Lab 0: *Monday, September 5 or Tuesday, September 6*

NO LAB THIS MONDAY. TUESDAY LABS WILL MEET. You will be taking a diagnostic exam to evaluate your current understanding of concepts often found in Calculus courses. **People who have a Monday Lab time should come to any one of the Tuesday Labs (10:00am, 1:30 or 3:00) or schedule a time in one of our offices.**

Class 2: *Wednesday, September 7*

Introduction to Modeling: Newton's Law of Cooling

A mathematical *model* of a phenomenon is an abstract representation of it designed to capture certain features of interest. Calculus was developed to analyze models involving *rates of change*. An *empirical* model is developed by studying the results of experiments. Newton's Law of Cooling is an example of an empirical model involving rates of change and proportionality.

Homework 1: *Smith & Minton* Section 0.2: 90-94; Section 6.4: 2-4

Quiz 1 Due in Class: 10:30am or 1:30pm

Class 3: *Friday, September 9*

Euler's Method and Initial Value Problems

Reading: *Hughes-Hallett* Sections 10.2 and 10.3

Newton's Law of Cooling is an example of an *initial value problem*. Euler's Method is a method for obtaining a *piecewise linear approximation* to the unknown function solving an initial value problem. This use of a linear function to locally approximate a nonlinear function is called the Microscope Approximation.

Homework 2: *Smith & Minton* Section 6.6: 17, 20, 37, 38

Homework 1 Due in the Math 114 Course Box by 5:00 pm