
Differential Equations

Math 341 Fall 2008
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Fowler 307 MWF 2:30pm - 3:25pm
<http://faculty.oxy.edu/ron/math/341/08/>

Week 10

Monday October 27 : *Worksheet 23*

Linearization. We shall begin our analysis of non-linear systems using a technique called linearization which transforms the behavior of nonlinear systems of ODEs back into our now familiar analysis of linear systems of ODEs. Remember your Taylor Approximations!

Reading:

Blanchard, 5.1

Homework #23:

Blanchard, Section 5.1: 3, 4, 5, 18, 21.

Wednesday October 29 : *Worksheet 24*

Qualitative Analysis of Nonlinear Systems. We shall explore how to analyze phase portraits of systems without using numerics or linearization. We'll also explore bifurcations

Reading:

Blanchard, Section 5.2

Homework #21:

Blanchard, Section 5.2: 3, 4, 16.

Friday October 31 : *Worksheet 25*

Hamiltonian Systems. We shall continue our analysis of non-linear systems by introducing the concept of a Hamiltonian.

Reading:

Blanchard, Section 5.3

Homework #22:

Blanchard, Section 5.3: 2, 12, 13, 14, 17, 18.

Quiz:

Take-Home Quiz #6.