

## Math 4452: Math Modeling Assignment 3 Due: Feb 26 2002

For this assignment, I am giving you some suggested problems below. However, if there are other problems which interest you more, feel free to tackle them instead of the ones I suggest. The problems you do hand in should involve dynamical systems, so the solution should either use differential or difference equations. If you do choose your own problems, I would like you to do at least two different problems, and for each give a short discussion as to why you choose that particular problem (I am just interested, you won't be graded on this part).

Feel free to talk to me about the problems you would like to do if you have any questions.

(50) 1. **Discrete Time Dynamical System** Problem 4.4.10 from the text.

(50) 2. **Eigenvalues and Eigenvectors** Problem 5.4.14 from the text. *Mathematica* is able to solve this system easily, so I am more concerned with your analysis of the problem (phase portrait, discussion, differences between discrete and continuous, etc).