

## Quantitative Reasoning – request for changes to LO text (from Karen Anewalt)

Some members of the Computer Science Department have concerns with the narrow scope of the new QR learning outcomes. These were expressed to the QR committee over the summer and dismissed.

My concern is that QR SLOs unnecessarily uses the language "numerical" and "quantitative" without recognizing that there are interesting real-world problems that might be solved analytically but not involve numbers, for example, in the field of logic. The proposed wording of the QR SLOs creates a very narrowly defined category.

We have suggested very minor modifications to the language in the SLOs that don't change the intent but would allow the category to be satisfied with a broader range of courses.

Here are the proposed QR SLOs with the suggested modifications below each (strike-through for deletions and red text for additions).

1. Students will demonstrate the ability to produce and interpret quantitative information in various forms such as graphs, equations, diagrams, etc.
  - a. Fine.
2. Students will use appropriate methodologies to draw valid conclusions based on quantitative information.
  - a. Broaden the goal by including more inclusive language so it reads "Students will use appropriate methodologies to draw valid conclusions based on quantitative **and/or analytical** information."
  - b. Or broaden the goal by removing the word "quantitative" so it reads "Students will use appropriate methodologies to draw valid conclusions based on ~~quantitative~~ information."
3. Students will be able to discern the validity and accuracy of an argument or conclusion derived from available numerical information.
  - a. Make the goal more inclusive by removing the word numerical. Substitute a different word to more broadly define the goal, perhaps:  
"Students will be able to discern the validity and accuracy of an argument or conclusion derived from available ~~numerical~~ **analytical** information."
4. Students will apply quantitative techniques to address contemporary issues in multiple disciplines or aspects of society.
  - a. Make the goal more inclusive rather than focusing only on "quantitative" problems. Perhaps:  
"Students will apply quantitative techniques **and logical reasoning** to address contemporary issues in multiple disciplines or aspects of society."