THE DEPARTMENT OF MATHEMATICS PRESENTS

A MATHEMATICS EDUCATION COLLOQUIUM

THURSDAY, FEBRUARY 18, 4:00–4:50PM
BOND HALL 225

SPEAKER: Mary Pilgrim (Colorado State)
TITLE: Increasing student engagement in learning calculus

ABSTRACT: Evidence-based research in mathematics education supports the use of classroom methods that encourage student engagement in learning. Providing an environment that prompts students to analyze their own learning promotes the development of metacognitive skills, and has been shown to enhance learning. This is particularly important in mathematics courses, since a robust understanding of mathematics underpins success in other STEM disciplines, and is therefore essential for supporting increased persistence in STEM fields. Regrettably, mathematics courses are often taught in traditional, non-engaging, teacher-centered ways, especially at large institutions where many thousands of students enroll in these courses each year.

To address this problem, I have designed a model that incorporates problem-based learning, oral assessments, and writing as active teaching and learning strategies in the calculus classroom. Preliminary results indicate that students who participate in such activities perform better on both procedural and conceptual exam questions. I will present a framework for instruction, a description of activities, sample student responses, and some qualitative and quantitative results. I will also discuss future ideas for applying lessons learned in precalculus courses as well as in GTA training efforts.

Refreshments provided by the department at 3pm in BH 300