

March 27, 2009

For March 23, 2009

HW #4.

Read/review background material on basics of first- and second-order differential equations.

A good summary is available in Wilson's book: Spikes, Decisions and Actions.

The most relevant sections for starting background are:

Linear 1st order odes: 2.1, 2.3, 2.4

Linear 2nd order odes: 3.1, 3.2*, 3.4

Nonlinear systems (2nd order): 6.1, 6.2, 6.3

* some matrix notation here, don't panic.

For additional background on numerical methods for solving odes see Chapter 5 in SDA.

After background, and JR's lecture you can take on the chapter(s) by
Borisyuk and Rinzel
Rinzel and Ermentrout
on our web page.

They illustrate use of dynamical system concepts in dissecting the HH model and in phase plane analysis of the Morris-Lecar model.