Carleton U, School of Math & Stats
Differential Equations and Multivariable Calculus
BIT 2010-A -- ONLINE

Dr. ℜJ Cova Cova

FALL 2021

✎ E-MAIL: rcova@math.carleton.ca

✎ WEBSITE: Brightspace (Bsp).

✎ LECTURES (asynchronous): Tuesdays, Thursdays 11:35 - 12:55 h in Bsp.

✎ OFFICE HOUR: Through Bsp by appointment – kindly email us to arrange.

✎ CONSULTATION: Anytime by email – replies within 24 h.

✎ TUTORIALS: (from 23 Sept.) Thursdays 13:35 - 14:25 h, Bsp. These highly beneficial tutorials supplement the main lectures and will enhance your training.

√ Teaching Assistant (TA): `zacharywelch@cmail.carleton.ca`

✎ TEXTBOOK: *CALCULUS, VOLUME 3*, by Gilbert Strang and Edwin Herman (OPENSTAX, 2016).

The online version of the book is freely available at https://openlibrary.ecampusontario.ca. Printed copies (not free) may be ordered at the foresaid site.

✎ GENERAL CONTENTS:

Curves and surfaces. Polar, cylindrical and spherical coordinates. Partial derivatives, gradients, extrema and Lagrange multipliers. Exact differentials. Multiple integrals over rectangular and general regions. Integrals over surfaces. Line integrals. Vector differential operators. Green's Theorem, Stokes' theorem, Divergence Theorem. Applications.

A detailed distribution of topics may be found in the last page of the Outline.

• Pre-requisite: BIT 1200.

✎ GRADING SCHEME:

Tests: 35 %. *Assignments*: 40 %. *Final Exam*: 25 %.

✍ TESTS: Two tests of equal weight will be administered on the tutorial hour of

07 October, 21 October.

✍ Assignments: Two assignments of equal weight must be submitted by

12 November, 26 November.

√ We apologise that we have no make-up evaluations in this course. Failure to submit an evaluation may be excused by ill-health, events of extreme personal misfortune, sports obligations, jury duty, &c. Please fill-in the form 'self-declaration for academic accommodation' and urgently email it to your instructor. Kindly note that you may still take the missed evaluation(s) for formative purposes.

✍ FINAL EXAMINATION: This is the customary three-hour exam to be applied during the period 11-23 December (the exact date will be announced by the university on 08 October). It will be administered online via Bsp.

✎ CALCULATORS, MEMORANDA: Any calculator/memoranda may be used in our evaluations but NO help from another person is permitted in any manner whatsoever.

✎ WITHDRAWAL: The last day to withdraw the course is 10 December.

✎ ACADEMIC ACCOMMODATION: You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

- Pregnancy, Religious obligation: Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit: www.carleton.ca/equity/wp-content/uploads/
  Student-Guide-to-Academic-Accommodation.pdf.
- Students with Disabilities: The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). Requests made within two weeks will be reviewed on a case-by-case basis. After requesting accommodation from

PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website www.carleton.ca/pmc for the deadline to request accommodations for the formally-scheduled exam (if applicable).

- Survivors of Sexual Violence: As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit
  www.carleton.ca/sexual-violence-support.
- Student Activities: Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit
  www.carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf

✎ ETIQUETTE. ACADEMIC INTEGRITY: Please read Section 14 of the Academic Regulations of Carleton University at http://calendar.carleton.ca/undergrad/regulations.

⋆ REMARK ⋆

By registering in this course you acknowledge that the university may use online proctoring tools which could require your identifying yourself via webcam. Additionally, during the evaluations your activities may be monitored either by direct observation with webcam or through the use of a screen-recording software. Evidence of academic misconduct will be treated very seriously.

⋆ the outline might change depending on the course dynamics ⋆

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Distribution of Topics

Week	Dates	Evaluation	Topics
1	Sept 8-10	-	Parametric equations
2	Sept 13-17	-	Parametric equations. Polar coordinates
3	Sept 20-24	-	Calculus of parametric equations
4	Sept 27-30	-	Vectors in 2D, 3D space
5	Oct 4-8	Test 1	Lines, planes. Quadric surfaces Cylindrical, spherical coordinates
6	Oct 11-15	-	Arc length. Functions of serveral variables
7	Oct 18-22	Test 2	Partial derivatives. Gradients Differentials
8	Oct 25-29	-	Fall Break
9	Nov 1-5	-	Extrema. Lagrange multipliers
10	Nov 8-12	Assignment 1	Double, triple integrals
11	Nov 15-19	-	Line integrals. Conservative Fields Green‘s Theorem
12	Nov 22-26	Assignment 2	Divergence. Curl. Surface integrals.
13	Nov 29 - Dec 2	-	The Curl Theorem
14	Dec 6-10	-	The Divergence Theorem

Remarks:
• Corresponding chapters from the textbook: I - VI.
• The Curl Theorem and the Divergence Theorem will be evaluated in the Final Exam.