

MATH 201X Syllabus

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Fall 2008

Text: Stewart, Calculus early transcendentals, sixth edition

Topics covered are listed below. Some are optional, some require more than one class period:

* optional, time permitting.

** may require more than one class period.

Chapter 6 (Note: Custom-bound textbooks may not include this chapter, but the instructor may need to include these topics in the course anyway.)

6.4 Work (if not covered in MATH 200X)

6.5 Average Value of a Function (if not covered in MATH 200X)

Chapter 7

7.1** Integration by Parts

7.2** Trigonometric Integrals

7.3** Trigonometric Substitution

7.4** Integration of Rationale Functions by Partial Fractions

7.5** Strategy for Integration

7.6* Integration Using Tables and Computer Algebra Systems

7.7 Approximate Integration

7.8** Improper Integrals

Chapter 8

8.1 Arc Length

8.2 Area of a Surface of Revolution

8.3** Applications to Physics and Engineering
(optional except should include hydrostatic force)

8.4* Applications to Economics and Biology

8.5* Probability

Chapter 10

10.1** Curves Defined by Parametric Equations

10.2** Calculus with Parametric Curves

10.3** Polar Coordinates

10.4** Areas and Lengths in Polar Coordinates

10.5** Conic Sections

10.6 Conic Sections in Polar Coordinates

Chapter 11

- 11.1** Sequences
- 11.2** Series
- 11.3** The Integral Test and Estimates of Sums
- 11.4** The Comparison Test
- 11.5** Alternating Series
- 11.6** Absolute Convergence and the Ratio and Root Tests
- 11.7** Strategy for Testing Series
- 11.8** Power Series
- 11.9** Representations of Functions as Power Series
- 11.10** Taylor and Maclaurin Series
- 11.11** Applications of Taylor Polynomials

The final exam may cover any of the non-optional sections above. Optional sections may of course be included at the discretion of the instructor.

The criteria upon which the Math 201 finals are evaluated by the Core Assessment Committee in 2003 are:

1. Students master problem solving skills.
2. Students learn to manipulate abstract symbols.
3. Students learn and appreciate the rigorous use of deductive arguments in mathematics.
4. Students learn a broad spectrum of mathematical applications:
 - a) integration techniques
 - b) analysis of functions and their graphs
 - c) applications of differentiation and integration
 - d) sequences and series
5. Students have mastered the prerequisite material for the course.

A question is chosen from the final exam representing each of these nine criteria and sub-criteria. It is often the case that one exam question serves to cover more than one criterion. It is not our intention to create conditions leading to inordinately long or redundant final exams for the purpose of meeting Core Assessment Committee demands. However, Math 201 instructors should be aware of the criteria while preparing their final exams.