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Student accountability in a required college calculus course.

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From the text: In U.S. colleges and universities, concern regarding the teaching and learning of mathematics is common. Students complain about poor instruction, difficult mathematics classes, and large class sizes. Faculty and instructors complain about unmotivated, and poorly prepared students, as well as high rates of student absenteeism. At the same time, institutions of higher education are being faced with budget cuts with solutions including increasing class sizes. This study aimed to shed light on these concerns by developing a course that would reduce instructor variability, but also provide the opportunity for students to be accountable and be rewarded by self-earned passing grades in large sections of a maximum of 80 students. Students pursuing degrees in non-STEM majors typically must complete an introductory calculus course. At many institutions, students in these types of majors typically do not take what might be called, calculus for STEM majors. Non-STEM students usually take what might be called conceptual calculus. conceptual calculus is an introductory calculus course where students need only college-algebra as a prerequisite, rather than precalculus and/or trigonometry as is required for STEM calculus. Additionally, a conceptual calculus course (with titles such as business calculus, introduction to calculus, or applied calculus) typically focuses on non-STEM applications. Rather than add to the extensive research-base on remedial or entry-level mathematics courses, this research focuses on this conceptual calculus course generally completed and required for non-STEM major students at a large doctoral granting mid-Atlantic research institution. For students in this study to be admitted to their respective majors they must successfully complete the conceptual calculus course. We set out to study if student accountability could be raised while reducing instructor variability in this terminal calculus course.

Classification: I15 M15 B40

Keywords: calculus; university teaching; courses; action research; non-STEM education; conceptual calculus course; course components; student accountability; achievement; attendance; homework