Course Description

Math 2574 Calculus III

Catalog description: Differential and integral calculus of several variables, vector calculus. (I, II, S)

Prerequisite: Math 2564 (Calculus II)


Content

   Cartesian coordinates, parametric curves, lines, planes, and surfaces, motion, velocity and acceleration, cylindrical and spherical coordinates, dot product, cross product, arc length and curvature.

   Functions of several variables, limits and continuity, partial derivatives, extrema, increments and differentials, chain rule, directional derivatives, gradient, Lagrange multipliers and second derivative test.

   Double integrals, area and volume, polar coordinates, applications of double integrals, triple integrals, cylindrical and spherical coordinates, surface area and general change of variables.

   Vector fields, line integrals, independence of path, Green’s theorem, surface integrals, divergence theorem, Stoke’s theorem.

Coordinator: Mark Arnold, SCEN 224, 575-3351, arnold@uark.edu

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