# The Impact of Math Preparedness on Introductory Programming (CS1) Success

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At our university, like at many other institutions, the pass rate in the introductory programming (CS1) course is relatively low, in the approximate range of 50% to 75%. We would like to discover factors that have an impact on student success in introductory programming in order to better advise and place our students into the course at the appropriate point in their academic careers. Our main motivation for increasing the CS1 pass rate is to help our students graduate on time. It has long been thought that mathematics background is a factor in determining a student's success in introductory computer science courses. Currently, our students must be concurrently enrolled in college algebra or placed into a higher mathematics course. However, given our current low pass rate, we wonder whether this is the proper prerequisite. In order to gather information about mathematics background, we administered a questionnaire to the students enrolled in the class during Spring 2013. We then analyzed the pass rate of our introductory programming students in relation to their mathematics background. Our findings indicate that students who are prepared to take calculus I in the same semester as they take introductory programming were more likely to pass introductory programming. These findings suggest that changing our math prerequisite to pre-calculus may increase the pass rate in our introductory programming course.

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