Colloquium Series

Rethinking Objectives for the Statistical Analysis of Student Performance Data in First Year GE Quantitative Reasoning Courses

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Abstract: In response to Executive Order 1110 issued by the California State University Chancellor's office, California State University, Long Beach redesigned entry level mathematics courses effective Fall 2018. Students whose major does not require a specific mathematics course can satisfy their category B4: Mathematics/Quantitative Reasoning general education requirement by completing one of the following courses: MATH 104 The Power of Mathematics, MATH 112A Essential Algebra A, or STAT 108 Statistics for Everyday Life, all of which were involved in the entry level mathematics redesign process. This study aimed to use machine learning methods to identify the profile - including both academic and demographic variables - of a student who has the greatest chance of academic success in MATH 104, MATH 112A, and STAT 108. As an equally important discovery from the analysis, real insight was gained concerning characteristics of courses that tend to promote the success we seek, thus giving curriculum designers agency in the quest to promote student success. In particular, results indicate recommendations for course design that can help create an equitable playing field for all students in general education mathematics courses.

Keywords: Educational Data Mining, General Education Mathematics and Statistics, Student Success

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