Rubrics to assess inquiry in program learning outcomes

The Rice University Faculty Senate approved three areas of competency assessment for SACSCOC accreditation: Scholarly Work, Critical Thinking, and Communication. To align assessment of these outcomes with assessment of inquiry-based learning and communication in the discipline, OIE, OURI, and PWC have developed rubrics that assess a student's competence across Rice University's five facets of inquiry-based learning: framing, methodology, evaluation, synthesis, and dissemination. Each rubric places emphasis on a different aspect of that facet and is intended to assess a student's progress along a sequence of learning, such as a curriculum. Determining which rubric to use and selecting types of student work as artifacts to evaluate should be based on the desired learning outcomes.

Align Program Learning Outcomes with Inquiry Facets

Program Learning Outcomes (PLOs) ➤ **Inquiry Facets**
(framing, methodology, evaluation, synthesis, dissemination)

For each PLO, select one or more competency areas for focus. See rubrics for focus area descriptions.

Critical Thinking   Communication   Scholarly Work

Example PLO: Students will "demonstrate an ability to communicate effectively with a range of audiences" aligns with the Dissemination facet.
Assess student work using the Communication rubric (Control of Syntax and Mechanics) and/or the Scholarly Work rubric (Genre and Disciplinary Conventions)

Rate student work from Benchmark to Capstone level

Use rubric descriptions of each level and/or add discipline-specific indicators for ratings

Facet of Inquiry Student Learning Outcomes	Competency	Category of evaluation	Assessment			
Program:			1	2	3	4
			Benchmark	Fundamental	Milestone	Capstone
Framing develop inquiry focus; ground knowledge	Critical Thinking	Context and Rationale (Existing Knowledge, Research, and/or Views)	Lacks context and justification for chosen topic. Presents information from irrelevant sources representing limited or inconsistent points of view/approaches.	Provides limited context or rationale for the chosen topic with information from relevant sources representing limited points of view/approaches.	Provides context and rationale for the chosen topic with in-depth information from relevant sources representing various points of view/approaches.	Provides detailed context and rationale for the chosen topic with clearly identified support and in-depth information from relevant sources representing many points of view/approaches.
Methodology collect and record data/information from sources; develop methodology or theoretical framework	**Critical Thinking**	Appropriateness of Methodoly / Selecting & Finding Tools	Chooses method to design an experiment to collect data and/or to find sources that is inappropriate for procuring needed information	Chooses method that may be inappropriate for the information need and/or not adequately justified. Describes the variables and assumptions and/or distinguishes the difference between scholarly level sources and general purpose information sources.	Chooses appropriate methods for information need. When necessary, justifies use of materials, methods, and assumptions and/or determines when it is appropriate to use a general or a subject-specific information source.	Chooses or develops methods that are appropriate for information need. When necessry, justifies materials, methods, and assumptions and/or determines when appropriate to use a variety of information sources.
Evaluation organize data/information to reveal patterns; reflect on quality of data/information	Critical Thinking	Relevance and Quality of Evidence	Identifies data and/or evidence, but it is not organized and/ or relevant to focus. Fails to reveal relevant trends and observations.	Includes data/evidence appropriate to the focus, but the organization is not effective in revealing important patterns, differences, or similarities.	Presents data/evidence appropriate to the focus; organizes data to reveal important patterns, differences, similarities, comparisons, or other observations related related to focus.	Distinguishes relevance and quality of evidence according to established criteria (such as completeness, uniqueness, timeliness, validity, accuracy, and consistency); organizes and synthesizes evidence to reveal insightful patterns, differences, similarities, comparisons, and/or other observations related to focus.
Synthesis synthesize information/ data to generalize or abstract knowledge; address gaps in understanding and implications.	Critical Thinking	Qualified Conclusions (Application / Analysis / Assumptions)	Uses the analysis of evidence as the basis for tentative, basic judgments, although is hesitant or uncertain about drawing conclusions and provides only limited explanation of assumptions.	Uses the analysis of evidence as the basis for workmanlike (without inspiration or nuance, ordinary) judgments, drawing plausible conclusions from this work and explicitly describing assumptions.	Uses the analysis of evidence as the basis for competent judgments, drawing reasonable and appropriately qualified conclusions from this work.	Uses the analysis of evidence as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions from this work. Shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions.
Dissemination share the outcomes of the inquiry	Critical Thinking	Content Selection	Uses appropriate and relevant content to develop simple ideas in some parts of the work.	Uses appropriate and relevant content to develop and explore ideas through most of the work.	Uses appropriate, relevant, and compelling content to explore ideas within the context of the assignment/task and to shape the whole work	Uses appropriate, relevant, and compelling content to illustrate mastery of the subject, conveying the writer's understanding, and shaping the whole work.

Facet of Inquiry Student Learning Outcomes	Competency	Category of evaluation	Assessment			
Program:			**1**	**2**	**3**	**4**
			Benchmark	Fundamental	Milestone	Capstone
Framing develop inquiry focus; ground knowledge	Communication	Context and Purpose for Writing	Demonstrates minimal attention to context, audience, and purpose for the assigned tasks(s) (e.g., expectation of instructor or self as audience).	Demonstrates awareness of context, audience, and purpose for the assigned tasks(s) (e.g., begins to show awareness of audience's perceptions and assumptions).	Demonstrates adequate consideration of context, audience, and purpose and a clear focus on the assigned task(s)	Demonstrates a thorough understanding of context, audience, and purpose that is responsive to the assigned task(s) and focuses all elements of the work.
Methodology collect and record data/information from sources; develop methodology or theoretical framework	**Communication**	Documentation and annotation of data/sources to address topic	Documentation of data, procedures, and/or annotation of sources is incomplete. Standard conventions for recording data and citing sources are absent.	Documentaton of data, procedures, and/or annotation of sources is mostly present and follows a standard format although the level of detail may be inappropriate.	Documentation of data, procedures, and/or annotation of sources is complete and presented according to a standard format with a few lapses.	Documentation of data, procedures, and/or annotation of sources is complete and presented in a format appropriate for the genre.
Evaluation organize data/information to reveal patterns; reflect on quality of data/information	Communication	Use Information Effectively to Accomplish a Specific Purpose	Fails to achieve intended purpose because the information is fragmented and/or used inappropriately (misquoted, taken out of context, or incorrectly paraphrased, etc.). Important data and visuals are missing or are so poorly selected/constructed that they distract from the argument.	Communicates through disorganized text that makes it difficult for a reader to identify the purpose. Data and visuals are not well-selected and/or well-wrought and do not complement the narrative or contribute to a clearer understanding of findings.	Communicates information through a clear organizational scheme in order to achieve a specific purpose. Data sets and visuals are well-selected and integrated within the text. Data/visuals are well-wrought on the whole, with some lapses in best practice.	Communicates information with a logical organizational scheme to fully achieve the purpose set forth in the framing/introduction. Data/visuals are well-selected, well-wrought (using scale, placement, colors, lables, captions, etc.), and integrated within the text.
Synthesis synthesize information/ data to generalize or abstract knowledge; address gaps in understanding and implications.	Communication	Explication of Argument	Presents an argument that is not supported by the presented evidence. Metadiscouse/signaling is sparse or absent.	Presents evidence but does not effectively connect it to the argument or purpose of the work. Metadiscouse/signaling is sparse.	Connects evidence with the argument or purpose of the work, though evidence may be presented in a less than completely effective format or some parts of the explication may be uneven. Some metadiscourse is incorporated.	Fully explicates key findings and connects these to the argument or purpose of the work. Uses a logical organization that employs metadiscourse (e.g. transitions, sequencing, hedges, etc.) that signal the flow from key claims to evidence, comparisons/contrasts, limitations, etc.
Dissemination share the outcomes of the inquiry	Communication	Control of Syntax and Mechanics	Makes errors in grammatical usage or writing style that at times obscure the meaning. Chooses language that leads to muliple instances of imprecision, lack of clarity, or informality.	Uses language that generally conveys meaning to readers with clarity although writing/speaking may include some errors.	Uses straightforward language with few errors that generally conveys meaning to readers.	Employs virtually error-free sentences that are stylistically graceful. Uses clear, precise language that skillfully communicates meaning to readers with appropriate level of formality.

Program:			Assessment			
			1	**2**	**3**	**4**
Facet of Inquiry Student Learning Outcomes	**Competency**	**Category of evaluation**	Benchmark	Fundamental	Milestone	Capstone
Framing develop inquiry focus; ground knowledge	Scholarly Work	Research Focus	Identifies a research focus that is far too general and wide-ranging as to be a manageable project.	Identifies a research focus that while manageable/doable, is too narrowly focused and leaves out relevant aspects of the project.	Defines a manageable/doable research focus that appropriately addresses relevant topics within the discipline. Raises a problem/question and provides context but may not articulate and occupy the gap/niche.	Defines a creative and manageable research focus that addresses potentially significant yet previously less-explored aspects of the discipline. Creates a research space by raising a problem/question, providing context, articulating a critical gap/niche, and describing how the work responds to the gap/niche.
Methodology collect and record data/information from sources; develop methodology or theoretical framework	Scholarly Work	Research and Process Design	Lacks an inquiry design that demonstrates understanding of the methodology or theoretical framework.	Lacks and/or incorrectly develops critical elements of the methodology or theoretical framework. Reports inappropriate details.	Appropriately develops critical elements of the methodology or theoretical framework; however, may ignore or not account for more subtle elements.	Adeptly applies published protocols and/or skillfully develops all elements of the methodology or theoretical framework. May synthesize appropriate methodology or theoretical frameworks from across disciplines or from relevant subdisciplines.
Evaluation organize data/information to reveal patterns; reflect on quality of data/information	Scholarly Work	Interpretation of Evidence	Presents information/data as isolated facts or raw data without any interpretation/ evaluation. Designs/selects visual evidence/data that prevents understanding of how it was interpreted.	Presents information/data mostly as facts or values with some interpretation/ evaluation, but not enough to develop a coherent analysis. Designs/selects visual evidence/data that is consistent with interpretations.	Presents information/data with enough interpretation/ evaluation to develop a coherent analysis. Designs/selects visual evidence/data that reveal patterns, similarities, differences, or other observations.	Presents information/data with enough interpretation/ evaluation to develop a comprehensive analysis to address disciplinary questions. Designs/selects visual evidence/data that complements interpretations and highlights insightful patterns, similarities, differences, or other observations.
Synthesis synthesize information/ data to generalize or abstract knowledge; address gaps in understanding and implications.	Scholarship	Conclusions and related outcomes (implications and consequences)	Ties conclusions inconsistently to some of the information/data discussed; oversimplifies or overstates related outcomes (consequences and implications).	Ties conclusion logically to some information/data while other evidence may be absent or excluded from synthesis; identifies some related outcomes (consequences and implications) clearly.	Ties conclusion logically to a range of information/data, including opposing viewpoints; identifies related outcomes (consequences and implications) clearly. May be less adept at positioning these outcomes within the interests of the field at large.	Presents logical conclusions and related outcomes (consequences and implications) that reflect informed evaluation and ground evidence and perspectives in understanding of other scholars' contributions to the field.
Dissemination share the outcomes of the inquiry	Scholarly Work	Genre and Disciplinary Conventions (Formal and informal rules inherent in the expectations for writing in particular forms and/or academic fields)	Attempts to use a consistent system for basic organization and presentation.	Follows expectations appropriate to a specific discipline and/or writing task(s) for basic organization, content, presentation, and citation	Demonstrates consistent use of important conventions particular to a specified discipline and/or writing task(s), including organization, content, presentation, stylistic choices, and citation	Demonstrates detailed attention to and successful execution of a wide range of conventions particular to a specific discipline including organization, content, presentation, formatting, stylistic choices, and citation

These rubrics were developed using a modification of the Research Skills Development Framework from University of Adelaide incorporating examples modified from published rubrics including items adapted from VALUE rubrics by the Association of American Colleges and Universities, 2009. This derivative work is licensed under CC BY-NC-SA 4.0.

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