Course outline for MATH 2004, Section C

School of Mathematics and Statistics
Carleton University

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1 Topics to be covered

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.

2 Textbooks and notes

- ABC's of Calculus Vol.2, 2018 edition.(will be available in HP4380 every day on/after Sep 04 until quantities last, email angelo.mingarelli@carleton.ca)
- The notes you take during the lectures are always good sources.
- I, sometimes, post my notes on CU-Learn, but not right after the lecture.
- More textbooks and notes will be announced (and/or uploaded to CU-Learn) for extra help if needed.

3 Assignments and tests

- There will be 6 50-min tests during the tutorial sessions on Sep 17, Oct 1, 15, 29, Nov 12, 26. (it is basically every other week)
- There will be homework assigned from the textbook but NOT collected (look under "Suggested Homework problems" in the text). Solutions will be on CU-Learn.

4 Method of evaluation

1. The following sum out of 100
   - Tutorial attendance: 10%
   - Best 4 tests of 6 tests during tutorial: ..... 4 x 10 = 40%
   - Final: 50%
2. Final examination grade out of 100

Final grade = max {1, 2}

5 Lecture, TA, and office hours & locations

- Lecture. Time: Tuesdays & Thursdays 16:05 - 17:25, Starts Sep 05; Location: Unicentre 231
- Tutorial. Time Tuesdays 17:35 - 18:25, Starts Sep 17; Locations: Varies depending on sections, TBA
- Office hours. Time: TBA; Location: HP 4220

6 Detailed tentative class outline. **(The official course outline is here)**

Week	Sections	Topics
1	1.1-1.10 & 2.1-2.6	Vectors, Dot Product, Cross Product, Triple Product, Direction Cosines Lines and Planes, Rotations of axes, translations in the plane
2	2.7-2.10	Planar curves and their parametric representations Conic sections Sketching parametric curves. Applications to Area and Length of curves;
3	2.11-2.14 & 3.1-3.3	Polar coordinates, Curve sketching in polar coordinates Applications Limits; Continuity; Partial derivatives and higher order partial derivatives
4	3.5-3.5.1 & 3.6	Directional derivatives; Gradients The Chain Rule Implicit differentiation, Tangent planes and normal lines
5	3.7 & 4.1-4.3	Conservative fields, Divergence Curl. Line Integrals
6	5.1-5.2.2 & 5.3	Double Integral, Iterated integrals, Applications to Volume under a surface Volume of solids of revolution, Centroids, and Area of a surface
7	5.4-5.5.1	Change of variables in double integrals Three dimensional plots
8	No classes	Hoooooray
9	5.6 & 6.1-6.2	Parametric equations of a surface Surface integrals and some applications
10	6.3-6.4	Green's Theorem Stokes' Theorem
11	6.5-6.6	Triple integrals Change of variables in triple integrals
12	6.7-6.8	Describing solids in cylindrical and spherical coordinates The Divergence Theorem
13	7.2-7.3	Maxima and minima of functions of two variables Lagrange multipliers.
14	Review	

NOTES:

- Any calculator is permitted during tests or final exam. No wireless devices allowed!
- Students with disabilities requiring academic accommodations in this course are encouraged to contact the Paul Menton Center (500 University Center) to complete the necessary forms. After registering with the Center, make an appointment to meet with me in order to discuss your needs at least two weeks before the first in-class test or CUTV midterm exam. This will allow for sufficient time to process your request. Please note the following deadlines for submitting completed forms to the PMC for formally scheduled exam accommodations: TBA for fall and fall/winter term courses, and TBA for winter term courses."