

ZMATH 2016f.00514

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Innovative teaching: an empirical study of computer-aided instruction in quantitative business courses.

J. Stat. Educ. 21, No. 1, 23 p., electronic only (2013).

Summary: We investigate business undergraduate mathematics-based courses in a blended environment of online assignments and exams and offline lectures, and report the impact on academic performance of factors such as classroom attendance, web-based course supplements, and homework. We present results from both ordinary least squares and fixed effects, where the latter method controls for unobserved heterogeneity among students. We discuss biases in estimation when the ordinary least squares method is used, resulting from the fact that it ignores unobserved heterogeneity. The fixed effects results suggest that (1) class attendance has a positive impact on exam score, (2) a student who achieves proficiency in a greater number of Khan Academy skill-sets to prepare for an exam takes longer to complete an exam but does not experience a significant change in exam score, (3) a student who spends more time completing the homework spends more time completing the exam but does not experience a significant change in exam score, and (4) students who score relatively higher in homework tend to score relatively higher in exams and finish in less time than other students.

Classification: D35 U55 D45 K15 M45

Keywords: university teaching; quantitative business courses; business statistics; operations management; computer-aided instruction; fixed effects; online teaching aids; educational research; empirical investigations; achievement; performance; class attendance; homework; online teaching aids; online databases
<http://www.amstat.org/publications/jse/v21n1/gonul.pdf>