Co-requisite Mathematics Instruction

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Introduction
Remedial mathematics courses lengthen students’ time to degree and significantly reduce the likelihood of completion. One way the OSU Department of Mathematics has addressed this problem is by adopting a co-requisite instructional model, which places underprepared students directly into credit-bearing courses. Since fall 2015, students in co-requisite sections have succeeded at rates similar to students in non-co-requisite sections, despite entering the course with lower placement scores. These results mean that over three times as many underprepared students are now succeeding in college credit-bearing math courses, and doing so in a single semester rather than the one to two years required by prior remediation options.

What is co-requisite math instruction?
• MWF lectures are the same as standard (non-coreq) sections
• Coreq sections meet 5 days per week
• T/Th coreq classes are group work on meaningful applications of mathematics
• T/Th coreq classes are supervised by an undergraduate learning assistant or a graduate student TA

Students say...
“I am a hands-on learner, especially with math.”

“The way the course was set up was very new and enjoyable. It was very interactive and helpful and made learning the material very engaging and easy.”

Success Rates

Why does the co-requisite model work, and what can other disciplines learn from our success?
Active learning. A preponderance of evidence indicates the efficacy of active-learning techniques for student success. Our students spend their Tuesday and Thursday class time working in small groups.

Research-based instructional materials. The problems students work on are carefully constructed based on findings from mathematics education research.

Meaningful applications. We develop problems that allow students to learn the content via real-life mathematical situations relevant to their majors and their everyday lives. Placing the mathematics in context makes it meaningful to students rather than lifelessly abstract. In addition to eliciting students’ interest, contextualizing the mathematics enables students to engage in reasoning and to leverage their intuition. Finally, being enrolled in the math class required for their degree rather than a non-credit prerequisite is inherently more motivating.

Fostering Perseverance. Learning mathematics in a meaningful way requires students to persevere when they struggle. We are intentional about fostering students’ perseverance, and positive affect generally, so that they are positioned to productively engage with the innovative curricular materials we’ve designed.

Reducing (eliminating) time to enrollment in a credit-bearing course. By placing students directly into credit-bearing courses, the co-requisite model shortens students’ time to degree. A shorter time to degree means life events are less likely to stall students’ academic progress.