

**Mathematics 126**  
**Calculus II**  
**Fall 1997**  
**Laurence R. Taylor**

LECTURE TIME AND PLACE: 10:40-11:30 MWF, Center for Social Concerns

LECTURER: Laurence Taylor

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OFFICE HOURS: Tuesday & Thursday at 8am, and by appointment

WEB: <http://www.nd.edu/~taylor/Math126.02/>

TEXT: *Calculus* by Thomas and Finney, 9th edition.

EXAMINATIONS AND GRADING: There will be three one-hour exams and a comprehensive final; there will also be weekly homework assignments. Each one-hour exam is worth 100 points, the final is worth 150 points, and the homework will count for 50 points, for a total of 500 points.

HOUR EXAM DATES: Exam 1: Tuesday, September 23, 8:15 am

Exam 2: Tuesday, October 28, 8:15 am

Exam 3: Tuesday, December 3, 8:15 am

I will announce the material to be covered on each exam in lecture.

FINAL EXAM DATE: Tuesday, December 16, 1:45-3:45

HONOR CODE: You may work together on homework assignments, but the final written solutions should be your own. Tests of course should be entirely your own work.

ABSENCES: To miss an hour exam is serious. As soon as possible, contact me. If you oversleep, see me immediately (during the exam if possible). Absence from the final is more serious still. Unless I have a form from your dean authorizing a grade of X, I have no choice but to give you a 0 on the final and to compute your grade accordingly.

**Topics covered**

Chapter 6 Transcendental functions

6.1 Inverse functions and their derivatives

6.2 Natural logarithms

6.3 The exponential function

6.4  $a$  to the  $x$  and  $\log x$  to the base  $a$

6.5 Growth and decay

6.6 L'Hopital's rule

6.7 Relative rates of growth

6.8 Inverse trigonometric functions

6.9 Derivatives of inverse trigonometric functions; integrals

- 6.10 Hyperbolic functions
- 6.11 First order differential equations
- Chapter 7 Techniques of Integration
  - 7.1 Basic integration formulas
  - 7.2 Integration by parts
  - 7.3 Partial fractions
  - 7.4 Trigonometric substitutions
  - 7.6 Improper integrals
- Chapter 8 Infinite series
  - 8.1 Limits of sequences of numbers
  - 8.2 Theorems for calculating limits of sequences
  - 8.3 Infinite series
  - 8.4 The integral test for series of nonnegative terms
  - 8.5 Comparison tests for series of nonnegative terms
  - 8.6 The ratio and root tests for series of nonnegative terms
  - 8.7 Alternating series, absolute and conditional convergence
  - 8.8 Power series
  - 8.9 Taylor and Maclaurin series
  - 8.10 Convergence of Taylor series; error estimates
  - 8.11 Applications of power series
- Chapter 9 Conic Sections, Parametrized Curves, and Polar Coordinates
  - 9.1 Conic sections and quadratic equations
  - 9.2 Classifying conic sections by eccentricity
  - 9.4 Parametrizations of plane curves
  - 9.5 Calculus with parametrized curves
  - 9.6 Polar coordinates
  - 9.8 Polar equations for conic sections
  - 9.9 Integration in polar coordinates

• denotes a section which was not actually covered.

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