ATH 225 Calculus III
ewart, Multivariate Calculus, 4th Ed.

opics covered:

. Vectors and Geometry of Space

.1 3D Coordinates
.2 Vectors
.3 Dot Product
.4 Cross Product
.5 Lines, Planes
.5 Planes

. Vector Functions

.1 Vector Functions, Space Curves
.2 Derivatives, Integrals
.3 Arc Length (Skip Curvature)
.4 Motion in Space

. Partial Derivatives

.1 Functions of Several Variables
.2 Limits
.3 Continuity, Partial Derivatives
.3 Partial Derivatives
.5 Chain Rule
.6 Directional Derivatives, Gradients
.7 Maxima, Minima, Saddle Points
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.8 Lagrange Multipliers
.8 Two Constraints

. Mulitple Integrals

.1 Double Integrals over Rectangles
.2 Iterated Integrals
.3 Double Integrals over General Regions
.4 Double Integrals in Polar Coordinates
.5 Moments, Centers
.6 Surface Area
.7 Triple Integrals
.8 Triple Integrals in Cylindrical & Spherical Coordinates
.9 Change of Variables in Multiple Integrals

. Vector Calculus

.1 Vectors Fields
.2 Line Integrals of Functions
.3 Fundamental Theorem of Line Integrals

'.4 Green's Theorem
'.5 Curl, Divergence
'.6 Parametric Surfaces and Their Area
'.7 Surface Integrals & Flux Integrals
'.8 Stokes' Theorem
'.9 Divergence Theorem