

Annual Assessment Report: Quantitative Skills (QS) Committee 30 May 2022

Introduction

The Quantitative Skills (QS) Committee consists of four faculty members drawn from across the disciplines that teach QS-coded courses: William Haden-Chomphosy (ECON), Lars Seme (MATH/CSCI), Damon Spayde (PHYS), and Leslie Zorwick (PSYC). Damon Spayde was on sabbatical during academic year 2021-2022 and did not participate in assessment activities. This report summarizes the findings of this year's assessment cycle.

Assessment of Program Learning Goal 2

According to the Student Assessment Plan and associated assessment cycle that was developed during the 2019-2020 academic year, the QS committee is tasked with assessing Program Learning Goal 2 (PLG2) during the 2021-2022 academic year:

"Upon successful completion of the requirements for the Quantitative Skills Capacity, students will be able to evaluate quantitative information in the context of a given question.."

Direct Assessment

As part of its work in 2019-2020, the QS committee developed direct assessment instruments to be completed by faculty teaching QS courses. (A copy of the direct assessment instrument can be found in the filed Student Assessment Plan.) This instrument asks each instructor to tally the number of students in their QS-coded course(s) achieving each of the following levels with respect to PLG2: Strong, Satisfactory, Needs Growth, Unsatisfactory, or Not applicable. As the Learning Goals were only recently developed, this is the first time that PLG 2 has been assessed.

In both the Fall and Spring semesters of 2021-2022, the direct assessment instrument was distributed to faculty teaching QS-coded classes.

- In the Fall, there were 20 total sections of QS coded classes, with a total enrollment of 465 students. Data was submitted for 14 of those sections, totaling 336 students.
- In the Spring, there were 14 sections of QS courses, with a total enrollment of 343 students. Data was submitted for 10 sections, with a total enrollment of 236 students

In each section for which data was submitted, Grades and Exams were listed a basis for assessment. Some sections also listed Homework and Lab or Lab-like assignments.

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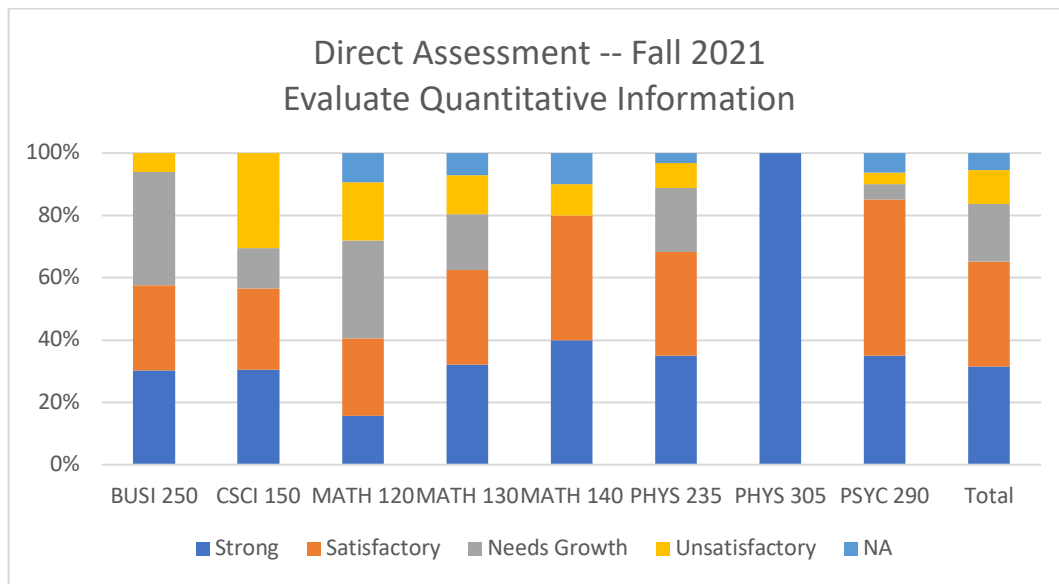


Figure 1. This stacked bar graph displays the results of the QS committee's direct assessment of students' capability to interpret quantitative information in the context of a given problem for the Fall semester. Each bar indicates the fraction of students achieving a given rating (Strong, Satisfactory, Needs Growth, Unsatisfactory, or Not Applicable) in each reported QS course, and overall.

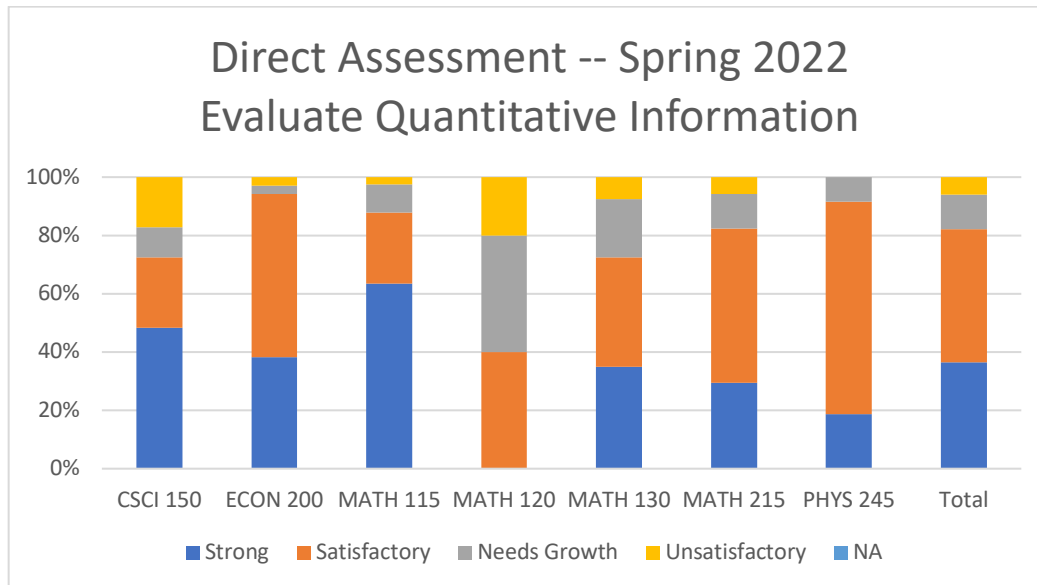


Figure 2. This stacked bar graph displays the results of the QS committee's direct assessment of students' capability to interpret quantitative information in the context of a given problem for the Spring semester. Each bar indicates the fraction of students achieving a given rating (Strong, Satisfactory, Needs Growth, Unsatisfactory, or Not Applicable) in each reported QS course, and overall.

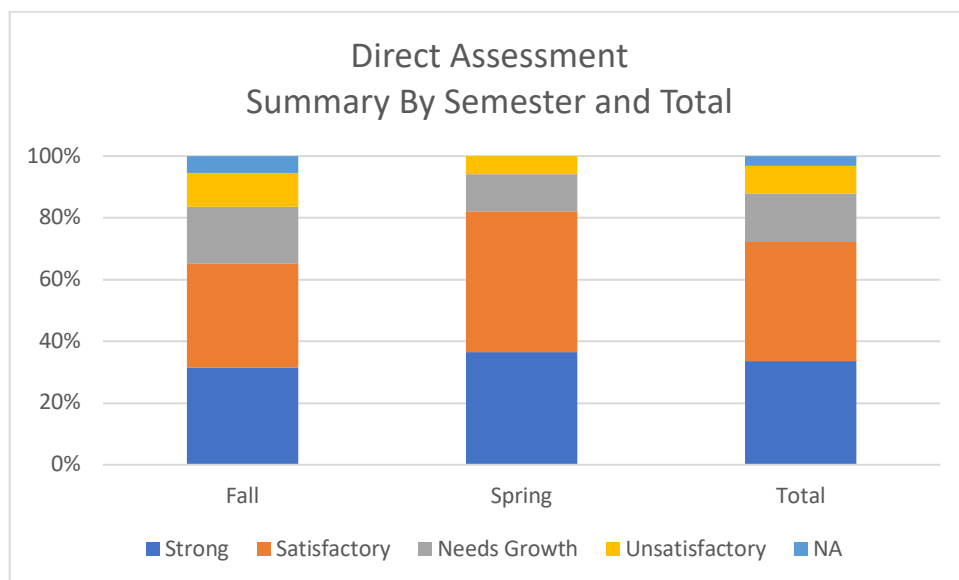


Figure 3. Overall summary by semester and total across the year.

Though there is a large amount of variation among courses, we can see that overall, instructors rate approximately 75% of students as either Strong or Satisfactory on achieving PLG 2. In general, Fall instructors rated their students lower than Spring instructors, though it is hard to know if this reflects a true distinction between the two groups of students or is an artifact of the different mixture of courses in each semester.

We also note that we did collect direct assessment information about PLG 1 as well and will combine that data with next year's as we look to assess PLG 1 in 2022-2023.

Indirect Assessment

During the development of the QS SAP in 2019-2020, the committee also developed a question to be included on end-of-course evaluations for QS-coded courses to provide an indirect assessment of PLG2:

"This Quantitative Skills course has enhanced my ability to evaluate quantitative information in the context of a given question."

Students answered this question using a 5 point Likert scale from Strongly Agree to Strongly Disagree. This question was only added to student feedback forms in the Spring of 2022, so we do not have data for the Fall, unfortunately.

Instructors submitted data on 8 of the 14 total QS sections taught in the Spring. Of the 203 students in these sections, 107 students answered this question.

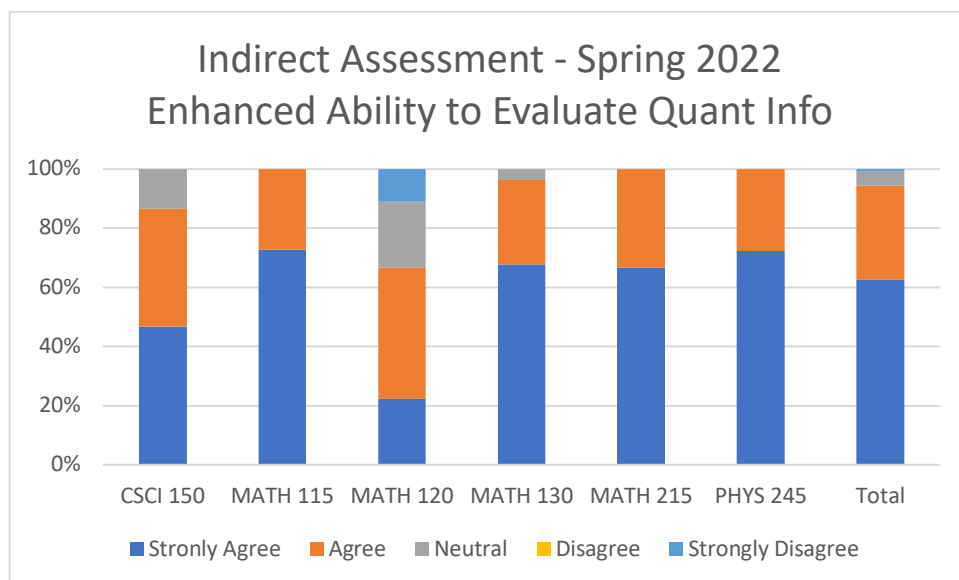


Figure 4. Stacked bar chart, by course and total, showing the results of the student self-assessment from end-of-course student feedback forms

Students rate themselves highly on this question – though we should note that the question asks whether the course “enhanced” their quantitative abilities, not whether they believe that they have mastered this PLG 2 directly.

Use of Evidence

As evidenced by the direct assessment data, the 2021-2022 assessment results generally indicate that students mostly achieve PLG 2. Instructors rate approximately three quarters of students as either “Strong” or “Satisfactory” and students themselves believe that their experiences in their QS courses have improved their abilities to work quantitatively.

In the next academic year, 2022-2023, the QS committee will assess PLG1. This will be our first opportunity to compare assessment from a prior cycle (since we assessed PLG 1 first only in 2020-2021). We will have direct assessment data from three total years.

In addition, the committee will work more carefully with instructors of QS coded courses to attempt to eliminate sections for which no data is reported. The new automated reporting system has made collection and collation of data significantly easier, but we want to make sure that we have a complete picture of QS experiences for students across the Hendrix curriculum.