math302 Syllabus

math 302: Calculus III

Text: *Calculus: Early Transcendentals, 3rd Edition*, by Briggs, Cochran, Gillett and Schulz, 2019.

Prerequisites: math 301 (Calculus II) with a grade of C or better.

Sections and Topics

- Section 13.2: Vectors in 3D
- Section 13.3: Dot Products
- Section 13.4: Cross Products
- Section 13.5: Lines and Planes in Space
- Section 14.1: Vector-Valued Functions
- Section 14.2: Calculus of Vector-Valued Functions
- Section 14.3: Motion in Space
- Section 14.4: Length of Curves
- Section 13.6: Cylinders and Quadric Surfaces
- Section 15.1: Graphs and Level Curves
- Section 15.2: Limits and Continuity
- Section 15.3: Partial Derivatives
- Section 15.4: The Chain Rule
- Section 15.5: Directional Derivatives and the Gradient
- Section 15.6: Tangent Planes and Linear Approximation
- Section 15.7: Maximum/Minimum Problems
- Section 15.8: Lagrange Multipliers
- Section 16.1: Double Integrals over Rectangular Regions
- Section 16.2: Double Integrals over General Regions
- Section 16.3: Double Integrals in Polar Coordinates
- Section 16.4: Triple Integrals
- Section 16.5: Triple Integrals in Cylindrical and Spherical Coordinates
- Section 16.6: Integrals for Mass Calculations
- Section 16.7: Change of Variables in Multiple Integrals
- Section 17.1: Vector Fields
- Section 17.2: Line Integrals
- Section 17.3: Conservative Vector Fields
- Section 17.4: Green's Theorem
- Section 17.5: Divergence and Curl
- Section 17.6: Surface Integrals
- Section 17.7: Stokes' Theorem
- Section 17.8: Divergence Theorem

Last updated 19 December 2022.