

Speaker:

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Title: Remedial Flipped
Intended Audience: High School or Post-Secondary
Type of Presentation
Preferred: Long Presentation (60 minutes)
Language(s) of
Presentation: English
Description:

We all like to teach good students: bright, motivated, well prepared and confident. And, we get the best ones from high schools in our first year Calculus courses. Not all of them continue to be the best, but that is another story.

Should we care at all about students who, for whatever reasons, did not manage to learn the mathematics they need during their K - 12 years? Should we assume that they are not capable of ever learning it?

Once remedial, always remedial. This opinion was stated at a workshop on transitions from high school to university. It reflects the sad truth: remedial mathematics courses offered by American colleges and universities don't work. Students repeat these courses several times, but few of them reach the level sufficient to succeed in university calculus courses. While the picture in Canada is somewhat different, there is no indication to suggest that the results are much better.

Most Canadian universities are happy to leave this problem to community colleges. Simon Fraser University is one of the exceptions. When we decided to introduce requirements for compulsory writing and quantitative courses in 2006, we also introduced two courses: FAL X99 (Foundations of Academic Literacy) and FAN X99 (Foundations of Analytic and Quantitative Reasoning), to help those students who may not be sufficiently prepared for required university courses.

We are now in the eighth year of the experiment, and the FAN X99 course has been a success. While we cannot claim that we are reaching all students, we are making a change. Students, who complete this course successfully, generally do well in follow-up courses. This is remarkable, since we don't cover as much theory as in many traditional "remedial" courses - we review factoring and prime numbers, fractions, percent, solving equations and inequalities, definition of functions and graphing.

I have been observing students taking our Precalculus and Mathematics for Elementary School Teachers courses after completing FAN X99 course at SFU. They appear more confident, more ready to work on problems, and more likely to actively participate in class discussions than students who have not been through FAN X99. Last year, I talked to several former FAN X99 students who were successful in our Precalculus course, to find out what they believe was the most important or most helpful thing they had learned in FAN X99. The most common answer I heard was: "Learning to ask questions."

I would like to share with you how we teach this course, and the lessons we have learned.