant.		Not clear how the visuals (graphs, tables, diagrams, etc) add credibility to the topic.		
Polished, error-free, and engaging. Professional.		Contains errors, but errors do not distract from or misrepresent content and ideas.		Multiple errors in grammar, syntax, punctuation, etc., that obscure and/or misrepresents the content.		
Comments:						

4. ORIGINAL CONTRIBUTION. Demonstrates potential for original contribution to their discipline.

6 - Mastering	5 - Effective	4 - Competent	3 - Developing	2 - Emerging	1 - Minimal	0
Research demonstrates excellent potential for original contribution to their discipline. Research is unique, well organized, complete, and statistically sound.		Research demonstrates some potential for original contribution to their discipline. Research is unique but contains flaws in interpretation, organization, completeness and/or statistics.		Research contains serious flaws that would make it unpublishable. Not unique.		Unable to rate based on this work
Research prepares student for further productive research beyond graduate school.		Research prepares student for limited research beyond graduate school		Limited or no potential for student to do further research in this area.		
Comments:						

Rubric for Assessing Graduate Work in the Department of Crop and Soil Sciences

For use by committee

Student's name: _____   Date: _____   MS____ PhD____   Crops____ Soils____

Title: _____

Check one: Proposal seminar/defense _____   Prelim exam _____   Final seminar/defense _____

For each of the learning outcomes below, please choose the score which best corresponds to the overall level demonstrated in the student work using the attached rubric for guidance. (*6/5 = Mastering; 4/3 = Developing; 2/1 = Minimal; N/A = Unable to rate).* Please use whole numbers or increments of 0.5.

Learning Outcome	Score
1. Knowledge of Field. Demonstrates adequate breadth and depth of knowledge of the field in their area of research.	
2. Scientific Reasoning. Appropriately designs, conducts, analyzes, and interprets research effectively on important problems in their discipline.	
a. Literature: Search, Selection, and Review. Reviews the literature in a manner that demonstrates comprehensive knowledge of previous and current research in the field of study.	
b. Defining the Problem. Identifies a viable question within the field of study and effectively documents the contribution of the research to the area of study.	
c. Methodology and Data Collection. Designs and implements appropriate research experiments to test the hypothesis or the solve problem.	
d. Data Analysis and Interpretation. Analyzes and interprets research data appropriately. Demonstrates sufficient knowledge of appropriate concepts, theories, and emerging methodologies in their area of research.	
e. Conclusions and Recommendations. Presents conclusions and recommendations that are accurate, clearly linked to data presented, and take into account all critical factors.	
3. Communication*. Communicates effectively to a diverse group of people using appropriate traditional and emerging technological media.	
4. Original Contribution. Demonstrates potential for original contribution to their discipline.	

Comments: