**Department of Mathematics & Statistics**
**Concordia University**

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**MAST 219 (MATH 265)**
Multivariate Calculus II
***Fall 2017***

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| **Instructor:** | Dr. E. Duma, Office: LB 901.16 (SGW), Phone: (514) 848-2424, Ext. 3064 Email: ewa.duma@concordia.ca |
| **Office hours:** | To be announced. |
| **Prerequisites:** | MATH 264/MAST 218. If your grade in MATH 264/MAST 218 is less or equal D+, it is recommended to retake the prerequisite before taking this course. |
| **Text:** | *Multivariable Calculus*, 8th Edition by J. Stewart, (Brooks/Cole, Belmont, CA, USA). |
| **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 *independently*. The assignments will be corrected and graded. These grades together are worth a maximum of 10% of the final grade. Solutions to assignments will be posted on *Moodle* after they have been 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 8E. Regular use of this resource is much recommended. |
| **Use of Computer Algebra System:** | It is optional but much recommended to install and use Maple. The computer tools can be used to verify and illustrate any 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.

**Tests:**   One class midterm test covering the first six weeks will be given in week 7.
**There is no make up for a missed test.**
The final examination will be three hours long. It will cover material from the entire course.

**Final Grade:**   The higher of the following:
• 90% final exam, 10% assignments, or
• 30% midterm, 10% assignments, and 60% final.

If the grading scheme for this course includes graded assignments, a reasonable and representative subset of each assignment may be graded. Students will not be told in advance which subset of the assigned problems will be marked and should therefore attempt all assigned problems.

**Plagiarism:**   Cases of plagiarism (including the assignments, the midterm test and the final exam) will be treated according to the University policy.

| Week | Sections | Topics |
|---|---|---|
| 1 | 15.1 | Double and iterated integrals; Fubini's Theorem |
| 2 | 15.2; 15.3 | Double integrals over general regions; Double integrals in polar coordinates |
| 3 | 15.3; 15.4 | Double integrals in polar coordinates (part 2); Applications of double integrals |
| 4 | 15.5; 15.6 | Surface area Triple Integrals |
| 5 | 15.7; 15.8 | Triple integrals in cylindrical and spherical coordinates |
| 6 | 15.9 | Change of variables in multiple integrals Review CHAPTER 15 |
| 7 | 16.1; 16.2 | Mid-term exam (CHAPTER 15); Vector fields. Line integrals |
| 8 | 16.2; 16.3 | Line integrals (continuation) Fundamental theorem for line integrals |

| 9  | 16.4; 16.5 | Green's Theorem;<br>Curl and Divergence |
|----|------------|------------------------------------------|
| 10 | 16.6       | Parametric surfaces                      |
| 11 | 16.7       | Surface integrals                        |
| 12 | 16.8; 16.9 | Stokes' Theorem;<br>Divergence Theorem   |
| 13 |            | Review                                   |

- Assignments for each week must be handed in at the beginning of the next week first class. **Late assignments will not be accepted.**

**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]*