

MATH 202X Syllabus

Prepared by J. Faudree

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 12

12.1 Three-Dimensional Coordinate Systems

12.2 Vectors

12.3 The Dot Product

12.4 The Cross Product

12.5** Equations of Lines and Planes

12.6** Cylinders and Quadric Surfaces

Chapter 13

13.1 Vector Functions and Space Curves

13.2 Derivatives and Integrals of Vector Functions

13.3** Arc Length and Curvature (light on curvature)

13.4** Motion in Space: Velocity and Acceleration

Chapter 14

14.1** Functions of Several Variables

14.2 Limits and Continuity (epsilon – delta optional)

14.3 Partial Derivatives

14.4** Tangent Planes and Linear Approximations

14.5 The Chain Rule

14.6** Directional Derivatives and the Gradient Vector

14.7** Maximum and Minimum Values

14.8** Lagrange Multipliers

Chapter 15

15.1 Double Integrals over Rectangles

15.2 Iterated Integrals

15.3** Double Integrals over General Regions

15.4 Double Integrals in Polar Coordinates

15.5 Applications of Double Integrals

15.6** Triple Integrals

15.7** Triple Integrals in Cylindrical Coordinates

15.8** Triple Integrals in Spherical Coordinates

15.9 Change of Variables in Multiple Integrals

Chapter 16

16.1* Vector Fields

16.2* Line Integrals

16.3* The Fundamental Theorem for Line Integrals

Other optional sections and content as time allows.

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 202 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) optimization
 - b) analysis of functions and their graphs
 - c) multiple integrals and partial derivatives
 - d) applications of multiple integrals
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. One exam question may serve 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 202 instructors should be aware of the criteria while preparing their final exams.