

MATH2004E/BIT2005
Multivariable Calculus for Engineering or Physics (Multivariable Calculus for photonics)
Winter 2015

Instructor: Mathieu Lemire
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Lectures: Mondays and Wednesdays from 10:05 to 11:25 at room 302 Azrieli Theatre. The first class is on January 5th.

Tutorials: On Mondays from 8:35 to 9:25 (and one section from 11:35 to 12:25). Tutorials will consist of a problem solving session and you are highly encouraged to attend. Attending tutorials will not give you any bonus on your final mark. For your tutorials or tests, make sure to go to the section that you registered into. The following table indicate the location of each tutorial section:

Section	Room	TA's name	TA's connect email
E1 (from 11:35 to 12:25)	516 Southam Hall	Marianna Lytova	MariannaLytova@cmail.carleton.ca
E2 (from 8:35 to 9:25)	318 Southam Hall	Colin Sutherland	ConorSutherland@cmail.carleton.ca
E3 (from 8:35 to 9:25)	515 Southam Hall	Melissa Huggan	MelissaHuggan@cmail.carleton.ca

Office hours: Mondays from 12:00 to 13:00 and 17:00 to 18:00 and Wednesdays from 12:00 to 13:00 and 17:00 to 18:00. Also possible at other times by appointment. All my office hours are held in my office (5250HP).

Textbook: Multivariable Calculus, by Soo T. Tan, Brooks/Cole 2010.

Prerequisites: One of MATH1005 or MATH2007 and one of MATH1104 or MATH1107. Also possible to take the course if you obtain the permission of the school.

Evaluation: Your final grade will be calculated as:

Term Mark 60% (best 3 out of 5 tests) + Final Examination 40%

OR

100% final exam (assuming that you did at least 3 of the 5 tests)

Whichever of the two options gives you the highest mark will be your final mark.

Term Mark: There will be five 50-minute tests administered during tutorials on **January 19th, February 2nd, February 23rd, March 9th** and **March 23rd**. **No make up, early or delayed tests will be given.** Students are allowed to miss two tests without penalty as we only count the best 3 out of 5 tests. If you miss one or two tests you do not need to show me any medical note. It is **only** in the rare case when a student misses more than two tests due to illness (supported by a doctor's note), jury duty or extreme personal misfortune, that the term mark may be pro-rated. Students who wrote a test in a tutorial section in which he/she is not registered in will automatically receive 0 on that test.

Final exam: The final exam is a cumulative three hours closed book exam scheduled by the university. The exam period runs from April 11 to April 23rd (including Saturdays). It is student's responsibility to be available at the time of the examination. In particular, no travel plans should be made until the examination schedule is published. It is the students responsibility to find out the correct date and time of the exam and the room where it takes place. Students who missed the final examination may be eligible for a deferred exam provided that they present a doctor note or another supporting document to the Registrars Office. It is the Registrars Office and not the instructor which take decision of granting a deferred examination. After the deferred exam is written, all questions should be directed to the School of Mathematics and Statistics

and not the Instructor. After the exam is written, students may see their final examination papers. This examination review is for educational purpose only and NOT for negotiation of the grade.

Calculators: Only non-programmable and non-graphical calculators are allowed for tests and the final exam. I reserve the right to confiscate any calculator during a test or a final exam.

Practice problems lists Practice problems lists will regularly be posted on cuLearn. These problems are not to be handed in and will not be graded. However, in order to succeed in the course, it is absolutely essential to practice on a regular basis.

Content: Plane curves and polar coordinates [parametric equations, areas, arc lengths, ...] (chapter 10). Vectors and the geometry of space [equations of lines and planes, surfaces, cylindrical and spherical coordinates, ...] (chapter 11). Functions of several variables [partial derivatives, gradients, Lagrange multipliers, ...] (chapter 13). Multiple integrals [double and triple integrals, surface area, ...] (chapter 14). Vector analysis [fields, divergence, curl, line integrals, Green's theorem, Gauss' theorem, Stokes' theorem, ...] (chapter 15).

Sections in the textbook: 10.2 - 10.5; 11.1 - 11.7; 13.2 - 13.9; 14.1 - 14.8; 15.1 - 15.9.

MATH Tutorial centre The MATH tutorial centre is a location dedicated to helping undergraduate students with their mathematics courses. You are highly encouraged to use that service if you are interested. You can find more details on the following link: <http://www.carleton.ca/math/math-tutorial-centre/>

Withdrawal: The last day for academic withdrawal is **April 8**.

Students with Disabilities: Students with disabilities who require academic accommodations in this course are encouraged to contact the Paul Menton Centre for Students with Disabilities to complete the necessary Letters of Accommodation. After registering with the PMC, make an appointment to meet with me and discuss your needs in order to make the necessary arrangements as early in the term as possible. Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam (if applicable).

Notes:

1. The best three of the five tests will be used to determine the test component of your final mark. Medical notes will only be accepted in the rare case when a student is missing a third test.
2. Problem lists, comments, solutions and other information will regularly be posted on cuLearn. It is your responsibility to look on cuLearn to obtain these information.
3. I will not necessarily follow the same order of topics as in the textbook. The best way to know where exactly we are in class is to come to class or to follow the order of topics found in the practice problems lists.
4. Coming to class is very important and I strongly encourage you to do so.
5. It is each student's responsibility to collect the marked tests from the TA. The test papers are normally distributed in the tutorial session following the date of the test.
6. **Pregnancy accommodation:** write to me 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 the Equity Services webpage.
7. **Religious obligation:** write to me 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 the Equity Services webpage.