MATH 2443 - Calculus and Analytic Geometry IV.
Spring 1999

1997-1999 Catalog Data: 2443 Calculus and Analytic Geometry IV. Prerequisite: 2433. Vector calculus; functions of several variables; partial derivatives; gradients, extreme values and differentials of multivariate functions; multiple integrals; line and surface integrals.

Prerequisite: MATH 2433


References:

Course Objectives: Students will learn the basic concepts of multivariable differential and integral calculus

Coordinator: Professor Teri J. Murphy

Prerequisites by Topic: See topics for MATH 2433

Topics:
1. Functions of several variables, limits and continuity
2. Partial derivatives, tangent planes and differentials, the chain rule for partial derivatives
3. Directional derivatives and gradients
4. Max/min problems, Lagrange multiplier method
5. Double and triple integrals, surface area, volumes, and other applications
6. Double integrals in polar coordinates, triple integrals in cylindrical and spherical coordinates
7. Vector fields, line integrals, Green’s theorem
8. Divergence and curl of a vector field
9. Parametric surfaces, surface integrals, and surface area
10. Stokes’ theorem and the divergence theorem

Schedule: Three 50 minute lectures per week

Computer Usage: The software package Mathematica is used in selected sections

Design Projects:
Laboratory Projects:

Written and/or Oral Communications: Group work is used in selected sections

Teamwork:

Assessment Methods Used: Standard course evaluation

Contribution to Professional Component: 0%

Program Objectives: Related Strategy and Actions: 1.i

ABET 2000 Criterion 3 Contents:
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Prepared by Kevin A. Grasse _________________________ Date April 8, 1999