

University of Vermont
Department of Mathematics and Statistics
Course: MATH 121

Last revised August 2022

Course Description

Calculus III (Multivariable Calculus) is the third course in our three-course calculus sequence.

The course topics include vector functions, with a discussion of derivatives, velocity, acceleration, arc length and curvature; functions of several variables, where we extend the basic ideas of differential calculus to these functions; the concept of the definite integral is extended to double and triple integrals, with applications such as volume, mass and centroids, while introducing two new coordinate systems in three-dimensional space (cylindrical coordinates and spherical coordinates); a study of vector fields, line integrals and surface integrals, leading to a discussion of Stokes' Theorem and the Divergence Theorem. Topics will be presented with a level of depth and rigor appropriate for students pursuing degrees in technical fields such as mathematics, statistics, engineering, or the physical sciences. The computer algebra system *Mathematica* will be used throughout the course. **Prerequisite:** C- or better in MATH 022 or MATH 023.

Required Course Materials

Access Code for Enhanced WebAssign Online Homework and eBook

You will need an access code for the eBook and WebAssign online homework for the course. If you took MATH 022 or MATH 023 at UVM recently your WebAssign access code should still be active. Otherwise, choose one of the following options. (If you don't want a printed book, choose Option 1 or 2.)

Option 1

WebAssign for Stewart/Clegg/Watson's Calculus: Early Transcendentals, 9th Edition, Multi-Term Printed Access Card. ISBN 9780357128947

This provides access to the eBook and online homework.

Option 2

Cengage Unlimited, 1 term (4 months). ISBN 9780357700037

This provides access to the eBook and online homework for calculus, as well as unlimited access to other Cengage textbooks/online homework for one semester.

Option 3

Stewart/Clegg/Watson's Calculus: Early Transcendentals, Loose-leaf Version, 9th Edition + WebAssign Multi-Term Printed Access Card. ISBN 9780357466261

This is a loose-leaf copy of the textbook, bundled with an access code for the online homework and eBook.

Software

The *Mathematica* software used in the course is provided by UVM; you do not need to purchase it. You may install *Mathematica* on your own computer free of charge under UVM's site license. *Mathematica* is also available for use in various computer labs and classrooms on campus.