**Week 8 (Mar 18 – 22, Lectures 15 and 16) Teaching and Learning**

**Topics**

**14.4**: Chain rule for functions with multiple variables; implicit differentiation.

**14.5**: Directional derivative and geometric meaning; gradient vector and its geometric meaning (direction of fastest increase; relationship with level curves/level surfaces); algebraic rules for computation.

**14.6**: Tangent plane and standard linear approximation; error of approximation; differentials; functions with more than two variables.

(It is OK to go a bit faster than this; but aim not to be slower.)

**Assignment 8**

14.4, #4,10,22,28,32,44,45,49,51

14.5, #3,4,9,17,20,21,26,32,36

14.6, #8,11,17,20,23,29,36,46,52,54,57

The questions above need to be submitted; students are encouraged to attempt other questions in the same chapters if they need more exercises.

Deadline: 11:59 PM, Friday, Mar 29 --- solutions should be submitted online on Blackboard in one single PDF file.

**Midterm this Saturday (Mar 23)**

Scope = Chapters corresponding to Assignments 1 to 6; Length = 120 minutes.