Department of Mathematics & Statistics
Concordia University

MAST 218 (MATH 264)
Multivariate Calculus I
Winter 2017

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Class Schedule: Wednesday, 18:00-20:15 in MB S2.210, SGW Campus.

Office Hours: TBA

Prerequisites: Math 205 or an equivalent Calculus II course.

Text: *Multivariable Calculus*, 8th Edition by J. Stewart, Cengage Learning, 2015.

Assignments: Assignments are ***very important*** as they indicate the level of difficulty of the problems that the students are expected to solve. Therefore, every effort should be made to **do and understand the assignment problems.** The assignments will be corrected and graded.

Web Resources: Many excellent animated illustrations to the text of the book are collected at the site **www.stewartcalculus.com**, see TEC (Tools for Enriching Calculus) for the edition 6. Regular use of this resource is much recommended.

Use of Computer Algebra System: It is optional but much recommended to install and use Maple or Mathematica These computer tools can be used to verify and illustrate any analytical results you get while doing your assignment problems.

Calculators: Electronic communication devices (including cell phones) are not allowed in the examination rooms. Only "Faculty Approved Calculators" **SHARP EL-531** or **CASIO FX-300MS**) are allowed in the examination rooms during the midterm exam and the final exam.

Test: Midterm exam covering the first six weeks will be given in week 8.

Final Grade: The highest of the following:

- 90% final exam, 10% assignments.
- 30% midterm, 10% assignments, and 60% final exam.

Week	Sections	Topics
1	10.1, 10.2	Parametric equations of curves.
2	10.3, 10.4, 10.5	Areas and lengths in polar coordinates. Conic sections.
3	10.6, 11.10, 12.1	Conic sections in polar coordinates. Taylor series: review. Three-dimensional coordinate systems.
4	12.2, 12.3, 12.4	Vectors. Dot product. Cross product.
5	12.5, 12.6	Equations of lines and planes. Cylinders and quadric surfaces.
6	13.1, 13.2	Vector functions and space curves. Derivatives and integrals of vector functions.
7	13.3, 13.4	Arc length and curvature of space curve. Velocity and acceleration.
8	14.1, 14.2	Functions of several variables, their limits and continuity.
9	14.3, 14.4	Partial derivatives. Tangent planes and linear approximation.
10	14.5, 14.6	Chain rule. Directional derivatives and gradient vector.
11	14.7	Maximum and minimum values.
12	14.8	Lagrange multipliers.
13		**Review**