Department of Mathematics & Statistics
Concordia University

MAST 218
Multivariable Calculus I
Fall 2019

Instructor*: _____

Office/Tel No.: _____

Office Hours: _____

*Students should get the above information from their instructor during class time. The instructor is the person to contact should there be any questions about the course.

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

Prerequisites: Math 204 and 205 or equivalent.

WeBWorK: Every student will be given access to an online system called **WeBWorK**. Students will use this system to do online assignments (see Assignments below).

Assignments: Assignments are *very important* as they indicate the level of difficulty of the problems that students are expected to solve and understand. Therefore,   every effort should be made to do and understand them. Students are expected to submit assignments online using **WeBWorK**. Late assignments will not be accepted. Assignments contribute 10% to the final grade. Students are also strongly advised to work on the suggested problems in the table on page 2.

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 recommended.

Use of Computer Algebra System: It is optional but strongly recommended to install and use Maple. The software can be used to verify and illustrate analytical results you get while doing your assignment problems.

Calculators: Only calculators approved by the Department (with a sticker attached as proof of approval) are permitted in the class test and final examination. The preferred calculators are the **SHARP EL-531** and the **CASIO FX-300MS,** available at the Concordia Bookstore.
For the list of approved and non-approved calculators see:
http://www.concordia.ca/artsci/math-stats/services.html#calculators

Test: One midterm test covering the first six weeks will be given in week 8.
There is no make-up for a missed test.
The final exam is three hours long and covers the entire course.

Final Grade: The highest of the following:
- 90% final exam, 10% assignments.
- 30% midterm, 10% assignments, and 60% final exam.

Week	Sections	Topics	Suggested problems
1	10.1	Parametric equations of curves	**10.1: 8, 16, 24**
	10.2	Calculus with parametric curves	**10.2: 6, 16, 32, 42**
2	10.3	Polar coordinates	**10.3: 20, 28, 32;**
	10.4	Areas and lengths in polar coordinates	**10.4: 12, 26, 30, 48.**
	10.5	Conic sections	**10.5: 8, 30, 44.**
3	10.6	Conic sections in polar coordinates.	**10.6: 10, 12 ,14**
	12.1	Three-dimensional coordinate systems	**12.1: 20, 22, 38**
4	12.2	Vectors	**12.2: 26**
	12.3	Dot product	**12.3: 22, 24, 42, 56**
	12.4	Cross product	**12.4: 4, 18, 44**
5	12.5	Equations of lines and planes	**12.5: 10, 20, 22, 34, 38, 74**
	12.6	Cylinders and quadric surfaces	**12.6: 14, 18**
6	13.1	Vector functions and space curves	**13.1: 32, 42, 50**
	13.2	Derivatives and integrals of vector functions	**13.2: 24, 26, 36**
7	13.3	Arc length and curvature of space curve	**13.3: 4, 6, 24, 30;**
	13.4	Velocity and acceleration	**13.4: 18 (a), 23, 24**

8	14.1	Functions of several variables	**14.1: 18, 30, 48**
	14.2	Limits and continuity	**14.2: 12, 14, 38**
9	14.3	Partial derivatives	**14.3: 50, 76 (d) (e) (f)**
	14.4	Tangent planes and linear approximation	**14.4: 6, 16, 26.**
10	14.5	Chain rule	**14.5: 8, 12, 34, 46**
	14.6	Directional derivatives and gradient vector	**14.6: 6, 32, 46.**
11	14.7	Maximum and minimum values	**14.7: 20, 32, 36, 52.**
12	14.8	Lagrange multipliers	**14.8: 1, 4, 6, 8, 16, 18, 32, 42**
13		**Overview**	

Academic Integrity and the Academic Code of Conduct

This course is governed by Concordia University's policies on Academic Integrity and the Academic Code of Conduct as set forth in the Undergraduate Calendar and the Graduate Calendar. Students are expected to familiarize themselves with these policies and conduct themselves accordingly. "Concordia University has several resources available to students to better understand and uphold academic integrity. Concordia's website on academic integrity can be found at the following address, which also includes links to each Faculty and the School of Graduate Studies: concordia.ca/students/academic-integrity." *[Undergraduate Calendar, Sec 17.10.2]*