

NOTE: Expectations outlined in this rubric are geared to undergraduate research and not doctoral level research.

Outcome	Developing-1	Competent-2	Exemplary-3
1. Students will be able to formulate a research question or problem	- Research question or problem is not clear. - Research question cannot be feasibly investigated.	- Research question or problem requires more clarification. - Research question requires additional focus to be feasibly investigated.	- Research question or problem is clear. - Research question can be feasibly investigated.
2. Students will be able to identify basic principles and knowledge related to their research question or problem	- Student establishes a methodology that is not appropriate for the discipline. - The research shows a lack of knowledge of the literature in the field.	- Student establishes a methodology that is accepted within the discipline, although another methodology may be more effective. - The research shows a competent knowledge of the literature in the field.	- Student establishes a methodology that shows knowledge of the discipline. - The research shows in-depth knowledge of the literature in the field.
3. Students will be able to develop a research plan to address or resolve a specific question or problem.	No coherent plan presented. It does not appear that appropriate literature and background have been consulted in development of plan.	The research plan is essentially valid; however, there are some issues with variables, errors, or proposed techniques that are inappropriate.	The research plan is logical and comprehensive. Potential sources of error have been identified and minimized. Appropriate literature and background have been consulted and included.

4. Students will be able to collect and interpret data and information in an attempt to resolve the question or problem.	• Data collection. Data collected do not reflect a thorough or sound data collection process • Relevance of data to research question. Data collected are not sufficiently relevant to the research question, with too much extraneous material • Data interpretation. Interpretation of data is not accurate enough, or the student does not demonstrate effort to address bias in interpretation. There is insufficient description or use of validation procedures. • Relevance of interpretation to research question. There is no clear link between the interpretation of the data and the original research question or problem • Coding, Programming, and Computation skills. Student was lacking in skills required for debugging codes, and application of relevant theory	• Data collection. The collection process is generally sound. • Relevance of data to research question. Data collected are mostly relevant to the research question, with some extraneous material. • Data Interpretation. Interpretation of data is mostly accurate with some minor errors. There is some effort to minimize or address bias. Student attempts to use or describe validation procedures for data. • Relevance of interpretation to research question. The interpretation of the data is linked to the original research question or problem. • Coding, Programming, and Computation skills. Student was able to code adequately, draw relevant diagrams and figures to complete project.	• Data collection. Data collected reflect a thorough and sound data collection process. • Relevance of data to research question. Data collected directly address the research question, without extraneous material • Data interpretation. Interpretation of data is accurate. Student demonstrates effort to minimize or address bias. Student describes appropriate data validation procedures. Student presents caveats and results that may not agree with hypothesis. • Relevance of interpretation to research question. The interpretation of the data is clearly linked to the original research question or problem. • Coding, Programming, and Computation skills. Student's ability to code was elegant, successfully debugged program, and was meticulous in the computations.
5. Students will demonstrate awareness of the responsible conduct of research.	• Research has been conducted in an unethical and illegal manner. • Student does not follow proper protocol. a) safety aspects: Research has been conducted in an unsafe manner. b) subjects issues Research has been conducted without consideration for the ethical treatment of animals and/or	• Research has been conducted in a generally acceptable ethical and legal manner. • Student generally follows proper protocol. a) safety aspects Research appears to have been conducted in a safe fashion, but some questions about safe practices are not addressed. b) subjects issues	• Research has been conducted in a fully acceptable ethical and legal manner. • Student follows proper protocol. a) safety aspects Student is aware of all issues surrounding ethics and safety of research, and addresses them fully in reports. b) subjects issues Animals and humans are treated in

	humans. Research findings are not properly cited.	Research appears to have been conducted in an appropriate fashion, but some guidelines are not followed or documentation is missing. Research findings are generally cited.	a safe manner, following relevant guidelines. Student has obtained all necessary release forms. Research findings are properly cited.
6. Students will be able to articulate their research findings through written, performance, and/or oral presentations.	a) oral presentation - Oral presentation fails to follow the appropriate genre for the discipline and fail to reflect technical competency in the subject area. - Presentation fails to answer the research question and does not provide analysis of the research, leaving most questions unaddressed. - Presentation rambles and is not clear. - Voice, tone, and level of formality of the presentation are inappropriate for the setting. - Student does not address most questions of the audience in a coherent manner. b) written presentation - Composition fails to follow the appropriate genre for the discipline and does not reflect technical competency in the subject area. - Composition does not address the research question. Research lacks analysis and synthesis. - Composition lacks focus,	a) oral presentation - Oral presentation follows the appropriate genre for the discipline and reflects technical competency in the subject area. - Presentation answers the research question and provides analysis of the research, though some questions left unaddressed. - Presentation is for the most part focused, coherent and clear. - Voice, tone, and level of formality of the presentation are appropriate for the setting, although some slips may occur. - Student addresses most questions of the audience in a coherent manner. b) written presentation - Composition follows the appropriate genre for the discipline and reflects technical competency in the subject area. - Composition answers the question and provides analysis of the research; there may still be some questions left unaddressed.	a) oral presentation - Oral presentation follows the appropriate genre for the discipline and reflects technical expertise in the subject area. - Presentation fully answers the research question and provides in-depth analysis of the research. - Presentation is focused, coherent and clear. - The presentation is polished and coherent, clear and concise. - Voice, tone, and level of formality of the presentation are appropriate for the setting. - Student addresses questions of the audience in a coherent manner. b) written presentation - Composition follows the appropriate genre for the discipline and reflects technical expertise in the subject area. - Composition fully answers the research question and provides in-depth analysis of the research. - Composition is focused, coherent

	coherency, and clarity • Quotation, attribution, and citation are improperly handled using the appropriate citation method. • The composition shows a lack of polish and editing; writing issues affect readability. • Voice, tone, and level of formality of the composition are inappropriate to the intended publication or audience. • Limited variety of primary and secondary sources in literature review and discussion.	• Composition is focused, coherent • Composition answers the research and clear. • Quotation, attribution, and citation are properly handled using the appropriate citation method. • The composition presents prose that is edited, clear and concise. • Voice, tone, and level of formality of the composition are appropriate to the intended publication or audience. • Reasonable variety of primary and secondary sources in the literature review and discussion, but with some major omissions.	and clear. • Quotation, attribution, and citation are properly handled using the appropriate citation method. • The composition presents polished prose, carefully edited, clear and concise. • Voice, tone, and level of formality of the composition are appropriate to the intended publication or audience. • Literature review and discussion are appropriate, comprehensive, and includes primary and secondary sources.
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