

MATH208C : Multivariable Calculus

A study of vectors, vector products, vector algebra, and vector-valued functions; motion in space; partial differentiation, gradient, divergence, curl, chain rule, tangent planes, extrema, and Lagrange multipliers; multiple, line, and surface integrals; divergence, and Green's and Stokes' theorems. A graphing calculator is required.

Credits 4

Lab/Practicum/Clinical Hours 0

Lecture Hours 4

Prerequisites

Students must pass all prerequisite courses with a grade of C or higher.

MATH206C

Learning Outcomes

- State, interpret, and apply the definitions, theorems, and properties involving the algebra and differential and integral calculus of multivariable vector-valued functions, including Green's, Stokes', and divergence theorem.
- Solve problems involving vector algebra and vector products.
- Solve problems involving limits, derivatives, and integrals of multivariable vector-valued functions including those invoking the use of Green's, Stokes', and divergence theorem.
- Approximate the value of a function using the tangent plane approximation.
- Graph cylinders, quadric surfaces, multivariable functions and their level curves, and vector-valued functions.
- Apply vector products to calculate curvature and torsion.
- Solve extremization problems using the second derivative test and the Lagrange multiplier technique.