

NILOA Featured Assignment
University of North Dakota QR Reasoning Performance Task
Peer Review: Dr. Ruth Slotnick, Director of Assessment
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Institutional-wide assignments that endear themselves to you are rare and splendid things. An assignment that begins by challenging a millennial student to refute their Generation X parents suggestion of where to take their first job, by using data to win an argument, is a true gem. The performance task developed University of North Dakota faculty takes the prize for developing an assignment that equally engages students and allows faculty from non-quantitative fields to score work. Early results indicate specific areas of continuous improvement in quantitative reasoning skills across the curriculum.

A number of national initiatives have examined the integration of using quantitative reasoning skills for general education assessment. For example, Carleton College's Quantitative Inquiry Reasoning and Knowledge (QuIRK) specifically examines students' ability to naturally use quantitative reasoning skills to put forth a quantitative argument. In this model, the assignment is not used to judge student work, only the student product. Many institutions are using the Association of American Colleges and Universities (AAC&U) Liberal Education for America's Promise (LEAP) Valid Assessment for Undergraduate Education (VALUE) rubric for Quantitative Reasoning (QR) to both create and assess general education products and skills. Others are referring to the Degree Qualifications Profile (DQP) for general education revision and aligning their student learning outcomes to the DQP's Quantitative Fluency expectations at the varying degree levels.

Over a three-year period, two teams from Massachusetts recently tested the AAC&U LEAP VALUE rubric for QR as part of the Quality Collaboratives project funded by Lumina Foundation. Mount Wachusett Community College and Fitchburg State University focused on having faculty teams annotate assignments for explicit use of [Quantitative Reasoning](#) (i.e., biology lab report, respiration lab report, and a nutritional analysis from an exercise science course). Middlesex Community College and UMass Lowell examined the QR LEAP VALUE rubric and matched the outcomes within the rubric to help scaffold and strengthen QR skills across the two institutions in heavily travelled transfer pathways.

Recently, Bridgewater State University created a linked learning community for non-residential transfer students. The goal of the learning community was to increase academic success and student persistence. Students were grouped by cohorts and took a block of two courses. One learning community was titled "How to win any argument" and combined a philosophy course with a mathematics course. Students were challenged to use both logical reasoning and mathematical tools to see how arguments are formed and apply inductive and deductive reasoning to understand, construct, and deconstruct common argument forms used in everyday reasoning. Students indicated that the linked learning community helped them connect ideas within and between the courses and to develop sound, logical arguments.

In all the of the cases described above, none of them were institutional-wide assessment projects looking at the capstone level and targeting QR specifically. This is what makes the University of North Dakota assignment so unique. As authors' note, ["the assignment has broad applicability"](#) since the concept of interpreting data to make informed decisions is a universally expected skillset of all college graduates.

Below are the following strengths of UND assignment:

It's collaborative: A cross-disciplinary team of faculty from biology, mathematics, and history who also hold dual roles in general education programming, curriculum and development, assessment, and instructional delivery purposely developed the assignment.

It's relevant: The assignment challenges students to make data-informed decisions relevant to post-graduate employment including examination of a mock salary offer, calculating transportation and housing costs, and considering crime and environmental issues. They have to defend their answer with data from the provided tables, graphs, and figures. They can also use EXCEL to data crunch and to make data visuals.

It's voluntary: The assignment is non-graded and voluntarily administered to capstone-level students across all majors and degree programs. Students have 90 minutes to complete the performance task during a designated Assessment Week and receive participation bonus points for completing the task.

It's assessable: A multi-disciplinary team of faculty can score student work, not just those from quantitatively focused fields. Faculty can interpret and score student work since the focus is basic use and application of quantitative reasoning skills.

It's scalable: The assignment also incorporates written communication and information literacy skills and is easily adaptable to include other skillsets at multiple course levels across the curriculum.

A post analysis [commentary](#) offered by Dr. Joan Hawthorne, Director of Assessment and Regional Accreditation at the University North Dakota, notes that based on the results UND students are performing at the “high end of the ‘developing’ level and low end of ‘accomplished’ levels” of the rubric. Students need more practice with solving “muddy, real world problems.” They also need more practice in strengthening their arguments with better-written explanations rather than “just providing answers.”

I will be curious to see the development of the project and to see if the performance task remains at the voluntary stages. There is a mention of a 6-point scale in one document, but the NILOA Assignment Library materials include only a 3-point rubric. I would be interested in knowing the difference and the strengths of each. I will also be curious to know if faculty see any improvement of students’ written arguments after a few more administrations have taken place.