Presentations and paper related to MATH 101S Redesign

MAA MathFest 2013

ABSTRACT
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Serving the Under-Resourced Student in a University setting through Mathematics

Statistics show that open-access schools enroll many students with little or no numerical competency. A report referenced in the President's State of the Union address on January 25, 2012 states that in "many minority institutions of higher education, 80-95% of entering freshman are required to take remedial math, reading, and English. Even in these courses, the dropout rate is estimated to be around 70-80%." Studies have shown that of the students who place into pre-foundational math courses (some multiple semesters long), nearly 75% either will not pass the pre-foundational course (sequence) or, if they do pass, will fail at the next sequential credit-bearing course. At Trinity, not only did we completely redesign our pre-foundational courses, but we also limited the pre-foundational sequence to one semester, added a supplemental laboratory that is a student-centered, one-credit addition to the course, incorporated a rigorous adaptation of MyMathLab pedagogy in conjunction with Visual, Auditory and Kinesthetic (VAK) styled classroom lectures, and raised the standards of the course. The curriculum redesign objectives were to (1) improve retention, (2) maintain math course content integrity, and (3) develop students' self-efficacy. Results after several semesters have shown that, for students who complete the course, the pass rate is 80% and that prefoundational math students' retention rate is 84%. Furthermore, for students who successfully complete the pre-foundational math course and move on to the sequential credit-bearing course, the pass rate is now approaching 80%. Our presentation will include a description of our standardized first year math courses, how we implemented them, and data collected over the last few semesters.

Joint Mathematics Meetings 2014

ABSTRACT
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A Hybrid Flipped Classroom to Better Serve the Under-Resourced Student

Introductory algebra courses are often filled with under-resourced students. These are students that have poor preparation for mathematics for a variety of reasons. The drop-out/failure rates for these students can be as high as 75%. As noted in various studies under-resourced students place a far higher value on personal one-on-one engagements than anything else. These students need the relationships established through the traditional lecture setting before they are open to learning. A completely flipped classroom would not be appropriate for our math sequence at

Trinity. When we redesigned our Introductory Algebra we added a one-credit student-centered supplemental laboratory in conjunction with Visual, Auditory and Kinesthetic styled classroom lectures. The lab is used to bolster the lecture and is designed as a flipped classroom. We have created a hybrid course combining the best parts of online systems, face-to-face interactions, and flipped classrooms that best serves our student population. The course redesign has improved student self-efficacy and in turn has helped our pass rates climb to 80% and our retention rates to 84%. Our presentation will include a short video clip and a description of the labs. We will present data collected over several semesters.

Paper submitted to PRIMUS (Problems, Resources, and Issues in Mathematics Undergraduate Studies)

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A Hybrid Flipped Classroom to Better Serve the Under-Resourced Student

Many first year college students lack the numerical competency skills necessary for success in a credit-bearing math course. At Trinity, we redesigned our first year math sequence in order to better serve the under-resourced student. Our approach is a hybrid flipped classroom which we believe provides the students with the best aspects from both a traditional lecture and a completely flipped classroom. Our results show improvements in pass rates and retention rates as well as decreasing withdrawal rates. This article outlines our approach in more detail.