

## Quantitative Literacy Assessment

Fall 2018

### Method:

Quantitative Literacy was assessed through the collection of samples of student work. Sixteen courses were chosen for the assessment (see Table 1), which comprised 148 individual classes. These courses were selected for inclusion based upon course outcome mapping to the Quantitative Literacy General Education Outcome. A stratified random sampling method was used to select the courses for this semester's assessment. Two courses were randomly selected from each department from a list of all of the courses mapped to the outcome from that department's programs. In this way, each department will be represented by two courses in the assessment. Two students from each class of the two highest-enrolled courses (Math 103 and Math 202), and three students from each class of the other selected courses were randomly selected for assessment, for a total of 383 students.

Instructors were initially notified of their class's inclusion in the assessment with an email sent within the first month of the semester. This notice informed the instructors of the outcome that was to be assessed, and that they would be asked to submit a sample of student work that demonstrated the skills represented in that outcome. They were further asked to await specific instructions in an additional, forthcoming email notice. The second notice was sent two weeks following the initial email and contained instructions for submitting the pieces of student work along with the names of their selected students. This email also included, as an attachment, the rubric that would be used to score the student artifacts in order to assist instructors in choosing an appropriate assignment to submit for the assessment. A reminder email that again contained the instructions and student names was sent approximately a month and a half later. Two weeks prior to the due date, a second reminder email was sent to instructors whom had not yet made a submission.

Instructors were asked to send samples of work from the selected students that demonstrated the criteria of the outcome, as outlined in the rubric. The rubric used for this assessment was the same rubric that had been used for the previous assessment of Quantitative Literacy. Work could

be submitted electronically or in paper form. If work could not be submitted, instructors were asked to indicate the reason for the lack of submission, such as the student dropped the course or did not complete the selected assignment. Instructors were also asked to submit a copy or brief description of the assignment in order to assist the assessors in evaluating the student work. Both digital and paper artifacts submitted by faculty members were collected by the Office of Institutional Research and Assessment. All artifacts were logged and anonymized upon submission.

At the time of this assessment, the College was transitioning to a new assessment management system. Therefore, the evaluation of the artifacts could not be conducted in the online juried assessment function in the manner of previous assessments. Instead, a juried assessment of the artifacts was conducted in a shared Google Drive folder, with each jury member recording scores for their pool of assigned artifacts in an Excel file.

Table 1. Courses selected for assessment of Quantitative Literacy

<b>Course</b>	<b>Number of Classes</b>
AGM 203	1
CHEM 101	11
GERT 215	1
MATH 100	17
MATH 103	38
MATH 104	7
MATH 110	8
MATH 111	11
MATH 119	6
MATH 121	5
MATH 122	4
MATH 202	23
MATH 221	2
MATH 222	1
NURS 241	12
PHYS 212	1

Results:

Artifacts were submitted for 213 students (55.9%). Artifacts could not be collected from 72 (18.9%) of the selected students because the students either dropped the course or did not turn in the assignment that was chosen for assessment. The remaining missing artifacts (96 (25.2%)) could not be accounted for.

Each of the 213 submitted artifacts were assigned to two of the seven assessors in the jury pool for assessment, resulting in a total of 426 scores. Rubric scores for the assessed students are shown in Table 2.

Table 2. Frequency table of rubric scores for all assessed students

Criteria	4- Expert Proficiency	3-Advanced Proficiency	2- Proficiency	1-Limited Proficiency	0- No Proficiency	NA	Mean (SD)
Reasoning for numerical conclusions	49(12.53%)	112(28.64%)	51(13.04%)	73(18.67%)	12(3.07%)	94(24.04%)	2.38(1.14)
Identifies and explains quantitative information	36(9.21%)	77(19.69%)	40(10.23%)	30(7.67%)	3(0.77%)	205(52.43%)	2.61(1.02)
Performs computations	84(21.48%)	71(18.16%)	37(9.46%)	91(23.27%)	11(2.81%)	97(24.81%)	2.43(1.29)
Converts relevant information	21(5.38%)	74(18.97%)	32(8.21%)	26(6.67%)	7(1.79%)	230(58.97%)	2.48(1.05)

*Note:* NA responses are not included in criteria mean calculations

All criteria of the Quantitative Literacy outcome reached proficiency. Mean scores for the criteria fell between the “proficiency” and “advanced proficiency” score categories. The mean for the Identifies and Explains Quantitative Information criterion was the highest, with a mean of 2.61 (1.02). The mean for the Reasoning for Numerical Conclusions criterion was the lowest, with a mean of 2.38(1.14). All criteria had rather large standard deviations, ranging from 1.02 to 1.29.

A significant limitation for this assessment was the large number of Not Applicable scores given to all criteria. Not Applicable scores were given to 40.05% of all artifacts across criteria. For

both the Converts Relevant Information and the Identifies and Explains Quantitative Information criteria, over 50% of ratings given were Not Applicable. This large number of Not Applicable ratings decreased the number of usable scores given for the assessment.