

## QUANTITATIVE SKILLS IN SCIENCE: CREATING STEM CURRICULA THAT BUILDS THE MATHEMATICAL AND STATISTICAL SKILLS OF UNDERGRADUATE STUDENTS

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### ABSTRACT

There is widespread agreement that quantitative skills (QS) are essential for graduate competence in STEM disciplines. Entering students have weaker foundations in and stronger negative beliefs toward mathematics, so STEM curricula must evolve to ensure the preparedness of university graduates. Individuals and institutions are struggling to achieve this in practice. At the program level, understanding of curricula reform and educational change is required. At an individual level, understanding of the processes academics employ to adapt/adopt resources, and build partnerships across disciplines is necessary. The critical importance of QS to science students is demonstrated by recent ALTC funding of a project, authored by the presenters of this workshop. In the workshop guiding questions and small group activities will promote active discussion addressing three objectives: (1) the challenges associated with integrating QS into subjects and the broader undergraduate science curriculum; (2) models and strategies to build QS in science students; and (3) resources available and in development to support innovations in QS in science curriculum approaches. This workshop will be of interest to: faculty involved in designing and implementing STEM subjects; those engaged with STEM auditing at a program level; STEM academic/faculty developers and higher education researchers.

**Keywords:** *quantitative skills, curriculum change, interdisciplinary collaboration.*

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