

Department of Mathematics - North Dakota State University  
MATH 266 Introduction to Differential Equations - Spring 2008  
Instructor: Marian Bocea

## COURSE SCHEDULE

### **WEEK 1 (January 7-11, 2008)**

Ordinary Differential Equations (ODE): examples, classification

### **WEEK 2 (January 14-18, 2008)**

Linear first order ODE

First order ODE: separable equations

### **WEEK 3 (January 21-25, 2008)**

**No Class on Monday, January 21 - Holiday: Martin Luther King, Jr. Day**

Exact equations and integrating factors

Homogeneous equations

### **WEEK 4 (January 28-February 1, 2008)**

Modeling with linear differential equations

### **WEEK 5 (February 4-8, 2008)**

The existence and uniqueness theorem

Second order linear ODE: homogeneous equations with constant coefficients

### **WEEK 6 (February 11-15, 2008)**

**Review for Exam # 1 - Monday, February 11**

**EXAM # 1 - WEDNESDAY, FEBRUARY 13**

Fundamental solutions

### **WEEK 7 (February 18-22, 2008)**

**No Class on Monday, February 18 - Holiday: Presidents Day**

Linear independence and the Wronskian

Complex roots of the characteristic equations

### **WEEK 8 (February 25-29, 2008)**

Repeated roots

Nonhomogeneous ODE: Method of undetermined coefficients

Nonhomogeneous ODE: Variation of parameters

### **WEEK 9 (March 3-7, 2008)**

**No Classes: SPRING BREAK**

**WEEK 10 (March 10-14, 2008)**

Higher order linear ODE

**WEEK 11 (March 17-21, 2008)**

**Review For Exam # 2 - Monday, March 17**

**EXAM # 2 - WEDNESDAY, MARCH 19**

**No Class on Friday, March 21 - Holiday: Good Friday**

**WEEK 12 (March 24-28, 2008)**

**No Class on Monday, March 24 - Holiday: Easter Monday**

Definition and properties of the Laplace transform

Solutions of Initial Value Problems

**WEEK 13 (March 31- April 4, 2008)**

Step functions

ODE with discontinuous forcing terms

Impulse functions

**WEEK 14 (April 7-11, 2008)**

Convolution

Systems of first order linear ODE: Introduction

Review of Linear Algebra

**WEEK 15 (April 14-18, 2007)**

**Review For Exam # 3 - Monday, April 14**

**EXAM # 3 - WEDNESDAY, APRIL 16**

Basic theory of systems of first order linear ODE

**WEEK 16 (April 21-25, 2008)**

Homogeneous linear systems with constant coefficients

**WEEK 17 (April 28-May 2, 2008)**

Fundamental matrices

Nonhomogeneous linear systems

**Last Day of Classes: Friday, May 2**