DALHOUSIE UNIVERSITY

Faculty of Science Course Syllabus
Department of Mathematics and Statistics
Math 2002—Intermediate Calculus II
Summer (B), 2020

Instructor: Tom Potter

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Office Hours: Online. I will host office hours in Collaborate Ultra, which can be accessed through the Brightspace page https://dal.brightspace.com/. I will post instructions on Brightspace indicating how to access the office hours.

Lectures: Lectures will consist of online videos (Asynchronous learning). They will be posted on Brightspace, and they will not be live, so you can watch them after they are posted, at your convenience.

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

Mastery of the following concepts and techniques:

- Multiple integrals in Cartesian, Cylindrical, and Spherical coordinates
- Change of variables and the Jacobian
- Vector Calculus, including vector fields, line integrals, Green's Theorem, curl and divergence, surface integrals, Stokes' theorem, the Divergence theorem, and applications.
- Second-order linear differential equations: Solution methods, including using series to find solutions. Applications, time permitting.

Course Materials

- Recommended: WebAssign for Calculus, Early Transcendentals, 8th edition: available from Dalhousie Bookstore Website. **This is not required, but will allow you to view the ebook for the duration of the course.**
- Course materials and recorded lectures will be posted on the Dalhousie Brightspace system.
- Piazza online discussion board.

Course Assessment

- **78%: Quizzes.** The course will be broken into 6 modules, each with a quiz worth 13%. The quiz dates will be: July 15, July 22, July 31, August 7, August 14, and August 24. Once started, quizzes

must be completed within 80 minutes; however, there will be a 24-hour window in which you can choose to start the quiz.

- **22%: Online Assignments.** There will be an assignment via WeBWorK for each module, which can be accessed through the Brightspace system. You **do not** need to purchase the Webassign to do these assignments.

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

- Please plan to be available to write the quizzes at the dates listed above. If you miss a quiz, the weight will be transferred to the remaining quizzes. For missed assignments the grade will be 0; however, if you need an extension, let me know beforehand.
- You may use the textbook and a scientific (non-graphing) calculator on the quizzes, but you may not use any other resources.
- Collaboration on the quizzes is not permitted. By accessing an online quiz, you effectively promise that what you submit is the product solely of your own efforts, and that you have not collaborated with anyone else, and have not resorted to other resources (aside from the textbook and a non-graphing calculator).
- You may discuss the assignment problems with others. A Piazza discussion board will be set up for discussing problems.

Course Content

Module 1: Double integrals and cartesian and polar coordinates, surface area, triple integrals in cartesian coordinates.
Module 2: Triple integrals in cylindrical and spherical coordinates, change of variables in multiple integrals, introduction to vector fields.
Module 3: Line integrals, the fundamental theorem of line integrals, Green's theorem
Module 4: Curl, divergence, surface integrals, oriented surfaces, flux.
Module 5 : Stokes' theorem and the Divergence theorem, applications of vector calculus (time permitting), intro to 2^{nd}-order, linear differential equations.
Module 6: solution methods for 2^{nd}-order linear partial differential equations, and applications if time permits.