

3010 Applied Mathematics

Introduction to Nonlinear Dynamics and Chaos

Fall 2006

Where and when: MWF 12-12:50 pm, ECCR 110

Instructor: Anca Radulescu, office ECOT 338

Office hours: M 3-5pm, W 10-11am or by appointment

Text: Nonlinear Dynamics and Chaos, by S. Strogatz (Addison-Wesley, Reading)

Computers: A list of software for dynamics much of it free is at [http://amath.colorado.edu/faculty/jdm/faq-\[5\].html](http://amath.colorado.edu/faculty/jdm/faq-[5].html). I will use Maple and Matlab for classroom demonstrations. Maple is available for a reduced price of \$75 through a special arrangement with maplesoft (details soon).

Homework and class-participation: Homeworks will be assigned roughly weekly, and they will be due back same day on the next week. Each homework assignment must be your own work. However, I encourage you to discuss the problems and their solutions with your class-mates. A portion of the grade will reflect in-class participation, consisting of discussions and short project presentations during the semester.

Final project: There will be no final written exam. Instead, the final exam will be taken under the form of a 20 minute presentation, during the last week of classes and the winter exams period. This will need some scheduling, so a list of possible topics will be handed out to you by the end of the third week; you may choose from the list or bring in your own ideas (subject to approval). To keep some track of your work, I will require a 2-4 page project proposal by October 11-th. The final presentations will be in December (see schedule). The format of the project is open: analytic problem, computer program, historical study, pick what interests and excites you the most. The project will be due in written form the last day of class.

This course operates under the *Academic Honor Code*. Your work on this project must be in your own words. It does not need to be original research, and can be a review of the work of other people, with proper citations and more detailed explanations and proofs of things that were left out in the original papers.

The overall course grade will be a weighted average of all of the above:

1. In-class participation 20 %
2. Homework 30 %
3. Final project 50 %

Disabilities: If you qualify for accommodations because of a disability, please submit to me a letter from DS early in the semester, so that your needs may be addressed. DS determines accommodations based on documented disabilities (303-492-8761, Willard 332).

Other custom arrangements: If you have religious holidays or obligations that would make it impossible for you to hand in an assignment in time, please let me know, so that arrangements can be made for a delayed due date.