

**Math 118 – Week 1**  
**Fall Term 2003**

**Friday August 29** *Class 1:*

We will construct the SIR model, a system of equations that describes the spread of an epidemic through a population.

Reading:

CiC, p. 1-9

Homework #1 (4 points):

Let  $P = P(t)$  be a function that represents the size of a population at some time  $t$ . Consider the following differential equation:  $P' = .017P$ . This differential equation is an example of a “population growth model.”

Type up your responses to the following questions, using complete sentences to express your thoughts. Submit your answer on a single sheet of paper with your name and email address.

- (a) Why is the name “population growth” appropriate for the model? How does the equation model how a population might grow?
- (b) What type of function must  $P(t)$  be in order to satisfy the equation? What is your reasoning? (Note: You are NOT asked to solve the equation.)

**Due:** Class 2 (Wednesday September 1)