math302 Syllabus

math 302: Calculus III

Text: Calculus Early Transcendentals, 11th edition, Anton, Bivens, and Davis, Wiley, 2015

Prerequisites: math 301 with a grade of C or better.

A TI-83 or TI-84 Graphing Calculator is required.

Sections and Topics

- Basic Review
- 11.1 Rectangular Coordinates in 3-space; Spheres; Cylindrical Surfaces
- 11.2 Vectors
- 11.3 Dot Product; Projections
- 11.4 Cross Product
- 11.5 Parametric Equation of Lines
- 11.6 Planes in 3-Space
- 11.7 Quadric Surfaces
- 11.8 Cylindrical and Spherical Coordinates
- 12.1 Intro to Vector-Valued Functions
- 12.2 Calculus of Vector-Valued Functions
- 12.3 Arc Length
- 13.1 Functions of Two or More Variables
- 13.2 Limits and Continuity
- 13.3 Partial Derivatives
- 13.4 Differentiability, Differentials, and Local Linearity
- 13.5 Chain Rule.
- 13.6 Directional Derivatives and Gradients
- 13.7 Tangent Planes and Normal Vectors
- 13.8 Maxima and Minima of Functions of Two Variables
- 13.9 Lagrange Multipliers
- 14.1 Double Integrals
- 14.2 Double Integrals over Nonrectangular Regions
- 14.3 Double Integrals in Polar Coordinates
- 14.4 Surface Area; Parametric Surfaces
- 14.5 Triple Integrals
- 14.6 Triple Integrals in Cylindrical and Spherical Coordinates
- 14.7 Change of Variables; Jacobians
- 15.1 Vector Fields
- 15.2 Line Integrals
- 15.3 Independence of Path; Conservative Vector Fields
- 15.4 Green's Theorem
- 15.5 Surface Integrals
- 15.6 Applications of Surface Integrals; Flux
- 15.7 The Divergence Theorem
- 15.8 Stokes' Theorem

Last updated 18 August 2016.