

MATH 275

Calculus III (4 units)

COURSE OUTLINE

Sections	Topics	# of weeks
13.1 – 13.6	Vectors: Vectors in two and three dimensions; lines; Planes; dot and cross products; matrices and determinants.	1.5
14.3, 14.4 14.6, 14.7	Curves and Surfaces: Multivariate functions and level surfaces; Quadric Surfaces; curves in space & arc-length.	1.5
15.1 – 15.4	Partial Differentiation: Limits and continuity of Multivariate functions; partial derivatives and tangent planes; the chain rule.	1.5
16.1 – 16.4	Gradients, Maxima, and Minima: Gradients and vector Fields; directional derivatives; extremal values of multivariate functions; Lagrange multipliers.	1.5
17.1 – 17.6	Multiple Integration: Double and triple integrals; iterated integrals; double integrals in polar coordinates; triple integrals in cylindrical and spherical coordinates; applications.	3.0
18.1 – 18.6	Vector Analysis: Line integrals; path independence; exact Differentials; Green's theorem; parametric surfaces; surface integrals; Stokes' theorem; the Divergence theorem.	4.0
	Tests	1.0

Textbook: Calculus III, Second Ed., by Jerrold Marsden and Alan Weinstein, 1985, Springer-Verlag, New York.