MATH 1071

Calculus for Business and Economics

University of Connecticut

Winter 2023: Online

I General Information

Contact Information

Instructors: David McArdle and Anthony Rizzie

Email: DMcArdle@uconn.edu, Anthony.Rizzie@uconn.edu

Office Hours: Held online (Times TBA)

Communication with Students

Announcements and important course information will be sent out via official UConn email or through HuskyCT (UConn's learning management system). It is the student's responsibility to check for messages and announcements daily. This is especially important for transfer students (please check your UConn email account).

Students should communicate with the instructor via email or via Campuswire Discussion Board (a link will be provided at the start of the semester on HuskyCT). All content related questions should be posted to the discussion board. You can post public questions about content on CampusWire and I will respond so that everyone can benefit from the Q&A.

II Course Description & Goals

This course is an introduction to calculus and applications designed for students majoring in business, economics, or the life and social sciences. We will cover essential concepts of differential and integral calculus. After completing this course, you will be able to:

- Use mathematical models to represent various business and economics related functions, including cost, revenue, profit, and demand.
- Understand and work with exponential and logarithmic expressions, especially as related to interest and other exponential growth problems.

- Understand the idea of a limit and limits at infinity.
- Understand the derivative as the instantaneous rate of change and also as the slope of the tangent line to a curve.
- Evaluate the derivative of functions using standard derivative rules
- Understand elasticity of demand
- Use the first and second derivatives of a function to understand the overall shape of a function and draw its graph
- Setup and solve optimization and related rates problems in various contexts, using derivatives.
- Evaluate both indefinite and definite integrals, using basic antiderivative rules, including substitution. This includes developing an understanding of the Fundamental Theorem of Calculus.
- Use integrals/antiderivatives to solve problems. Examples include finding cost from marginal cost, net change from a rate of change, or the area under or between curves.

III Course Materials

Textbook and HW Access

There is no required textbook for this course and online HW can be accessed for free through HuskyCT.

Optionally, if you would like to official course text, you can purchase the textbook *Calculus, Applications and Technology* (3rd edition) by Edmond C. Tomastik. Course lecture videos will directly correlate with this textbook.

All students will also have access to an online free textbook *Openstax Calculus: Volume 1* as an additional resource and to access practice problems.

Calculators

Graphing calculators: TI 82, 83, 84, 84 plus, 85 or 86 may be used. Models TI-89 and above (including TI-Nspire) are not permitted on the exams or quizzes

IV Course Topics & Schedule

The course is divided into 2 Modules. Below is the list of topics for each module as well as the schedule for the course. Note that textbook sections are mapped to *Calculus, Applications and Technology* (3rd Edition) by Edmond C. Tomastik.

Module 1: Functions, Limits, and Intro to Derivatives

Dates: December 27th → January 4th

Sections covered: Algebra Review, 1.1-1.5, 3.1-3.3 and 4.1-4.5.

Homework DUE: Wednesday, January 4th by 11:59PM

Midterm Exam: Wednesday, January 4th.

Module 2: Applications of Derivatives and an Intro to Integration

Dates: January 5th → January 13th

Sections covered: 5.1-5.6. 6.1-6.2, 6.4-6.6.

Homework DUE: Friday, January 13th by 11:59PM

Final Exam: Friday, January 13th **CUMULATIVE

NOTE: Below is a daily schedule for the course including which sections should be covered each day. The schedule is for students who want to spend some time each day working on the course, with weekends off.

MATH 1071 Winter 2023 Intersession						
SUNDAY	**MONDAY**	**TUESDAY**	**WEDNESDAY**	**THURSDAY**	**FRIDAY**	**SATURDAY**
	Dec 26	**27** **Content:** Ch A, 1.1, 1.2	**28** **Content:** Ch 1.3, 1.4, 1.5	**29** **Content:** Ch 3.1, 3.2, 3.3	**30** **Content:** Ch 4.1, 4.2	**31**
Jan 1	**2** **Content:** Ch 4.3, 4.4, 4.5	**3** **REVIEW**	**4** **MIDTERM EXAM** **HW Due:** Module 1	**5** **Content:** Ch 5.1, 5.2	**6** **Content:** Ch 5.3, 5.4	**7**
8	**9** **Content:** Ch 5.5, 5.6	**10** **Content:** Ch 6.1, 6.2	**11** **Content:** Ch 6.4, 6.5, 6.6	**12** **REVIEW**	**13** **FINAL EXAM** **HW Due:** Module 2	**14**

V Grading

Final grades in the course will be computed using either of the following two options (whichever leads to a higher course grade):

Graded Component	Option 1	Option 2
Participation	20%	20%
Online HW	15%	15%
HuskyCT Quizzes	15%	–
Midterm Exam	25%	30%
Final Exam	25%	35%

A	[93, 100]	**B**	[83, 87)	**C**	[73, 77)	**D**	[63, 67)
A-	[90, 93)	**B-**	[80, 83)	**C-**	[70, 73)	**D-**	[60, 63)
B+	[87, 90)	**C+**	[77, 80)	**D+**	[67, 70)	**F**	< 60

I will make every effort to provide feedback and grades within 48 hours. To keep track of your performance in the course, refer to "My Grades" in HuskyCT.

Grading Disputes: Any grading disputes must be addressed within 48 hours after an exam or homework has been returned.

Participation

As part of your participation grade you are required to (i) complete daily check-in problems and (ii) interact with your peers and instructor through an online discussion board and/or virtual sessions.

You must earn 25 participation points throughout the course of the semester in order to receive full credit for participation. Points can be earned as follows:

Daily Check-in Problems: Following the suggested course schedule, one question will be posted each day for you to answer. You will submit your work through a link on HuskyCT (using gradescope). Each problem will be worth 1 point and graded on completion. A solution will be provided the following day. This amounts to a maximum of 12 total points within your participation score.

Interaction with Instructors and Peers: You can earn the remaining points by asking and/or answering questions on the CampusWire discussion board. Each public CampusWire post will earn one point. You can also earn points by actively participating (asking and answering questions) in office hours or virtual problem sessions. Each active participant will earn 2 points per session. Interaction points are capped at 6 per week.

Online Homework

The homework for Math 1071 is assigned online using a free HW platform. To access your homework online you must go to HuskyCT and follow the Homework link.

There will be homework assignment for each day of the semester. You will get 5 attempts to answer each non-multiple choice question and two attempts for each multiple choice question. After each attempt, you will be told whether your answer is correct or not and may be given a different version. If you are not able to get the correct answer after your initial attempts, we recommend that you seek help from your instructor or another student via CampusWire.

The due dates for the HW for each module are set for the day of the exam for that module. Do NOT save your homework for the day of the due date, you should spread it out across the module time-period to allow yourself time to fully engage with the material.

HuskyCT Quizzes

Quizzes are *optional* (see course breakdown above). There will be a quiz available on HuskyCT for each day of the session. If your total quiz grade improves your course grade (under Option 2) then we will use Option 2 to compute your course grade. If you opt not to complete quizzes (or your scores are not helpful to your grade), then we will use Option 1 to compute your course grade.

Exams

There is 1 midterm exam and a *cumulative* final exam. The dates of these assessments can be seen below:

- Midterm Exam: Wednesday, January 4th. Covers Module 1.
- Final Exam: Friday, January 13th. Cumulative. Covers Modules 1 & 2.

All exams will be proctored remotely (more information to be provided). Note that any academic integrity violation related to an exam will result in a grade of 0 on that exam and a referral to the disciplinary board.

VI How to Approach the Course

All course materials are available on or linked from HuskyCT.

This course moves at a fast pace! Since this class is condensed to 3 weeks instead of the standard 15, you should expect the content to move 5-times faster than the in-semester version of the course. You need to be very careful about keeping up with the material and be sure to use me as a resource/guide throughout the semester.

Course Videos

Each section of the textbook has a video that goes along with it. These videos go through samples of how to solve various problems that will be helpful for HW and exams. In addition to watching the videos, you can read through the textbook (either the Openstax or Calculus textbook) to get a big picture understanding of the content.

Exam Reviews

There will be a review exam provided for each exam that will include "Exam style" questions to help prepare you for the exams. These reviews will be provided ahead of each exam. It is highly recommended that you complete the review as you prepare for the course exams.

Participate!

You should take advantage of the fact that you are in a class with many other students also working on the same material. Post questions on CampusWire, answer other students question, plan times to meet other students in the online chat/video chat room or in person.

Office Hours and Problem Sessions

Each day of the semester, I will hold virtual office hours and or problem sessions to help assist you with the course material. It is a great idea to attend these sessions and use me as a resource.

VII Course Policies

Make-Up/Late Policy

There will be no make-ups and no extensions for any form of assessment (exams, homework, etc.). Only extreme situations with an officially documented excuse will allow you to make up an assignment.

Missed Exam Policy

If there is an approved reason for you to not take an exam at its designated times, you must notify me **in advance** to make arrangements.

Students who are unable to attend an exam due to an emergency situation should notify their instructor via e-mail as soon as possible and within 24 hours. Arrangements for a make-up test will be considered on a case by case basis. Make-up exams will be administered only at the discretion of the instructor. If a student is allowed to make up a missed exam, (s)he must take it at a mutually arranged time. No further opportunities will be extended. Make-up exams may be penalized up to 10% of the earned grade depending on the reason for the make-up. Failure to contact the instructor as stated above will result in a grade of zero on

the exam. This policy applies to the first missed exam only. Repeated offenses will be dealt with on a case-by-case basis, but generally will not be allowed to be made up.

Academic Integrity

It is in your best interest to maintain your academic integrity. Any form of academic dishonesty undermines the goals of our course and devalues the learning process. Academic dishonesty is a serious offense at UConn and can result in a zero grade on an assessment and/or failure in the course.

Accommodations for Students with Disabilities

The University of Connecticut is committed to protecting the rights of individuals with disabilities and assuring that the learning environment is accessible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let me know immediately so that we can discuss options. Students who require accommodations should contact the Center for Students with Disabilities, Wilbur Cross Building Room 204, (860) 486-2020 or http://csd.uconn.edu/..

Changes to the Course Syllabus

The information contained in the course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.

VIII Online Technical Requirements

Software Requirements

The software/technical requirements for this course include:

- HuskyCT/Blackboard (HuskyCT Accessibility Statement, HuskyCT Privacy Policy)
- Google Apps (Google Apps at UCONN Accessibility, Google for Education Privacy Policy)
- Dedicated access to high-speed internet with a minimum speed of 1.5 Mbps (4 Mbps or higher is recommended).

Minimum Technical Skills

To be successful in this course, you will need the following technical skills:

- Use electronic mail with attachments.

- Save files in commonly used word processing program formats.
- Copy and paste text, graphics or hyperlinks.
- Work within two or more browser windows simultaneously.
- Open and access PDF files and videos.

Technical Help

Technical and Academic Help provides a guide to technical and academic assistance.

This course is completely facilitated online using the learning management platform, HuskyCT. If you have difficulty accessing HuskyCT, you have access to the in person/live person support options available during regular business hours through the Help Center. You also have 24x7 Course Support including access to live chat, phone, and support documents.