

Anchor Plan Student Learning Outcome 1

Examine fundamental or emerging questions about humanity, the natural world, or God by seeking answers through different modes of inquiry.

Assessment Schedule

A sample of artifacts of student work is collected annually from the Math and Natural and Applied Sciences, Social Sciences, Humanities and Arts Perspectives, and Religion courses that are mapped to Anchor Plan Outcome 1.

Collected artifacts are assessed every two years in the summer of odd years.

Assessment results are reviewed by the General Education Council in the Fall Semester of odd years.

Assessment Tool

Artifacts of student work are assessed using the AAC&U Value Rubric for Inquiry and Analysis or the AAC&U Value Rubric for Quantitative Literacy (Attachment A). The Quantitative Literacy Rubric is used for courses where mathematical forms and calculations demonstrate student progress toward Outcome 1 and there is no written document produced that could be assessed using the Inquiry and Analysis Rubric. The results from assessments completed using the Quantitative Literacy Rubric are cross-walked to the Inquiry and Analysis rubric.

In some cases, the assessment of student work is completed within a department. For example, artifacts that are assessed using the Quantitative Literacy Rubric. In these cases, the completed rubric is submitted in place of the artifact.

Additionally, when student work demonstrating progress toward the outcome is assessed using a closed-ended assessment (e.g., a set of questions on an exam), the completed rubric is submitted in place of the artifact.

Assessment Target

Eighty percent of assessed artifacts will have an average rubric score (the average of all rubric items) in the range from 2.00 to 3.99.

Assessment Sample and Process

Artifacts to be collected.

The Anchor Plan Assessment Plan specifies that artifacts from the following courses are collected for assessment.

200-level Mathematics and Natural and Applied Sciences courses
200-level Social Science courses
200-level Humanities and Arts Perspectives courses
200-level Religion courses

It was identified during the implementation of the Anchor Plan Assessment Plan that most courses mapped to this outcome are at the 100 level. Inconsistent course sequencing and numbering across departments were also identified as impediments to using only artifacts from courses specified in the Anchor Plan Assessment Plan. Therefore, a sample from all courses mapped to Outcome 1 will be collected for the first assessment (August 2025) with an analysis completed that compares results from 100-level with 200-level courses. As part of their Fall 2025 review of assessment results, the General Education Council will determine, based on the data, if future assessments of Outcome 1 include all courses mapped to the outcome, or are narrowed to include only the courses specified in the Anchor Plan Assessment Plan.

The number of artifacts collected by each department is based on annual enrollment in their course sections mapped to Outcome 1. For specific instructions on this process, see the document *Selecting Anchor Plan Artifacts*.

Artifacts will be collected beginning no later than Spring Semester 2024.

Department faculty determine the specific artifacts to be collected from their course sections. For example, a course paper, assignment, exam question(s), presentation, or other artifacts identified by individual instructors teaching the course sections. As the disciplinary experts, department faculty members are best situated to identify the student work that demonstrates student progress toward Outcome 1 as measured by the rubric.

Artifact storage

Departments gather and save individual artifacts using the process that best works for them. Each artifact is saved in a PDF format with a filename using the following convention.

Course(space)Section(space)Semester

For example,

HIST 257 01 FA23

ART 116 03 SP24

ART 111 01 SS24 (the term SS is used for May, June, and July sessions)

Personally identifying information (PII), such as student name, ID number, etc., is removed from artifacts. Instructor name and identifying information (other than the course section) is also removed. Section number is only collected to aid in selecting a representative sample and not to assess individual faculty members.

In cases where the course section is mapped to Anchor Plan 1 and Anchor Plan 4, the same artifact may be used in both assessment processes if it demonstrates student progress toward both outcomes.

By August 1 of each year, artifacts collected during the previous academic year (Summer, Fall, and Spring) are submitted to a Google folder owned by the Frost Center for Data and Research and controlled by the Director of Assessment and Accreditation. Ownership of each artifact is transferred to Frost Center to facilitate long-term storage.

From this collection of artifacts, the Director of Assessment and Accreditation draws a random sample for assessment that provides a 95% confidence level.

Assessment process

In August of each odd year (beginning in August 2025), faculty members from across all disciplines are invited to participate in the assessment of the artifacts collected across two years. Faculty members are compensated for this work at the rate approved by the Deans' Council for assessment work.

The Director of Assessment and Accreditation leads the assessment process, in collaboration with the Math/Natural Science, Social Science, Health Dynamics, Religion, Fine Arts/Arts in Practice, and Human Perspectives Directors of the General Education Council. This includes a norming session using the AAC&U rubrics and a process for applying the rubric to the student artifacts in the sample.

A report of the results from the assessment is collaboratively prepared by the Director of Assessment and Accreditation and the Math/Natural Science, Social Science, Health Dynamics, Religion, Fine Arts/Arts in Practice, and Human Perspectives Directors of the General Education Council. The report is provided in the Fall Semester of each odd year to the General Education Council, the Assessment Committee, and the Deans' Council, and made available to the broader campus community.

Artifacts provided by departments, assessment reports, and other documentation and correspondence related to the assessment of Anchor Plan Outcome 1 are maintained by the Director of Assessment and Accreditation within the shared data storage of the Frost Center for Data and Research.

Review of Results

Following a review of results from the Outcome 1 assessment, the General Education Council shares its recommendations for improvement in student learning with the Assessment Committee and the Deans' Council.

INQUIRY AND ANALYSIS VALUE RUBRIC

for more information, please contact value@aacu.org



The VALUE rubrics were developed by teams of faculty experts representing colleges and universities across the United States through a process that examined many existing campus rubrics and related documents for each learning outcome and incorporated additional feedback from faculty. The rubrics articulate fundamental criteria for each learning outcome, with performance descriptors demonstrating progressively more sophisticated levels of attainment. The rubrics are intended for institutional-level use in evaluating and discussing student learning, not for grading. The core expectations articulated in all 15 of the VALUE rubrics can and should be translated into the language of individual campuses, disciplines, and even courses. The utility of the VALUE rubrics is to position learning at all undergraduate levels within a basic framework of expectations such that evidence of learning can be shared nationally through a common dialog and understanding of student success.

Definition

Inquiry is a systematic process of exploring issues, objects or works through the collection and analysis of evidence that results in informed conclusions or judgments. Analysis is the process of breaking complex topics or issues into parts to gain a better understanding of them.

Framing Language

This rubric is designed for use in a wide variety of disciplines. Since the terminology and process of inquiry are discipline-specific, an effort has been made to use broad language which reflects multiple approaches and assignments while addressing the fundamental elements of sound inquiry and analysis (including topic selection, existing knowledge, design, analysis, etc.) The rubric language assumes that the inquiry and analysis process carried out by the student is appropriate for the discipline required. For example, if analysis using statistical methods is appropriate for the discipline then a student would be expected to use an appropriate statistical methodology for that analysis. If a student does not use a discipline-appropriate process for any criterion, that work should receive a performance rating of "1" or "0" for that criterion.

In addition, this rubric addresses the **products** of analysis and inquiry, not the **processes** themselves. The complexity of inquiry and analysis tasks is determined in part by how much information or guidance is provided to a student and how much the student constructs. The more the student constructs, the more complex the inquiry process. For this reason, while the rubric can be used if the assignments or purposes for work are unknown, it will work most effectively when those are known. Finally, faculty are encouraged to adapt the essence and language of each rubric criterion to the disciplinary or interdisciplinary context to which it is applied.

Glossary

The definitions that follow were developed to clarify terms and concepts used in this rubric only.

- **Conclusions:** A synthesis of key findings drawn from research/evidence.
- **Limitations:** Critique of the process or evidence.
- **Implications:** How inquiry results apply to a larger context or the real world.

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Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

	Capstone 4	Milestones		Benchmark 1
		3	2	
Topic selection	Identifies a creative, focused, and manageable topic that addresses potentially significant yet previously less-explored aspects of the topic.	Identifies a focused and manageable/ doable topic that appropriately addresses relevant aspects of the topic.	Identifies a topic that while manageable/ doable, is too narrowly focused and leaves out relevant aspects of the topic.	Identifies a topic that is far too general and wide-ranging as to be manageable and doable.
Existing Knowledge, Research, and/or Views	Synthesizes in-depth information from relevant sources representing various points of view/ approaches.	Presents in-depth information from relevant sources representing various points of view/ approaches.	Presents information from relevant sources representing limited points of view/ approaches.	Presents information from irrelevant sources representing limited points of view/ approaches.
Design Process	All elements of the methodology or theoretical framework are skillfully developed. Appropriate methodology or theoretical frameworks may be synthesized from across disciplines or from relevant subdisciplines.	Critical elements of the methodology or theoretical framework are appropriately developed, however, more subtle elements are ignored or unaccounted for.	Critical elements of the methodology or theoretical framework are missing, incorrectly developed, or unfocused.	Inquiry design demonstrates a misunderstanding of the methodology or theoretical framework.
Analysis	Organizes and synthesizes evidence to reveal insightful patterns, differences, or similarities related to focus.	Organizes evidence to reveal important patterns, differences, or similarities related to focus.	Organizes evidence, but the organization is not effective in revealing important patterns, differences, or similarities.	Lists evidence, but it is not organized and/ or is unrelated to focus.
Conclusions	States a conclusion that is a logical extrapolation from the inquiry findings.	States a conclusion focused solely on the inquiry findings. The conclusion arises specifically from and responds specifically to the inquiry findings.	States a general conclusion that, because it is so general, also applies beyond the scope of the inquiry findings.	States an ambiguous, illogical, or unsupported conclusion from inquiry findings.
Limitations and Implications	Insightfully discusses in detail relevant and supported limitations and implications.	Discusses relevant and supported limitations and implications.	Presents relevant and supported limitations and implications.	Presents limitations and implications, but they are possibly irrelevant and unsupported.

QUANTITATIVE LITERACY VALUE RUBRIC

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The VALUE rubrics were developed by teams of faculty experts representing colleges and universities across the United States through a process that examined many existing campus rubrics and related documents for each learning outcome and incorporated additional feedback from faculty. The rubrics articulate fundamental criteria for each learning outcome, with performance descriptors demonstrating progressively more sophisticated levels of attainment. The rubrics are intended for institutional-level use in evaluating and discussing student learning, not for grading. The core expectations articulated in all 15 of the VALUE rubrics can and should be translated into the language of individual campuses, disciplines, and even courses. The utility of the VALUE rubrics is to position learning at all undergraduate levels within a basic framework of expectations such that evidence of learning can be shared nationally through a common dialog and understanding of student success.

Definition

Quantitative Literacy (QL) – also known as Numeracy or Quantitative Reasoning (QR) – is a "habit of mind," competency, and comfort in working with numerical data. Individuals with strong QL skills possess the ability to reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations. They understand and can create sophisticated arguments supported by quantitative evidence and they can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate).

Quantitative Literacy Across the Disciplines

Current trends in general education reform demonstrate that faculty are recognizing the steadily growing importance of Quantitative Literacy (QL) in an increasingly quantitative and data-dense world. AAC&U's recent survey showed that concerns about QL skills are shared by employers, who recognize that many of today's students will need a wide range of high level quantitative skills to complete their work responsibilities. Virtually all of today's students, regardless of career choice, will need basic QL skills such as the ability to draw information from charts, graphs, and geometric figures, and the ability to accurately complete straightforward estimations and calculations.

Preliminary efforts to find student work products which demonstrate QL skills proved a challenge in this rubric creation process. It's possible to find pages of mathematical problems, but what those problem sets don't demonstrate is whether the student was able to think about and understand the meaning of her work. It's possible to find research papers that include quantitative information, but those papers often don't provide evidence that allows the evaluator to see how much of the thinking was done by the original source (often carefully cited in the paper) and how much was done by the student herself, or whether conclusions drawn from analysis of the source material are even accurate.

Given widespread agreement about the importance of QL, it becomes incumbent on faculty to develop new kinds of assignments which give students substantive, contextualized experience in using such skills as analyzing quantitative information, representing quantitative information in appropriate forms, completing calculations to answer meaningful questions, making judgments based on quantitative data and communicating the results of that work for various purposes and audiences. As students gain experience with those skills, faculty must develop assignments that require students to create work products which reveal their thought processes and demonstrate the range of their QL skills.

This rubric provides for faculty a definition for QL and a rubric describing four levels of QL achievement which might be observed in work products within work samples or collections of work. Members of AAC&U's rubric development team for QL hope that these materials will aid in the assessment of QL – but, equally important, we hope that they will help institutions and individuals in the effort to more thoroughly embed QL across the curriculum of colleges and universities.

Framing Language

This rubric has been designed for the evaluation of work that addresses quantitative literacy (QL) in a substantive way. QL is not just computation, not just the citing of someone else's data. QL is a habit of mind, a way of thinking about the world that relies on data and on the mathematical analysis of data to make connections and draw conclusions. Teaching QL requires us to design assignments that address authentic, data-based problems. Such assignments may call for the traditional written paper, but we can imagine other alternatives: a video of a PowerPoint presentation, perhaps, or a well designed series of web pages. In any case, a successful demonstration of QL will place the mathematical work in the context of a full and robust discussion of the underlying issues addressed by the assignment.

Finally, QL skills can be applied to a wide array of problems of varying difficulty, confounding the use of this rubric. For example, the same student might demonstrate high levels of QL achievement when working on a simplistic problem and low levels of QL achievement when working on a very complex problem. Thus, to accurately assess a student's QL achievement it may be necessary to measure QL achievement within the context of problem complexity, much as is done in diving competitions where two scores are given, one for the difficulty of the dive, and the other for the skill in accomplishing the dive. In this context, that would mean giving one score for the complexity of the problem and another score for the QL achievement in solving the problem.

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Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

	Capstone 4	Milestones		Benchmark 1
		3	2	
Interpretation <i>Ability to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words)</i>	Provides accurate explanations of information presented in mathematical forms. Makes appropriate inferences based on that information. <i>For example, accurately explains the trend data shown in a graph and makes reasonable predictions regarding what the data suggest about future events.</i>	Provides accurate explanations of information presented in mathematical forms. <i>For instance, accurately explains the trend data shown in a graph.</i>	Provides somewhat accurate explanations of information presented in mathematical forms, but occasionally makes minor errors related to computations or units. <i>For instance, accurately explains trend data shown in a graph, but may miscalculate the slope of the trend line.</i>	Attempts to explain information presented in mathematical forms, but draws incorrect conclusions about what the information means. <i>For example, attempts to explain the trend data shown in a graph, but will frequently misinterpret the nature of that trend, perhaps by confusing positive and negative trends.</i>
Representation <i>Ability to convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words)</i>	Skillfully converts relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding.	Competently converts relevant information into an appropriate and desired mathematical portrayal.	Completes conversion of information but resulting mathematical portrayal is only partially appropriate or accurate.	Completes conversion of information but resulting mathematical portrayal is inappropriate or inaccurate.
Calculation	Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem. Calculations are also presented elegantly (clearly, concisely, etc.)	Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem.	Calculations attempted are either unsuccessful or represent only a portion of the calculations required to comprehensively solve the problem.	Calculations are attempted but are both unsuccessful and are not comprehensive.
Application / Analysis <i>Ability to make judgments and draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis</i>	Uses the quantitative analysis of data as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for competent judgments, drawing reasonable and appropriately qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for workmanlike (without inspiration or nuance, ordinary) judgments, drawing plausible conclusions from this work.	Uses the quantitative analysis of data as the basis for tentative, basic judgments, although is hesitant or uncertain about drawing conclusions from this work.
Assumptions <i>Ability to make and evaluate important assumptions in estimation, modeling, and data analysis</i>	Explicitly describes assumptions and provides compelling rationale for why each assumption is appropriate. Shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions.	Explicitly describes assumptions and provides compelling rationale for why assumptions are appropriate.	Explicitly describes assumptions.	Attempts to describe assumptions.
Communication <i>Expressing quantitative evidence in support of the argument or purpose of the work (in terms of what evidence is used and how it is formatted, presented, and contextualized)</i>	Uses quantitative information in connection with the argument or purpose of the work, presents it in an effective format, and explicates it with consistently high quality.	Uses quantitative information in connection with the argument or purpose of the work, though data may be presented in a less than completely effective format or some parts of the explication may be uneven.	Uses quantitative information, but does not effectively connect it to the argument or purpose of the work.	Presents an argument for which quantitative evidence is pertinent, but does not provide adequate explicit numerical support. (May use quasi-quantitative words such as "many," "few," "increasing," "small," and the like in place of actual quantities.)