Mathematics (MATH) 365

Multivariable Calculus (Revision 7)

Status:	Replaced with new revision, see the **course listing** for the current revision
Delivery mode:	**Individualized study online**
Credits:	3
Area of study:	Science
Prerequisites:	**MATH 266**
Precluded:	None
Challenge:	MATH 365 has a challenge for credit option.
Faculty:	**Faculty of Science and Technology**

Overview

Mathematics 365: Multivariable Calculus is a level III calculus course. We extend the concepts of single variable calculus to (a) real-valued functions of several variables; and (b) vector-valued functions in a variety of coordinate systems, including Cartesian, polar and spherical.

This course focuses on the development of the mathematical concepts and techniques involved in multivariable calculus. It includes a limited number of applications of multivariable calculus, such as real-world examples and physics applications, leaving students to learn about further applications on their own.

Outline

- Unit 1: Analytic Geometry in Calculus
- Unit 2: Vectors and Three-Dimensional Space
- Unit 3: Vector-Valued Functions
- Unit 4: Partial Derivatives
- Unit 5: Multiple Integrals
- Unit 6: Topics in Vector Calculus

Learning outcomes

Upon successful completion of this course, you will be able to

- demonstrate a foundational understanding of multivariable calculus, with a focus on analytic geometry in two- and three-dimensional space, vectors, partial derivatives and multiple integrals.
- use multivariable calculus methods for applied problem solving in various areas, with a focus on sciences.
- pursue further learning in complex variables, including MATH 366 and other calculus-based courses.
- communicate mathematical ideas and analyses in a clear and organized manner.

Evaluation

To **receive credit** for MATH 365, you must achieve a grade of at least 50 percent on each examination, and a course composite grade of at least **D (50**

percent) . The weighting of the composite grade is as follows:

Activity	Weight
Assignments 1–6 (5% each)	30%
Quizzes 1–4 (2.5% each)	10%
Midterm Examination	25%
Final Examination	35%
Total	**100%**

To learn more about assignments and examinations, please refer to Athabasca University's **online Calendar** .

Materials

Digital course materials

Links to the following course materials will be made available in the course:

Stewart, J. (2016). *Calculus* (8th ed.). Toronto, ON: Cengage Learning.

Other materials

The textbook's interactive site, WebAssign, includes the interactive textbook along with tutorials, videos, animations, labs, practice examples and practice exams. Graded assignments and quizzes are also found in the WebAssign site.

Challenge for credit

Overview

The challenge for credit process allows you to demonstrate that you have acquired a command of the general subject matter, knowledge, intellectual and/or other skills that would normally be found in a university-level course.

Full information about **challenge for credit** can be found in the Undergraduate Calendar.

Evaluation

To **receive credit** for the MATH 365 challenge registration, you must complete the two parts of the challenge exam and achieve a minimum grade of at least **D (50 percent)** on both parts. The two parts of the exam must be written on the same day, or on two consecutive days.

Activity	Weight
Part 1: Exam	50%
Part 2: Exam	50%
Total	**100%**

Challenge for credit course registration form

Important links

- **Academic advising**
- **Program planning**
- **Request assistance**
- **Support services**

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

Opened in Revision 7, March 9, 2020

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View **previous revision**