

**Faculty of Science Course Syllabus
Department of Mathematics**

MATH 2002
Intermediate Calculus II
Summer (B), 2019

Instructor(s): Kyle MacKeigan kyle.m.mackeigan@gmail.com Chase 312

Lectures: 9:05 am – 11:55 am Studley, LSC-PSYCHOLOGY, P4258

Laboratories: None

Tutorials: None

Course Description

Topics include multiple integrals and changes of variables, and vector calculus, with an emphasis on Green's and Stokes' theorems. The course also includes an introduction to second order ordinary differential equations.

Course Prerequisites

Math 2001, Intermediate Calculus I

Course Objectives/Learning Outcomes

To understand the concepts listed in the course description, and to demonstrate and apply that understanding by solving problems.

Course Materials

- James Stewart, Multivariable Calculus, 8th edition.
- Course information available on <https://dal.brightspace.com>

Course Assessment

Assessment will be made up assignments, in class quizzes, a midterm, and a final exam. See below for details.

Component	Weight (% of final grade)	Date
Midterm	15%	Wednesday, July 24 th , 9:05am to 10:30am
In-Class Quizzes	10%	Middle of class on Mondays
<i>Final exam</i>	35%	(Scheduled by Registrar)
<i>Assignments</i>	40%	Due at end of class on Wednesdays

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

A+ (90-100)	B+ (77-79)	C+ (65-69)	D	(50-54)
A (85-89)	B (73-76)	C (60-64)	F	(<50)
A- (80-84)	B- (70-72)	C- (55-59)		

Course Policies

Missed quizzes will not be excused without a valid reason. Make-ups will be at the instructor's discretion. Missed midterm will result in the value of the midterm being allotted to the final exam. Collaboration on the homework is permitted, but it is recommended that the problems on your own first.

You may use software to verify your homework answers, but make sure that you know how to work out the solution without software, and that you understand each of the steps. Software is not permitted on the quizzes or exams.

Office Hours: 9am—11am, every Friday until the Final Exam, in the Learning Center of the Chase Building, or by appointment.

Course Content

Lecture 1, Wednesday, July 3rd: Section 15.1: Double Integrals over Rectangles (Review).
Section 15.2: Double Integrals over General Regions (Review).
Section 15.3: Double Integrals in Polar Coordinates (Review).
Section 15.5: Surface Area.

Lecture 2, Monday, July 8th: Section 15.5: Surface Area (Cont).
Section 15.6: Triple Integrals.
Section 15.7: Triple Integrals in Cylindrical Coordinates.

Lecture 3, Wednesday, July 10th: Section 15.7: Triple Integrals in Cylindrical Coordinates (Cont).
Section 15.8: Triple Integrals in Spherical Coordinates.
Section 15.9: Change of Variables in Multiple Integrals.

Lecture 4, Monday, July 15th: Section 15.9: Change of Variables in Multiple Integrals (Cont).
Section 16.1: Vector Fields.
Section 16.2: Line Integrals.

Lecture 5, Wednesday, July 17th: Section 16.2: Line Integrals (Cont).
Section 16.3: The Fundamental Theorem for Line Integrals
Section 16.4: Green's Theorem

Lecture 6, Monday, July 22nd: Section 16.4: Green's Theorem (Cont).
Section 16.5: Curl and Divergence

Lecture 7, Wednesday, July 24th: Midterm, 9:05am – 10:30am (covers up to Section 16.4).
Section 16.5: Curl and Divergence (Cont).

Lecture 8, Monday, July 29th: Section 16.6: Parametric Surfaces and Their Areas.
Section 16.7: Surface Integrals.

Lecture 9, Wednesday, July 31st: Section 16.7: Surface Integrals (Cont).
Section 16.8: Stokes' Theorem.
Section 16.9: The Divergence Theorem.

Monday, August 5th, 2019: Natal Day – University Closed

Lecture 10, Wednesday, August 7th: Section 16.10: Summary
Section 17.1: Second-Order Linear Equations
Section 17.2: Nonhomogeneous Linear Equations

Lecture 11, Monday, August 12th: Section 17.2: Nonhomogeneous Linear Equations (Cont).
Section 17.3: Applications of Second-Order Differential Eqn.
Section 17.4: Series Solutions.