UNIVERSITY of GUELPH

MATH*1210 Course Outline (Summer 2024)

Calculus II

Instructor: ▮▮▮▮▮▮

Office: ▮▮▮▮▮

Email ▮▮▮▮▮▮▮▮▮

Office Hours: ▮▮▮▮▮▮▮▮▮▮▮▮ (You are welcome to email me if you'd like to arrange alternative meeting times.)

Section 01 Class: ▮▮▮▮▮▮▮▮▮▮▮▮▮

Lab: ▮▮▮▮▮▮▮▮▮▮▮

Prerequisites: MATH*1080 or MATH*1200

Restrictions: IPS*1500, MATH*1090, MATH*2080

Credit Weight: 0.5

Academic Department: Mathematics & Statistics

Course Description: Building upon the foundation laid in MATH*1200, this course is designed with a theoretical approach, catering mainly to students who anticipate further exploration in fields such as mathematics, physics, chemistry, engineering, and computer science. The curriculum encompasses a variety of topics including inverse and hyperbolic functions, inverse trigonometric functions, indeterminate forms, L'Hopital's rule, and integration techniques. It also delves into parametric equations, polar coordinates, and the Taylor and Maclaurin series. The course further explores the functions of multiple variables and partial derivatives. Time permitting, an introductory overview of multiple integrations will also be provided.

➢ **CourseLink:** Course information and material (such as assignments, blank PDF slides, etc.) will be available on CourseLink. Students are responsible for checking the website regularly for updated information and announcements.

➢ **Textbook:** Calculus Volume 2 by Gilbert Strang and Edwin Herman. This textbook is completely free and will be posted to the Courselink site for this course.

➢ **Course learning outcomes:**

- Grasp the concept of inverse functions, including inverse trigonometric functions.
- Learn to define and plot hyperbolic functions along with their inverses.
- Recognize indeterminate forms and apply L'Hopital's rule effectively for limit evaluation.
- Employ various advanced integration techniques to compute antiderivatives and use integral formulas to calculate the arclength of a curve.
- Engage with parametric curves and polar coordinates.
- Formulate the Taylor and MacLaurin series for a diverse set of functions.
- Broaden understanding to encompass multivariable functions, inclusive of partial derivatives.

➢ **Topics:**

- Inverse functions

- Inverse trigonometric functions

- Hyperbolic functions

- Techniques of integration

- Parametric equations

- Polar coordinates

- Taylor and Maclaurin series

- Functions of two or more variables

- Partial derivatives

➢ **Course Notes:** To aid in note-taking, blank PDF slides will be created and uploaded to Courselink prior to each lecture.

➢ **Lab Section:** In the 30-minute lab section following each lecture, the session begins with a 5-minute recap of the lecture and an introduction to the lab topic. This is followed by a 10-minute demonstration where a problem is solved step-by-step, illustrating the process. The next 10 minutes are dedicated to guided practice, where students attempt problems while the instructor provides assistance and answers questions. The session concludes with a 5-minute wrap-up discussing the solutions, and highlighting common errors. While attendance is not mandatory, it is highly recommended to enhance understanding and performance in the course. The questions for the lab along with their respective solutions will be made available on CourseLink after the lab section.

➢ **Email communication:** I try to respond to all email messages. Please ensure your messages are concise, and clearly state your query, along with your name, and student ID. You can anticipate a response to your emails within 48 hours from Monday to Friday.

➢ **Attendance Policy:** While formal attendance is not mandatory, regular class participation is highly recommended. Following each class, I will upload the recording to the CourseLink. This will allow those who couldn't attend the class to catch up at their convenience. However, I strongly recommend that you engage with each session's content on the same day it's taught to prevent accumulating study materials for the exams.

➢ **Exam policies:** Exams are to be taken without the aid of any resources. This means no notes or external materials are allowed. Please do not bring your scratch paper. The use of laptop computers or cell phones is strictly prohibited during exams. However, you are permitted to use basic scientific calculators (graphing calculators are not allowed). The Final Exam is comprehensive, meaning it encompasses all the course material.

➢ **Homework Guidelines:**

Over the semester, there will be **3 assignments**, each contributing **4% towards your final grade**. These assignments should be completed and submitted by the end of the following dates: June 4, July 4, and August 8. You will be able to access each assignment on CourseLink one week before its due date.

- ➢ **Test and Exam Schedule:**

  - ▪ Midterm Test 1: Scheduled for ███████████████████ ████████████████ .
  - ▪ Midterm Test 2: ████████████████████████ ████████████████ .
  - ▪ Final Exam (covers all course material): Scheduled for Monday, August 12, from 7 pm. to 9 pm.

- ➢ **Grade Distribution:**

	Scheme #1	Scheme #2	Scheme #3
3 Assignments	12%	12%	12%
Midterm #1	24%	14%	24%
Midterm #2	24%	24%	14%
Final Exam	40%	50%	50%

Your final grade will be determined using the best method from those mentioned above.

- ➢ **Academic Consideration Policy: There will be no provision for make-up midterm exams.** If you are unable to attend a midterm exam due to a serious personal illness, a death in your immediate family, or other personal reasons, please email me explaining the circumstances. If your request is approved, **the weight of the missed material will be shifted to the final exam.** Please note that once an exam has been taken, no accommodations will be made, as per the general procedure of the University of Guelph. For more information on Academic Considerations, visit the

  https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml.

- Exams will not be rescheduled for individual students under any circumstances, except possibly for exams taken in SAS.
- Athletes who have competitions away from the University of Guelph during a midterm exam can have their coach proctor their exam. Please have your coach contact me to make arrangements.
- If you miss the final exam due to severe circumstances such as a serious personal illness or a death in your immediate family, you will be given an "Incomplete" grade. Depending on the situation, you may be allowed to take a make-up exam to receive a letter grade. If you miss the final exam, please inform me via email.

➢ **Academic Accommodation of Religious Obligations:** If your religious commitments prevent you from fulfilling a course requirement, please inform me within the first two weeks of class. For additional details, refer to the academic calendar:

https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-accomrelig.shtml.

➢ **Drop Date:** Students can drop courses without academic penalty until the final day of classes. Undergraduate Calendar - Course Drop Information:

https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml

➢ Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to make a booking at least 10 business days in advance, and no later than the first business day in November, March or July as appropriate for the semester. Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time.

More information: www.uoguelph.ca/sas.

➢ Copies of Out-Of-Class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

➢ Health and Wellbeing

The University of Guelph provides a wide range of health and wellbeing services at the Vaccarino Centre for Student Wellness. If you are concerned about your mental health and not sure where to start, connect with a Student Wellness Navigator who can help develop a

plan to manage and support your mental health or check out our mental wellbeing resources. The Student Wellness team are here to help and welcome the opportunity to connect with you.

➢ **Illness**

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

➢ **Resources**

The Academic Calendars are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.