

OFFICIAL SYLLABUS

MATH 250 - CALCULUS III

(Adopted - Fall 2010; Committee: Z. Agustin, G. Pelekanos, S. Staples)
(Updated Fall 2016 to reflect eighth edition of textbook.)

Textbook: Calculus, Early Transcendentals, Eighth Edition, by J. Stewart with Webassign

Ch.12. Vectors and the Geometry of Space

- 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

Ch.13. Vector Functions

- 13.1 Vector Functions and Space Curves
- 13.2 Derivatives and Integrals of Vector Functions
- 13.3 Arc Length and Curvature
- 13.4 Motion in Space: Velocity and Acceleration

Ch.14. Partial Derivatives

- 14.1 Functions of Several Variables
- 14.2 Limits and Continuity
- 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:

Ch.15. Multiple Integrals

- 15.1 Double Integrals over Rectangles
- 15.2 Double Integrals over General Regions
- 15.3 Double Integrals in Polar Coordinates
- 15.4 Applications of Double Integrals
- 15.5 Surface area
- 15.6 Triple Integrals
- 15.8 Triple Integrals in Cylindrical Coordinates
- 15.9 Triple Integrals in Spherical Coordinates
- 15.10 Change of Variables in Multiple Integrals

Ch.16. Vector Calculus

- 16.1 Vector Fields
- 16.2 Line Integrals
- 16.3 The Fundamental Theorem for Line Integrals
- 16.4 Green's Theorem
- 16.5 Curl and Divergence
- 16.6 Parametric Surfaces and Their Areas
- 16.7 Surface Integrals
- 16.8 Stokes' Theorem

Any instructor should cover all of the material specified; additional sections are optional.