# Calculus 2303B
## Intermediate Calculus II

Undergraduate Course Outline Winter 2016
Department of Applied Mathematics
Western University

## Course Description

Integral calculus of functions of several variables: double, triple and iterated integrals; applications; surface area. Vector integral calculus: vector fields; line integrals in the plane; Green's theorem; independence of path; simply connected and multiply connected domains; parametric surfaces and their areas; the divergence theorem.

## Lectures

MWF 1:30 - 2:30 PM, SEB-1056

## Requirements

**Antirequisites**: Calculus 2503A/B

**Prerequisites**: Calculus 2502A/B or Calculus 2302A/B

## Instructor

**Prof. Robert Corless**
**Email:** rcorless@uwo.ca
**Office:** MC-272
**Web:** http://www.apmaths.uwo.ca/~rcorless

## Textbook

- *Multivariable Calculus* by James Stewart, 8th Edition, 2015, available at the UWO bookstore. The course will cover chapters 15 and 16 of the textbook.

## Course Content

### A. Multiple Integrals (Ch. 15)
- 15.1 Double Integrals over Rectangles
- 15.2 Iterated Integrals
- 15.3 Double Integrals over General Regions
- 15.4 Double Integrals in Polar Coordinates
- 15.5 Applications of Double Integrals
- 15.6 Surface Area
- 15.7 Triple Integrals
- 15.8 Triple Integrals in Cylindrical Coordinates
- 15.9 Triple Integrals in Spherical Coordinates
- 15.10 Change of Variables in Multiple Integrals

### B. Vector Calculus (Ch. 16)

- 16.1 Vector Fields
- 16.2 Line Integrals
- 16.3 The Fundamental Theorem for Line Integrals
- 16.4 Greens Theorem
- 16.5 Curl and Divergence
- 16.6 Parametric Surfaces and Their Areas
- 16.7 Surface Integrals
- 16.9 The Divergence Theorem

## EVALUATION

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|---|---|---|
| 9 Assignments: | 15% | (lowest mark will be dropped) |
| Midterm: | 35% | |
| Final Exam: | 50% | No electronic devices; closed book; no notes |

## ADDENDUM TO ALL APPLIED MATHEMATICS COURSE OUTLINES

**Accessibility Statement:** Please contact the course instructor if you require material in an alternative format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

**Academic Accommodation:** If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to your faculty's Dean's Office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from your faculty's Dean's Office immediately. For further information please see: `http://www.uwo.ca/univsec/handbook/appeals/medical.pdf`.

A student requiring academic accommodation due to illness, should use the Student Medical Certificate when visiting an off-campus medical facility or request a Records Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here: `https://studentservices.uwo.ca/secure/medicaldocument.pdf`.