Mathematics 420, Fall term, 2005

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Text: *Differential Equations, a Dynamical Systems Approach,* vols 1 and 2, by J. Hubbard and B. West.

Homework: There will be one set handed out every Thurday, due the following Thursday.

Prelims: Two prelims, in class, Thursday Oct 6, (Note change from previous date; Oct. 4 is Rosh Hashanah and created too many conflicts), Tuesday Nov 8. I haven't decided how to incorporate computers into the prelims.

Software: The course will require frequent use of computers. I have two programs, called *planar systems* and *planar iterarations*, that will do just about everything you will need. They can be downloaded from

   www.math.cornell.edu/~dynamics .

Unfortunately, they only run on macs in classic mode. I am no expert at other programs that run under windows and linux. In principle, everything can be done in *Maple* or *Matlab*, though in my experience these programs are far less interactive than my own programs. There is a hope that a reasonable interface for Matlab might be available soon.

I am interested if anyone knows of good software packages for differential equations.

Miscellaneous: You my want to invest in graph paper and a good set of colored pens. There will be a great many pictures to produce, and different colors are very handy to keep the different things reperesented apart.

Homework Set 1
Assigned August 25, due September 1

In the text (vol 1, chapter 1) do the following exercises:
1.1, # 1, # 2, # 3, # 4, # 7, # 9.

1.2-4, # 3, # 5, # 8, # 9, # 10, # 11.

This ought to be enough to keep you busy.