University of Connecticut UCONN

Prof Schwendner
Spring 2025

MAT1071Q Section 801
Bill.Schwendner@UConn.edu

COURSE:
Calculus for Business and Economics, 3 credits, T/Th, 215-315pm, Rm 139. Office hours: T/Th 8-9am

OVERVIEW:
Welcome! This rigorous, university mathematics course is an introduction to calculus and applications designed primarily for students majoring in business, economics, or the life and social sciences. We will study differential and integral calculus, and how calculus is used to solve and optimize business applications. Major topics include limits, derivatives & integrals of algebraic, trigonometric, exponential, and logarithmic functions, optimization, and related rates. *This does not only mean that you should be able to work through problems like those in class, but that you should have the ability to articulate the ideas presented in the course in a clear and coherent manner as well. You should also be able to* ***apply the theory to new and imaginative ways as it pertains to business and economics***.

TEXTBOOK: *OpenStax Calculus Volume 1: UConn Custom Business Calculus Edition. Available here: https://www2.math.uconn.edu/ClassHomePages/Math1071/Textbook2*

LEARNING OBJECTIVES:
By the end of the semester, students should be able to:

1. Use mathematical models to represent various business and economics related functions, including cost, revenue, profit, and demand.
2. Understand and work with exponential and logarithmic expressions, especially as related to interest and other exponential growth problems.
3. Understand the idea of a limit and limits at infinity. Evaluate various types of limits and define concepts like asymptotes, continuity, and derivatives in terms of limits.
4. Understand the derivative as the instantaneous rate of change and also the slope of the tangent line to a curve. Use the tangent line to approximate functions.
5. Evaluate the derivative of functions using standard derivative rules.
6. Understand elasticity of demand.
7. Use the first and second derivative of a function, as well as its properties like domain, asymptotes, and symmetry, to understand the overall shape of a function and draw its graph.
8. Setup and solve optimization and related rates problems in various contexts, using derivatives.
9. Evaluate both indefinite and definite integrals, using basic antiderivative rules, including substitution. This includes developing an understanding of the Fundamental Theorem of Calculus.
10. Use integrals/antiderivatives to solve problems, like finding cost from marginal cost, net change from a rate of change, or the area under or between curves.

PREREQUISITES:
Recommended preparation: Math 1010, 1011 or equivalent and Math 1070. This class is not open to students who have passed Math 1110. This class demands a **very solid understanding** of Algebra.

EXPECTATIONS:
I expect you to do most of your learning outside of the classroom. You should expect to spend at least 10+ hours per week reading the text, re-reading the lecture slides/notes, re-listening to any recorded lectures, reviewing worked-out textbook problems, completing required homeworks outside of class. **Mathematics is learned by understanding concepts and theories and then applying that knowledge to solve real-time problems.**

We will not have time in class for you to do a lot of mathematics yourself. However, I do expect you to come to

class and participate actively in class discussions. If you miss a class, I expect you to take the initiative to find out/learn what was covered and remain current with the class.

Since we meet for only two hours per week, this class follows a hybrid format; i.e., You will be assigned sections to read, learn, and practice outside of class time. It is your responsibility to engage with and master these sections and concepts independently.

HOMEWORK:
This is required work to be done outside of class. We will devote little time discussing homework problems during lecture. Online homework is required and graded. Access to online homework will be through HuskyCT.

WORKSHEETS:
10 worksheets are required (graded); other worksheets are not required. All worksheets are found on HuskyCT. For those required worksheets, **you will print the worksheet and solve all listed problems on the worksheet (don't forget to add your name). Bring your worksheet with your solutions to class and hand-in your work to me on the Thursday due date.** You can print the worksheet using the library printers. Late submissions will not be accepted (and will be assigned a 0 grade). Graded worksheets and their solutions are due, in-class, on their Thursday due date. Worksheets are designed to give you an idea of what exam questions may look like. Worksheets that are submitted will be graded for correctness, completeness, and/or clarity. These problems are meant to prepare you for exams.

TUTORING:
Math tutors are available through the Q-Center. Q-Center tutors will not do Worksheet problems.

CALCULATORS:
A graphing calculator is required (TI 82, 83, 84, 84+, 85). Calculators that can perform **s**ymbolic operations or store symbolic formulas (such as HP 28, 48, TI-92, 98) **are not allowed**, even if all programs are erased.

EXAMS/GRADING:
3 exams (see plan for exact dates) and comprehensive final exam. Exams are closed book. Use of cellphones is prohibited during all exams/quizzes. Exam problems will test your understanding of the principles, process, and concepts, rather than repeating what you see in class. There will be new problems on all exams. There will be **no make-ups, no re-takes, no re-grades, etc.** You are responsible for taking all exams on the scheduled date. Missed exams will be scored as a 0. Extra credit is **not** given (Per Storrs Math policy).

Your final grade will be determined as follows:

Test	*Value*	*Target*
Online Homeworks	15%	Continuous
Required 10 Worksheets	20%	Due on various Thursdays
Your **3** exams	45%	See plan
Comprehensive final*	20%	Week of 5/6

FINAL EXAM:
In accordance with UConn policy, students **are required to be available for their final exam** and/or complete any assessment during the time stated. If you have a conflict with this time you must obtain official permission to schedule a make-up exam with the Dean of Students. If permission is granted, the Dean of Students will notify the instructor. Please note that vacations, previously purchased tickets or reservations, graduations, social events, misreading the assessment schedule, and oversleeping are not viable reasons for rescheduling a final.

***Note**: A grade of 40 or below on the final exam will be an automatic failure in this course. A grade above 40 does not guarantee a passing grade in the class.

Academic Integrity Policy:

A fundamental tenet of all educational institutions is academic honesty: work depends upon respect for and acknowledgment of the work and ideas of others. Misrepresenting someone else's work as one's own work is a serious offense in any academic setting, and it will not be condoned.

Academic misconduct includes, but is not limited to, providing, or receiving assistance in a manner that is not authorized by the instructor in the creation of work to be submitted for academic evaluation (e.g., papers, projects, quizzes, tests – whether online or in class), presenting as one's owned any ideas, words or calculations of another for academic evaluation: doing unauthorized academic work for which another person will receive credit or be evaluated, using unauthorized aids in preparing work for evaluation (e.g., unauthorized calculators, programs or formulas loaded into your calculator, etc.); and presenting the same or the same papers or projects in two or more course without the explicit permission of the instructors involved.

A student who knowingly assists another student in committing an act of academic misconduct shall be equally accountable for the violation, and shall be subject to the sanctions and other remedies described in The Student Code.

Sanctions shall include, but not limited to, a letter sent to the Dean of Students of the University, a grade of 0 on the assignment, quiz or exam, a grade of F for the course.

This course expects all students to act in accordance with the Guidelines for Academic Integrity at the University of Connecticut. Because questions of intellectual property are important to the field of this course, we will discuss academic honesty as a topic and not just a policy. If you have questions about academic integrity or intellectual property, you should consult your instructor. Additionally, consult UConn's *guidelines for academic integrity*.

Student Course conduct:

To respect everyone's right to a productive learning environment, you do not want to distract yourself or your classmates. Please refrain from disruptive activities during lecture and discussion section. This includes browsing the internet. Please turn *off* all personal electronic gadgets, including smartphones, before entering a classroom (except calculators and, for lectures, clickers). You may not use a laptop during class unless you show me that you can take notes electronically on advanced math in real time. On a positive note, do feel free to ask questions!

Copyright Laws:

My lectures, notes, handouts, and displays are protected by state common law and federal copyright law. They are my own original expressions, and I've recorded them prior or during me lecture to ensure that I obtain copyright protection. Students are authorized to take notes in my class; however, this authorization extends only to making one set of notes for your own personal use and no other use. I will inform you as to whether you are authorized to record my lectures at the beginning of each semester. If you are so authorized to record my lectures, you may not copy this recording or any other material, provide copies of either to anyone else or make a commercial use of them without prior permission from me.

Mathematica and Wolfram Alpha Pro:

These tools are available at no charge to UConn students. They are useful for solving technical problems, obtaining step-by-step solutions, and much more. To get access, go to wolfram.com/siteinfo and enter your UConn email. Learn how to use Mathematica at wolfram.com/wolfram-u/

Policy Against Discrimination, Harassment and Related Interpersonal Violence:

The University is committed to maintaining an environment free of discrimination or discriminatory harassment directed toward any person or group within its community – students, employees, or visitors. Academic and professional excellence can flourish only when each member of our community is assured an

atmosphere of mutual respect. All members of the University community are responsible for the maintenance of an academic and work environment in which people are free to learn and work without fear of discrimination or discriminatory harassment. In addition, inappropriate amorous relationships can undermine the University's mission when those in positions of authority abuse or appear to abuse their authority. To that end, and in accordance with federal and state law, the University prohibits discrimination and discriminatory harassment, as well as inappropriate amorous relationships, and such behavior will be met with appropriate disciplinary action, up to and including dismissal from the University. Additionally, to protect the campus community, all non-confidential University employees (including faculty) are required to report sexual assaults, intimate partner violence, and/or stalking involving a student that they witness or are told about to the Office of Institutional Equity (OIE). Please be aware that while the information you provide remains private, it will not be confidential and will be shared with university officials who can help.

An exception to this reporting exists if students disclose information as a part of coursework submitted to an instructor in connection with a course assignment. Even in the absence of such obligation, all Employees are encouraged to contact OIE if they become aware of information that suggests a safety risk to the University community or any member thereof. The University takes all reports with the utmost seriousness. More information, including resources and reporting options, is available at equity.uconn.edu and titleix.uconn.edu.

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/.

SEXUAL ASSAULT REPORTING POLICY:
To protect the campus community, all non-confidential University employees (including faculty) are required to report assaults they witness or are told about to the Office of Diversity & Equity under the Sexual Assault Response Policy. The University takes all reports with the utmost seriousness. Please be aware that while the information you provide remains private, it will not be confidential and will be shared with university officials who can help. More information is available at sexualviolence.uconn.edu.

STATEMENT ON ABSENCES FROM CLASS DUE TO RELIGIOUS OBSERVANCES AND EXTRA-CURRICULAR ACTIVITIES:
Faculty and instructors are strongly encouraged to make reasonable accommodations in response to student requests to complete work missed by absence resulting from religious observances or participation in extra-curricular activities that enrich their experience, support their scholarly development, and benefit the university community. Examples include participation in scholarly presentations, performing arts, and intercollegiate sports, when the participation is at the request of, or coordinated by, a university official. Such accommodations should be made in ways that do not dilute or preclude the requirements or learning outcomes for the course. Students anticipating such a conflict should inform their instructor in writing within the first three weeks of the semester, and prior to the anticipated absence, and should take the initiative to work out with the instructor a schedule for making up missed work. For conflicts with final examinations, students should contact the Office of the Dean of Students.

CoursePlan/Calendar- MAT1071Q Spring 2025

WEEK	TUESDAY	THURSDAY	WHAT'S DUE ON THURSDAYS	THURSDAY DUE DATE
1	***1/21*** Intro and 1.1 Exponents	***1/23*** 1.2 Fcn Rev: Part A	Worksheet 1: Syllabus	1/23
2	***1/28*** 1.3 Fcn Rev Part B	***1/30*** 1.4: Basic Classes of Functions (lines)	Worksheet 2: 1.1-1.4 Online HW 1.1-1.3	1/30
3	***2/4*** 1.5: Polynomial and Rational Functions	***2/6*** 1.6: Mathematical Models, 1.7: Exponential Fcns	Worksheet 3: 1.5 and 1.6, Online HW 1.4 - 1.5, Online HW 1.6	2/6
4	***2/11*** 1.8 Logarithms, 2.1: Calculus Preview	***2/13*** **Exam 1: Chapter 1.1-1.8**	Online HW 1.7 and 1.8	2/13
5	***2/18*** 2.2: Intro to Limits	***2/20*** 2.2/2.3: Limit Laws	Worksheet 5: 2.1 and 2.2, Online HW 2.1 and 2.2	2/20
6	***2/25*** 2.4: Continuity, 3.1: Defining the Derivative	***2/27*** 3.2: Derivative as a Functions	Worksheet 6: 2.3 and 2.4, Online HW 2.3 and 2.4	2/27
7	***3/4*** 3.3: Differentiation Rules, 3.4: Derivatives as Rates of Change	***3/6*** 3.4: Derivatives as Rates of Change, 3.6: The Chain Rule	Worksheet 7: 3.1 and 3.2, Online HW 3.1 and 3.2	3/6
8	***3/11*** 3.6: The Chain Rule 3.9: Derivatives of Exponential and Log Fcns	***3/13*** **Exam 2: Chapter 2 and 3**	Online HW 3.3 and 3.4, Online HW 3.6 and 3.9	3/13
9	***3/25*** 4.1: Elasticity of Demand, 4.2: Linear Approximations	***3/27*** 4.3 Part A: Absolute Extrema	Nothing Due!	
10	***4/1*** 4.3 Part B: Local Max / Min 4.5 Part A: Derivatives and Shape of Graph	***4/3*** 4.5 Part B:Derivatives and Shape of Graph	Worksheet 9: 4.1 and 4.2, Online HW 4.1 and 4.2	4/3
11	***4/8*** 4.6 Limits at Infinity and Asymptotes	***4/10*** 4.7: Optimization	Worksheet 10: 4.3 and 4.5, Online HW 4.3 and 4.5	4/10
12	***4/15*** 4.7: Optimization	***4/17*** **Exam 3: Ch 3&4.1-4.7**	Nothing Due!	
14	***4/22*** 4.8: Antiderivatives	***4/24*** 5.1 Approximating 5.2 Definite Integral / Areas	Worksheet 12: 4.7 and 4.8, Online HW 4.7 and 4.8	4/24
15	***4/29*** 5.3: The Fundamental Thm of Calculus	***5/1*** 5.5: Substitution	Worksheet 13: 5.1- 5.3, Online HW 5.1 - 5.3	5/1
16	**Final exam (Wk of 5/6)**			

Required worksheets to be handed-in in class (no exceptions)

WorkSheet Calendar: Math 1071Q Spring 2025

Worksheet 1: Syllabus	Due Week 1: Jan 23	Graded for Completion.
Worksheet 2: 1.1-1.4	Due Week 2: Jan 30	Graded for Correctness.
Worksheet 3: 1.5 and 1.6	Due Week 3: Feb 6	Graded for Correctness.
Worksheet 4: 1.7 and 1.8	NOT DUE	Not graded.
Worksheet 5: 2.1 and 2.2	Due Week 5: Feb 20	Graded for Correctness.
Worksheet 6: 2.3 and 2.4	Due Week 6: Feb 27	Graded for Correctness.
Worksheet 7: 3.1 and 3.2	Due Week 7: Mar 6	Graded for Correctness.
Worksheet 8: 3.3 and 3.4, 3.6, 3.9	NOT DUE	Not graded.
Worksheet 9: 4.1 and 4.2	Due Week 10: Apr 3	Graded for Correctness.
Worksheet 10: 4.3 and 4.5	Due Week 11: Apr 10	Graded for Correctness.
Worksheet 11: 4.6	NOT DUE	Not graded.
Worksheet 12: 4.7 and 4.8	Due Week 14: Apr 24	Graded for Correctness.
Worksheet 13: 5.1- 5.3	Due Week 15: May 1	Graded for Correctness.
Worksheet 14: 5.5	NOT DUE	Not graded.

Required worksheet and required deadlines.