

Department of Mathematics & Statistics

Concordia University

MATH 265
Advanced Calculus II
Winter 2022

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.

Office Hours: The instructor will announce in class the hours when help will be available to discuss and clarify the material of the course. Note that, if a student misses a lecture, the instructor will not use office hours to make up for the student's missed class. Office hours are to clarify and better assimilate the material of the course that the student tried first to understand from the lecture or textbook in an individual study.

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.

Textbook: *Multivariable Calculus*, 9th Edition by J. Stewart, (Cengage Learning, © 2020) ISBN: 9780357042922 (hardcover) and 9780357746943 (e-book) available at the university's bookstore <https://www.bkstr.com/concordiastore/home>. The 8th edition is not available for purchase, but you may use it for this course if you already have it. The course outline has the weekly sections and suggested problems for both editions (see tables on pages 2-3).

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. The lowest grade assignment will be dropped (this could be an assignment marked as zero for not being submitted due to illness or late enrolment). Students are also strongly advised to work on the suggested problems, and similar ones, in the tables on pages 2-3.

Web Resources: Stewart Calculus offers a number of resources that you may use at the site https://www.stewartcalculus.com/media/11_home.php

Use of Software It is optional but strongly recommended to use software such as Maple, Mathematica or WolframAlpha to verify and illustrate the analytical results you get while solving your assignment problems.

Calculators: If the instructor allows the use of calculators during the course evaluations, note that only calculators approved by the Department will be permitted in the midterm and/or final examination. The preferred calculators are the **SHARP EL-531** and the **CASIO FX-300MS**. A list of approved calculators can be found at <https://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 or 8. The exact date will be announced in class during the first 2-3 weeks. **There is no make up for a missed midterm.** The final examination will cover material from the entire course. **All examinations, midterm and final, will be given online through the Concordia Online Exams (COLE) platform with online proctoring. For more details read the ADDENDUM at the end of this course outline.**

Final Grade: The higher of the following:

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

There is no 100% option for this course.

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.

Scheduling and assignments for the 8th edition (the reading week is not included):

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, 30, 38,39 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, 8, 12, 16, 20, 22
5	15.7 15.8	Triple integrals in cylindrical coordinates Triple integrals in spherical coordinates	p.1083: 8, 16, 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
7-8		Midterm exam (Chapter 15)	
7-8	16.1 16.2	Vector fields. Line integrals Line integrals	p.1113: 4, 6, 23, 24, 33 p.1124: 8, 14, 20, 36, 40
9	16.3 16.4	The fundamental theorem for line integrals Green's Theorem	p.1134: 2, 8, 14, 17, 24 p.1142: 8, 12, 18, 22, 24
10	16.5 16.6	Curl and Divergence Parametric surfaces	p.1149: 6, 10, 12, 16, 21, 22, 25 p.1160: 4, 6, 14, 20, 23, 26
11	16.6 16.7	Parametric surfaces (part 2) Surface integrals	p.1160: 33, 35,40, 42, 49 p.1172: 4, 6, 10, 18, 22, 24, 26, 40, 49
12	16.8 16.9	Stokes' Theorem; Divergence Theorem	p.1179: 2, 5, 7, 9, 14, 16 p.1185: 4, 10, 12 ,18, 19, 24
13		Review for final exam	

Scheduling and assignments for the 9th edition (the reading week is not included):

Week	Sections	Topics	Suggested Problems
1	15.1	Double integrals over rectangles Fubini's Theorem	p.1049: 4, 10, 12, 22, 24, 32, 34, 44, 45, 48, 49
2	15.2 15.3	Double integrals over general regions Double integrals in polar coordinates	p.1059: 14, 20, 24, 26, 36, 38, 64, 66 p.1067: 8, 10, 13, 16
3	15.3 15.4	Double integrals in polar coordinates (part 2) Applications of double integrals	p.1067: 22, 30, 36, 39, 40, 48, 49 p.1078: 8, 10, 18, 26,30, 32
4	15.5 15.6	Surface area Triple Integrals	p.1081: 6, 8, 10, 16, 25 p.1092: 2, 8, 16, 20, 24, 26
5	15.7 15.8	Triple integrals in cylindrical coordinates Triple integrals in spherical coordinates	p.1100: 8, 18, 21, 22, 26 p.1106: 8, 10, 24, 32, 38, 44
6	15.9	Change of variables in multiple integrals Review: Chapter 15	p.1118: 17, 18, 20, 25, 27
7-8		Midterm exam (Chapter 15)	
7-8	16.1 16.2	Vector fields. Line integrals Line integrals	p.1129: 6, 8, 27, 28, 38 p.1141: 8, 16, 22, 38, 42
9	16.3 16.4	The fundamental theorem for line integrals Green's Theorem	p.1151: 2, 8, 20, 23, 30 p.1159: 10, 16, 22,26, 28

10	16.5 16.6	Curl and Divergence Parametric surfaces	p.1168: 6, 10, 14, 18, 23, 24, 27 p.1180: 4, 6, 14, 20, 23, 26
11	16.6 16.7	Parametric surfaces (part 2) Surface integrals	p.1180: 33, 35, 40, 42, 49 p.1192: 4, 6, 10, 18, 22, 24, 26, 40, 49
12	16.8 16.9	Stokes' Theorem Divergence Theorem	p.1199: 2, 5, 7, 9, 18, 20 p.1206: 4, 12, 15, 20, 21, 26
13		Review for final exam	

Final Note: Active participation in classes and continuous work on the course material throughout the term is important for success in this course. Read the course material, practice as many problems as you can, and do the assignments on your own. By assuming a responsible behavior (see also the **Academic Integrity and the Academic Code of Conduct** below), you will also achieve a better understanding of the material.

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]

Use of Zoom

Note: Zoom is included as an institutionally-approved technology. This means we have been assured of the privacy protections needed to use freely within the classroom)

Zoom will be used in this course to facilitate learning at a distance. It may be used to record some or all of the lectures and/or other activities in this course. If you wish to ensure that your image is not recorded, speak to your instructor as soon as possible.

Also, please note that you may not share recordings of your classes and that the instructor will only share class recordings for the purpose of course delivery and development. Any other sharing may be in violation of the law and applicable University policies, and may be subject to penalties.

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 of 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.

Addendum: An online midterm and a final online exam will be provided through the Concordia Online Exams (COLE) platform with online proctoring (also known as auto-proctoring). More information about the COLE system may be found at the [COLE website](#). Additionally, an **online proctoring tool called Proctorio** will be used to provide proctoring during the exam.

Please note the following with respect to online proctored exams:

- That the exam will take place during the exam period at the designated date and time set by the professor (midterm) or the Exams office (final). All exam times will be set to Eastern Standard/Daylight Time.
- That your image, voice and screen activity will be recorded throughout the duration of the exam.
- That you must show your Concordia University Identification card to validate your identity. Alternative government-issued photo identification will be accepted, though it is not recommended. Only identification in English or French will be accepted.
- That any recording made will only be viewed by authorized university personnel (no external entity has authorization to review the recording).
- That you will be responsible for ensuring appropriate, properly functioning technology (webcam, a microphone, appropriate browser and an ability to download any necessary software, as well as a reliable internet connection with a minimum of a 3G connection).
- That you are very **strongly recommended** to enter the virtual test site found at the [COLE website](#) and become familiar with the software that will be used for your exam before starting the exam.
- That you will need a quiet place within which to take the exam. Earplugs or noise-cancelling headphones that are not connected to a device may also be used to allow you to focus for the duration of the exam.

Students who are unable to write an exam because they are unable to meet the above conditions and requirements are advised that they will need to drop the course. More information can be provided on the next offering of this course by consulting the Department. Students are advised that the drop deadline (DNE) for this course is **January 19, 2022**.

Students who require additional accommodations for their exams due to a documented disability should contact the Access Centre for Students with Disabilities as soon as possible (acsdinfo@concordia.ca).

If you face issues during the exam, you should inform your professor of those issues immediately. Please note that there are in-exam supports you should spend time getting to know. [Visit the COLE website](#) for more information.