

## First Semester Calculus Study Guide

- 1) Know how to find limits using limit laws and L'hôpital's rule
- 2) Know how to find whether a function is continuous at a point
- 3) Know how to find whether a function is differentiable at a point
- 4) Know how to find the derivative of
  - A) a polynomial
  - B) a trig function
  - C) an exponential function
  - D) a log function
  - E) an inverse trig function
  - F) a hyperbolic function
- 5) Know how to find derivatives using the product, quotient, chain and inverse function rules
- 6) Know how to do implicit differentiation
- 7) Know how to do logarithmic differentiation
- 8) Know how to do related rates problems
- 9) Know how to find 2<sup>nd</sup> and higher derivatives
- 10) Know how to find relative and absolute maximums and minimums of a function
- 11) Know the Mean Value and Rolle's theorems
- 12) Know how to do optimization problems