

Course outline for MATH 2004, Section B  
School of Mathematics and Statistics  
Carleton University

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## 1 Textbook

ABC's of Calculus Vol. 2, 2019 edition, available at the Carleton University bookstore in either digital or soft-cover format. Ask the Bookstore for pricing. The digital versions will also be available at [www.mingarelli.com](http://www.mingarelli.com) effective January 9, 2021 for 50 far less than the bookstore is charging

## 2 Lecture, TA, and office hours

- Lectures are scheduled for Mondays & Wednesdays 14:35 - 15:55, Starting Jan 11. Lectures will be recorded and uploaded and Wednesday lectures will be live using Zoom.
- Tutorials are scheduled for Wednesdays 16:35 - 17:25, Starting Jan 27. Tutorial sessions will be live through culearn, using BBB. (It may change depending on preference of TAs)
- Office hours of TAs and myself will be announced later but they will be using BBB. (It may change depending on preference of TAs)

## 3 Assignments and tests

Format of tests and assignments will be announced later

## 4 Method of evaluation

- Tutorial attendance expected but not graded.
- 2 tests of 50 minutes during tutorials, Feb 24 & Mar 31:.....2 x 15=30%
- 3 assignments due Jan 30, Feb 27 & Mar 27 23:59: .....3 x 15 = 45%
- Final: .....25%

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	3.8 & 4.1-4.3	Conservative fields, Divergence Curl. Line Integrals
6	No classes	Hooooray
7	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
8	5.4-5.5	Change of variables in double integrals Three dimensional plots
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.

### NOTES:

- There will be no best of final/term combo marks this year as in past years, just the one mark.
- Students with disabilities requiring academic accommodations in this course are encouraged to contact the [Paul Menton Center](#) to complete the necessary forms.
- Students with religious or pregnancy needs are welcome to contact me directly.