

Department of Mathematics & Statistics

Concordia University

MAST 219
Multivariate Calculus II
Winter 2021

- Preface:** Due to exceptional circumstances, this course will be taught and all assessments will be done completely ONLINE. The exams will be held online through the Moodle platform.
- Instructor:** Dr. E. Mazzeo
Email: elio.mazzeo@concordia.ca
- Office Hours:** TBA
- Prerequisites:** MATH 264/MAST 218. If your grade in MATH 264/MAST 218 is less than or equal to D+, it is recommended that you retake the prerequisite before taking this course.
- Text:** *Multivariable Calculus*, 8th Edition by J. Stewart, (Cengage Learning, © 2016).
The textbook will be available at:
<https://www.bkstr.com/concordiastore/home>
Note: Students should order textbooks as early as possible, especially for printed versions in case books are backordered or there are any shipping delays.
- WeBWorkK:** Every student will be given access to an online system called **WeBWorkK**. 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 **WeBWorkK**. 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. The assignments will be submitted online using **WeBWorkK**.
- 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 highly recommended.
- Use of Computer System:** It is optional but strongly recommended to install and use Maple. The **Algebra** software can be used to verify and illustrate analytical results you get while doing your assignment problems.

Calculators: Only calculators approved by the Department are permitted in the class test and final examination. The preferred calculators are the **SHARP EL-531** and the **CASIO FX-300MS**. A list of approved calculators can be found at <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 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**. (See below)

| Week | Sections | Topics | Suggested Problems |
|------|--------------|--|--|
| 1 | 15.1 | Double integrals over rectangles Fubini's Theorem | p.1039: 4,10,12, 22, 24, 32 ,34 38,39,42,43 |
| 2 | 15.2 15.3 | Double integrals over general regions Double integrals in polar coordinates | p.1048:10,16,18,20,28,30,54,56 p.1054: 6, 8,11,14 |
| 3 | 15.3 15.4 | Double integrals in polar coordinates (part 2) Applications of double integrals | p.1054: 17, 20, 26, 29, 36,39 p.1065: 6, 8, 16,24,28,30 |
| 4 | 15.5 15.6 | Surface area Triple Integrals | p.1068: 4, 6, 8,14,23 p.1077: 2, 6, 12, 16, 20, 22 |
| 5 | 15.7 15.8 | Triple integrals in cylindrical and spherical coordinates | p.1083: 8, 19, 20, 24 p.1090: 8, 10, 22, 30, 36, 42 |
| 6 | 15.9 | Change of variables in multiple integrals Review: Chapter 15 | p.1100: 15, 16,18, 23, 25 |
| 7 | 16.1 16.2 | Vector fields. Line integrals Mid-term exam (Chapter 15) | p.1113: 4, 6, 23,24,33 |
| 8 | 16.2 16.3 | Line integrals (continuation) Fundamental theorem for line integrals | p.1124: 8, 14, 22, 36,39, 40 p.1134: 2, 8, 14, 17, 24 |
| 9 | 16.4 16.5 | Green's Theorem; Curl and Divergence | p.1142: 8, 12, 18, 22, 24 p.1149: 6, 10, 12, 16, 21,22,25 |
| 10 | 16.6 | Parametric surfaces | p.1160: 4, 6, 14, 20, 23, 26, 33, 35,40, 42, 49 |
| 11 | 16.7 | Surface integrals | p.1172: 4, 6, 10, 18, 22, 24, 26, 31,40,49 |
| 12 | 16.8 16.9 | Stokes' Theorem; Divergence Theorem | p.1179: 2, 5, 7, 9,14,16,19 p.1185: 4,10,12 ,18,19,24 |
| 13 | | Review | |

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*]

Behaviour

All individuals participating in courses are expected to be professional and constructive throughout the course, including in their communications.

Concordia students are subject to the [Code of Rights and Responsibilities](#) which applies both when students are physically and virtually engaged in any University activity, including classes, seminars, meetings, etc. Students engaged in University activities must respect this Code when engaging with any members of the Concordia community, including faculty, staff, and students, whether such interactions are verbal or in writing, face to face or online/virtual. Failing to comply with the Code may result in charges and sanctions, as outlined in the Code.

Intellectual Property

Content belonging to instructors shared in online courses, including, but not limited to, online lectures, course notes, and video recordings of classes remain the intellectual property of the faculty member. It may not be distributed, published or broadcast, in whole or in part, without the express permission of the faculty member. Students are also forbidden to use their own means of recording any elements of an online class or lecture without express permission of the instructor. Any unauthorized sharing of course content may constitute a breach of the [Academic Code of Conduct](#) and/or the [Code of Rights and Responsibilities](#). As specified in the [Policy on Intellectual Property](#), the University does not claim any ownership or interest in any student IP. All university members retain copyright over their work.

Extraordinary circumstances

In the event of extraordinary circumstances and pursuant to the [Academic Regulations](#) the University may modify the delivery, content, structure, forum, location and/or evaluation scheme. In the event of such extraordinary circumstances, students will be informed of the change.