

Math 2233 - Differential Equations Syllabus - Fall 2012

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Lecture Times: Section 5: 12:30 MWF, HSCS 029
Office Hours: Mondays, Tuesdays and Thursdays, 9:00–10:00
Required Text: *Elementary Differential Equations and Boundary Value Problems*, 9th Edition,
by W.E. Boyce and R.C. DiPrima, John Wiley & Sons, 2009, ISBN 978-0-470-03940-3
Prerequisites: Calculus II
Course Objectives: Upon completing this course, students should understand the
general theory of differential equations and the basic techniques
for solving differential equations/boundary value problems
involving one unknown function and one independent variable.

Homework: Homework problems will be assigned daily in class. All the
homework assigned during a given week will be due at the
beginning of the first class of the following week. Several
of the homework assignments may involve the use of the
computing facilities at the MLRC (Mathematical Learning
Resource Center), located on the fourth floor of the Classroom Building.

Examinations: There will be two midterm examinations worth 100 pts each
and one final examination worth 150 pts.

Grades: Grades will be determined exclusively from homework, midterm,
and final exam scores.

2 Midterm Examinations	200 possible pts.
Homework and Quizzes	25 possible pts.
Final Examination	150 possible pts.
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	375 possible pts.

N.B. The final exams will be held:

MATH 2233.005 (10:30 MWF) : 10:00 – 11:50, Wednesday, December 13 in HSCS 029

Letter grades will be assigned as follows:

A:	337	-	375 pts.
B:	300	-	336 pts.
C:	262	-	299 pts.
D:	225	-	261 pts.
F:	0	-	224 pts.

Additional University-wide rules and procedures may be found at the following URL:

<http://academicaffairs.okstate.edu/faculty-a-staff/47-syllabus-fall>.

Math 2233 Course Outline

- I. Introduction
 - A. Differential Equations: Solutions and Classification
- II. Approximate Methods
 - A. Graphical Methods
 - B. Numerical Methods
 - C. Taylor Series Methods
- III. First Order Ordinary Differential Equations
 - A. First Order ODEs : General Theory
 - B. Separation of Variables
 - C. First Order Linear ODEs
 - D. Constants of Integration and Initial Conditions
 - E. Exact Equations
 - F. Integrating Factors
 - G. Change of Variable

FIRST EXAM

- IV. Second Order Linear Ordinary Differential Equations
 - A. Second Order Linear ODEs : General Theory
 - B. Reduction of Order
 - C. Second Order Linear Equations with Constant Coefficients
 - D. Non-homogeneous Equations
 - E. Variation of Parameters
 - F. Euler Equations
- V. Higher Order Differential Equations
 - A. Higher Order ODEs
 - B. Higher Order Linear ODEs with Constant Coefficients

SECOND EXAM

- VI. Series Solutions of Second Order Linear ODEs
 - A. Review of Power Series
 - B. Power Series Solutions
 - C. Singular Points and Convergence of Series Solutions
 - D. Series Solutions about Singular Points
- VII. Laplace Transforms
 - A. The Laplace Transform
 - B. Laplace Transform Techniques

FINAL EXAM