

SPRING SEMESTER 2001

MATH 2090–3

Elementary Differential Equations and Linear Algebra

12:40–1:30 MTWTh, Tureaud 116

Credit will be given for only one of the following: Math 2065, 2070, 2090. Credit will not be given for both this course and Math 2085.

PREREQUISITE

Math 1552

CATALOG DESCRIPTION

Introduction to first order differential equations, linear differential equations with constant coefficients, and systems of differential equations; vector spaces, linear transformations, matrices, determinants, linear dependence, bases, systems of equations, eigenvalues, eigenvectors, Laplace transform, and Fourier series.

TEXTBOOK

S. W. Goode: Differential Equations and Linear Algebra, second edition, Prentice Hall, 2000

SUPPLEMENT

Fourier series from Chapter 10 of the book “Fundamentals of Differential Equations” by R. K. Nagle and E. B. Saff, Fourth Edition, Addison-Wesley, 1996

COVERAGE

Chapter 1: First-order differential equations (1.4)

Chapter 2: Second order linear differential equations (2.1, 2.3, 2.4, 2.6)

Chapter 3: Matrices and systems of linear algebraic equations (3.1–3.6)

Chapter 4: Determinants (4.1–4.4)

Chapter 5: Vector spaces (5.2–5.10)

Chapter 6: Linear transformations and the eigenvalue/eigenvector problem
(6.1, 6.3, 6.5–6.7)

Chapter 8: Systems of differential equations (8.3–8.6, 8.8–8.10)

Chapter 9: The Laplace transform and some elementary applications (9.1–9.9)

Chapter 10 of the supplement: Partial differential equations (10.1–10.5)

GRADING PROCEDURE

Four 100 pt exams	400 pts
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Final exam	200 pts
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Total score	600 pts
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Tentative scale	A	510–600
	B	450–509
	C	390–449
	D	330–389
	F	below 330

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