

---

# Differential Equations

Math 341 Spring 2005

©2005 Ron Buckmire

MWF 8:30 - 9:25am Fowler North 2

<http://faculty.oxy.edu/ron/math/341>

---

## Week 4

**Monday February 7** *Class 9:*

**Linear and Nonlinear Models.** We shall (again) look at some of the first-order linear and nonlinear models introduced earlier, with the goal of some deeper analysis.

Reading:

Zill, (Section 3.1, 3.2)

Homework Set #4: (due in *Class 11*)

Section 3.1: 1\*, 10, 17\*, 19\*, *EXTRA CREDIT 37*

**Quiz 2 Due**

**Wednesday February 9** *Class 10:*

**Bifurcations.** We'll analyze the sensitivity of models to particular values of parameters and introduce the concept of bifurcation and perturbation.

Reading:

Blanchard, Devaney & Hall photocopy

Homework Set #4: (due in *Class 11*)

Zill, Section 3.2: 13\*, 19\*, *EXTRA CREDIT 22*

**Friday February 11** *Class 11:*

**Systems of Differential Equations.** Systems of first-order differential equations often exhibit much more complex behavior than can be realized from first-order differential equation with one-dependent and independent variable.

Reading:

Zill, (Section 2.5)

Homework Set # 5: (due in *Class 14*)

Zill, Section 3.3: 1\*, 15\* *EXTRA CREDIT Page 121, #8; Page 122 #18*

**Quiz #4**

**BONUS Quiz #2 online**