

Math 201 Syllabus Prepared by Walt Tape Spring 2004

Text: Stewart, *Calculus early transcendentals*, fifth 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

- 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**	The Binomial Series
11.12**	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 were evaluated by the Core Assessment Committee in 2003 are listed below.

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.

To that end, a question is chosen from the final exam representing each of these nine criteria and sub-criteria. It has often been the case in the past that one exam question served 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.