

Grading Rubric for Supervised Research Courses GENE 4960R, 4970R or 4980R

This rubric is used for the assessment of the Genetics Student Learning Outcome #2: "Apply the process of science to research questions in genetics." Use this rubric to provide the basis for the grading of the final written assignment (check the boxes to assign the appropriate level of the rubric). Research mentors should submit this completed form to the Office of the Undergraduate Coordinator (Brian Norman, blnorman@uga.edu) before final grades are assigned in the course.

Student Name:

Faculty Mentor:

Overall Score:

Course:

Rubric adapted from: Timmerman, B.E.C., Strickland, D., Johnson, R.L. and J. R. Payne 2011. Development of a 'universal' rubric for assessing undergraduates' scientific reasoning skills using scientific writing. Assessment and Evaluation in Higher Education 36: 509-547.

	1	2	3	4	Score
Context: Demonstrates an understanding of the 'big picture.' Why is this question important/ interesting to genetics? What do we already know? What problem/ question is this addressing?	The importance of the question or broader context for genetics is not addressed.	The writer provides a generic or vague rationale for importance of the question or broader context for genetics.	The writer provides some relevant context for importance of the question or broader context for genetics.	The writer provides a clear sense of why this knowledge may be of interest/important to genetics, describes the current gaps in our understanding of this field and explains how this research might help fill those gaps.	
Accuracy and Relevance: Content knowledge is accurate, relevant and provides appropriate background for reader.	Background information is missing or contains major inaccuracies. Background information is accurate, but irrelevant or too disjointed to make relevance clear.	Background omits information or contains inaccuracies which detract from the major point of the paper. Background information is overly narrow or overly general.	Background information may contain minor omissions or inaccuracies that do not detract from the major point of the paper. Background information has the appropriate level of specificity to provide relevant context.	Background information is completely accurate. Background information has the appropriate level of specificity to provide concise and useful context to aid the reader's understanding.	
Testable and Alternate Hypotheses: Hypotheses are clearly stated; testable and plausible alternative explanations are considered.	No hypothesis is indicated. The hypothesis is stated but too vague or confused for its value to be determined. A clearly stated, but not testable, hypothesis is provided. A clearly stated and testable, but trivial hypothesis is provided.	A single, relevant, testable hypothesis is clearly stated. The hypothesis may be compared with a 'null' alternative which is usually just the absence of the expected result.	Multiple relevant, testable hypotheses are clearly stated. Hypotheses address more than one major potential mechanism, explanation or factors for the topic.	A comprehensive set of testable hypotheses are clearly stated which, when tested, will distinguish among multiple major factors or potential explanations for the phenomena at hand.	
Controls: Appropriate controls (including appropriate replication) are present and explained.	Student fails to mention controls and/or replication, or mentions them, but the description or explanation is incomprehensible.	Student explanations of controls and/or replication are vague, inaccurate or indicate only a rudimentary sense of the need for controls and or replication.	Student describes a reasonable sense of why controls/replication matter. Explanations are mostly accurate.	Explanations of why these controls matter, are thorough, clear and tied into sections on assumptions and limitations.	
Experimental Approach: Are the techniques described likely to produce salient results (tests the hypotheses posed.)	Experimental approach is poorly explained.	Student explanations of experimental approach are vague, inaccurate or indicate only a rudimentary understanding.	Student describes a reasonable understanding of the experimental approach. Descriptions are mostly accurate.	Understanding of experimental approach is thorough and clear.	
Conclusions: Conclusion is clearly and logically drawn from data provided. A logical chain of reasoning from hypothesis to data to conclusions is clearly and persuasively explained. Conflicting data, if present, are adequately addressed.	Conclusions have little or no basis in data provided. Connections between hypothesis, data and conclusion are non-existent, limited, vague or otherwise insufficient to allow reasonable evaluation of their merit. Conflicting data are not addressed.	Conclusions have some direct basis in the data, but may contain some gaps in logic or data or are overly broad. Connections between hypothesis, data and conclusions are present but weak. Conflicting or missing data are poorly addressed.	Conclusions are clearly and logically drawn from and bounded by the data. A reasonable and clear chain of logic from hypothesis to data to conclusions is made. Conclusions attempt to discuss or explain conflicting or missing data.	Conclusions are completely justified by data. Connections between hypothesis, data, and conclusions are comprehensive and persuasive. Conclusions address and logically refute or explain conflicting data. Synthesis of data in conclusion may generate new insights.	
Primary Literature: Does the paper draw appropriately on the primary scientific literature?	Primary literature references are absent or irrelevant.	Primary literature references, if present, are inadequately explained. Citations are at least partially correctly formatted.	Primary literature references are relevant and adequately explained but few. Primary literature references are generally formatted correctly.	Primary literature references are relevant, adequately explained, and indicate a reasonable literature search. Primary literature references are properly and accurately cited.	
Writing Quality: Grammar, word usage and organization facilitate the reader's understanding of the paper.	Grammar and spelling errors detract from the meaning of the paper. Word usage is frequently confused or incorrect. Information is presented in a haphazard way.	Grammar and spelling mistakes do not hinder the meaning of the paper. General word usage is appropriate, although use of technical language may have occasional mistakes. There is some evidence of an organizational strategy though it may have gaps or repetition.	Grammar and spelling have few mistakes. Word usage is accurate and aids the reader's understanding. A clear organizational strategy is present with a logical progression of ideas.	Correct grammar and spelling. Word usage facilitates reader's understanding. A clear organizational strategy is present with a logical progression of ideas.	