

## **Mathematics Assessment Report**

Due to the high DFW rates in the Calculus sequence, the Mathematics Department changed the Curriculum effective Fall 2011. In the new curriculum students with weaker background are required to take an additional lab course. In particular students with a grade in the C range in the prerequisite course must fulfill that requirement. The Mathematics Department did a preliminary assessment of the effects of this requirement in the 2011/12 academic year.

Calculus students take at least three consecutive courses. In the past, we observed an average grade point decline of approximately .8, meaning that a student earning a B in Calculus I is likely to get a C+ in Calculus II and worse in Calculus III. This decline is especially strong among weaker students. This great point decline is a good measure of retention.

The table below compares the decline in grade points earned for two instructors A and B who taught Calculus I in Fall 2010 (without lab) and in Fall 2011 (with lab). This minimizes the effect of the instructor.

The students are divided into two groups. The first group is the one which entered the class with a grade below B- in the pre-requisite course and need to take the lab now. The second group are the ones who entered with a B- or better.

One can see in this preliminary study that the decline in grade was roughly equal for both groups in 2010. In 2011 there is evidence that the students who needed (and took) the lab were better able to maintain their grade than the ones, who entered with higher grades. This is especially dramatic in the sections taught by instructor B.

Instructor /Term	A /Fall 2010	A/Fall 2011	B/Fall 2010	B/Fall 2011
Lab required	-0.42	-0.33	-1.23	-0.16
No lab	-0.58	-0.97	-1.23	-1.4

It is also notable that the grade decline among the students who needed and took the lab is significantly lower, than the decline among the students who did not need the lab. One needs to bear in mind that the students who needed the lab entered the class as students who were considered weaker than the ones who did not need the lab.