

**Math 118 – Week 1 Assignments**  
**Fall Term 2002**

**Friday August 30** 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 this name 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 (Friday September 6)

Review your rules of differentiation and integration in preparation for gateway tests on derivatives and anti-derivatives that will be given in Lab 1 on Thursday September 6.

**Thursday September 5** Lab 1:

Gateway test on differentiation (30 minutes).

Gateway test on techniques of integration (40 minutes).

**Friday September 6** Class 2:

We will continue our discussion of the S-I-R model.

Reading:

CiC, p. 10-16

Homework #2 (4 points):

CiC, p 22, # 19, 20

**Due:** Class 3 (Monday September 9)