Math 1071Q — Calculus for Business and Economics (Spring 2021)

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Instructors

Course Coordinator (Storrs): Katie Hall

About the course

Welcome! This course is an introduction to calculus and applications designed primarily for students majoring in business, economics, or the life and social sciences. We will cover essential concepts of differential and integral calculus.

Textbook

Calculus, Applications and Technology (3rd edition) by Edmond C. Tomastik, bundled with *WebAssign* code.

There are three ways to purchase the text and the WebAssign access code:

1. Get the text and WebAssign access code bundled together at the UConn Bookstore for $80.
2. Buy the WebAssign access code when you access your homework through HuskyCT. This costs $75 and includes access to an e-book.
3. If you bought the 1070Q/1071Q bundle previously, you will already have access, see note below. If you are taking 1070Q in the future, you might want to consider this bundle. Both books are included for $110 (instead of $80 each). It is available from the bookstore but only listed under Math 1070Q on their online form.

You will have **two weeks of free access** to WebAssign which includes an e-book, so you can get started right away in case you need some time to arrange to buy textbook with the access code.

If you bought the MATH 1070/1071 textbook bundle you can use your same WebAssign/Cengage login credentials for MATH 1071Q at no additional cost. Please remember to use your same WebAssign/Cengage login credentials when logging into your WebAssign course through HuskyCT for the first time semester. If you don't use those same login credentials your access will not carry over. If you are taking courses out of sequence, (taking 1071Q first but 1070Q later), you might want to buy the 1070/1071 bundle from the bookstore. It includes textbooks and WebAssign access for both courses for $110.

If you have any questions regarding your WebAssign access, please contact Cengage Tech Support at 800-354-9706 / support.cengage.com

Course 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 limits 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.

Calculators

We will show demos in class using Desmos.com, a free online graphing calculator. This is allowed (and encouraged) on all exams. No other calculators are allowed on Exams.

WebAssign

Registration

The homework for Math 1071 is assigned online using the online home work system WebAssign. To access your homework online you must go to Husky CT.

Browsers

Please note that many students have experienced problems using WebAssign with Internet Explorer or Safari. We recommend that you use Firefox or Chrome.

Homework

There will be homework assignments for each section of the text. **You will get 6 attempts to answer each question.** After each attempt, you will be told whether or not your answer is correct. After 3 attempts, you will be told the answer and then given different numbers for your next three attempts. If you are not able to get the correct answer after your initial attempts, we recommend that you seek help from your instructor, the Q-Center or another student. WebAssign is due Thursday at 11:59pm the week after the material is scheduled to be covered. Students who finish by Monday at 11:59pm get a 5% bonus. There will be automatic extensions (2 days, up to 7 days after original due date with a 20% penalty).

Worksheets, Quizzes and Exams

Worksheets to be Turned in

There are 10 worksheets due the Fridays there is not a midterm. This includes a preliminary worksheet due Week 1 which will include 2 parts. You will need to upload a PDF and complete a part that requires you check your WebCam settings to make sure you are ready for the exams. These worksheets are available through HuskyCT and will be turned in on HuskyCT as well, unless your instructor provides other instructions. Worksheets will be graded for correctness, completeness and clarity. You can earn bonus points (up to 5%) if everything is submitted as an extremely clear PDF.

Extra Practice Worksheets (not turned in or graded)

There is an extra practice worksheet that corresponds to each section covered in the textbook. You can access them under the outline tab above. Each worksheet lists the sections objectives, has a few practice problems and has suggested textbook problems. These practice problems are meant to prepare you for the exams. These worksheets do not need to be turned in and solutions are posted. If you get stuck, review your class notes and the textbook and/or go to office hours. Once you are confident in your solutions, compare your answers to the posted solutions. Reading solutions as an alternative to doing the problems on your own is NOT a good strategy.

Exam Review Packets

Before each exam, you will be given an Exam Review packet. These will help you direct your study and give you time to practice free response questions. They will be released on HuskyCT at least one week before the exam. They are due by 11:59pm on the Wednesday before the exam. on HuskyCT. They will be graded for both correctness (~50%), clear explanations(~30%) and completion(~20%). +5% for extreme clarity in explanation and scanning

Midterm Exams

There will be three midterm exams on 2/12, 3/12, 4/09 (Friday of Weeks 4, 8 and 12). They will consist primarily of multiple choice questions, with about two questions where you have to show your work and upload it after the exam. The ones where you submit your work will be weighted 4 times as much as the others. Exams will be proctored using either WebEx or Lockdown Browser with Respondos Monitor. (Check with your specific instructor.) Students may use Desmos.com as a calculator during the exam.

Final Exam

There will be a final exam during the final exam week consisting of both multiple choice and free response questions. Students who score higher on the final than their lowest midterm will automatically have their final exam grade replace their lowest midterm grade.

Extra Credit

There will be 5% extra credit available on each exam, which will include the requirement that work submitted is very clear and easy to read. There are also 5% extra credit opportunities in each category above. These are the only extra credit options available throughout the course.

Grading

Category	Where	Description	Percentage Toward Grade
Homework	WebAssign	One assignment per topic	15%
Worksheets	HuskyCT	Weekly Worksheets due Friday	15%

Exam Review Packets	HuskyCT	Study aids due Wednesday before the exam	10%
Exam 1 (Feb 12)	HuskyCT, with Lockdown Browser with Monitor or WebEx proctoring	Covers Chapter A and 1, More info	15%
Exam 2 (March 12)	HuskyCT, with Lockdown Browser with Monitor or WebEx proctoring	Covers Chapter 3 and 4, More info	15%
Exam 3 (April 9)	HuskyCT, with Lockdown Browser with Monitor or WebEx proctoring	Covers Chapter 5 and 6.1 More info	15%
Final Exam (TBA)	HuskyCT, with Lockdown Browser with Monitor or WebEx proctoring	Cumulative, More info	15% (will count as 30% if it replaces lowest midterm)

Grading Scale:

Grade	Letter Grade	GPA
93-100	A	4.0
90-92.99	A-	3.7
87-89.99	B+	3.3
83-86.99	B	3.0
80-82.99	B-	2.7
77-79.99	C+	2.3
73-76.99	C	2.0
70-72.99	C-	1.7
67-69.99	D+	1.3
63-66.99	D	1.0
60-62.99	D-	0.7
<60	F	0.0

Due Dates and Late Policy

All due dates for WebAssign are identified in the WebAssign. Due dates for Worksheets are in HuskyCT. Deadlines are based on Eastern Time unless otherwise specified. *The instructor reserves the right to change dates accordingly as the semester progresses. All changes will be communicated in an appropriate manner.*

You may request an extension for WebAssign directly in WebAssign. No late Worksheets will be accepted, except in extenuating circumstances. Please discuss these circumstances with your instructor.

If you miss an exam, you must contact your course instructor within 48 hours to discuss the possibility of a make-up. Generally, makeups are only offered in the case of extenuating circumstances or with a large penalty.

Feedback and Grades

We will make every effort to provide feedback and grades within a week of your submissions. To keep track of your performance in the course, refer to My Grades in HuskyCT and WebAssign.

Weekly Time Commitment

You should expect to dedicate 9 to 12 hours a week to this course. This expectation is based on the various course activities, assignments, and assessments and the University of Connecticut's policy regarding credit hours. (More information related to hours per week per credit can be accessed at the Online Student website).

Student Authentication and Verification

The University of Connecticut is required to verify the identity of students who participate in online courses and to establish that students who register in an online course are the same students who participate in and complete the course activities and assessments and receive academic credit. Verification and

authentication of student identity in this course will include:

1. Secure access to the learning management system using your unique UConn NetID and password.
2. Midterm and Final Exams proctored using Lockdown Browser with Monitor or WebEx proctoring – see Exam Page for details

Academic Integrity

"A fundamental tenet of all educational institutions is academic honesty. Academic work depends upon respect for and acknowledgement of the research and ideas of others. Misrepresenting someone else's work as one's own is a serious offense in any academic setting and it will not be condoned." A student who knowingly assists another student in committing an act of academic misconduct shall be equally accountable for the violation, and both shall be subject to the sanctions and other remedies. See the Uconn Student Code, Appendix A.

All students shall act in accordance with the Student Code at the University of Connecticut, which states that: "Academic misconduct is dishonest or unethical academic behavior that includes, but is not limited to, misrepresenting mastery in an academic area (e.g., cheating), failing to properly credit information, research, or ideas to their rightful originators or representing such information, research, or ideas as your own (e.g., plagiarism)." In particular, this means that any work you submit in this course should be your own.

It is expected that you will struggle with various aspects of this course, and you are encouraged to seek help from your instructor, your peers, the Q Center, and other sources in understanding the concepts and computations. **However, you are expected to turn in work that reflects your own understanding of the topics and ideas. Therefore, your work should not bear resemblance to that of any other student in the course or to any other sources used, and any ideas used for which any other party had a share in developing should be cited as such.**

For example, it is a good idea to look at examples in the text, notes, or online for problems similar to the one you are stuck on, and looking for ways to adapt the ideas and methods to your current problem. **In the interest of both your learning and academic honesty, you may NOT search for solutions to the specific problem you are stuck on.** In all cases, you must **write up a solution that is completely in your own words and honestly reflects your own understanding of the ideas.**

While you may look online for help, as clearly stated on each Worksheet, **you may not view solutions to specific Worksheet, Exam Review problems or Exam problems (or small variations to these problems) on paid sites like Chegg or Bartleby.** You may still use (with proper citations) Piazza, Office Hours, and other free outside resources like Khan Academy and YouTube. This means that if you use these allowed resources, even just for a push in the right direction, you should mention that you used them and then still write the solution in our own words to reflect your own understanding.

Consequences of academic misconduct include, but are not limited to, a zero on the assignment or exam and/or a grade of F in the course. If you are unsure that what you are doing to complete the work of this course is acceptable, contact the instructor for helpful tips and advice on how to protect your work and ensure that you are not violating the academic integrity policies of the instructor, the course, or the university.

How to Succeed in this Course

All students can succeed in this course and we are here to help you along the way. Please do not hesitate to ask questions during class or attend office hours. Except where stated otherwise, synchronous lectures will be recorded. However, these work best when there are students there to ask questions and for clarification. Your classmates need you to attend!

Success in this course program depends heavily on your personal health and well-being. Recognize that stress is an expected part of the college experience, and it often can be compounded by unexpected setbacks or life changes outside the classroom. We strongly encourage you to reframe challenges as an unavoidable pathway to success. Reflect on your role in taking care of yourself throughout the semester, before the demands of exams and projects reach their peak. Please feel free to reach out to us about any difficulty you may be having that may impact your performance in your courses or campus life as soon as it occurs and before it becomes too overwhelming. In addition to your academic advisor, we strongly encourage you to contact the many other support services on campus that stand ready to assist you.

Here are some helpful links: Dean of Students Office, Academic Achievement Center, Writing Center, Quantitative Learning Center, Center for Students with Disabilities, ~~Title IX Office~~, Student Health and Wellness — Mental Health

*This statement was adapted from one prepared by CLAS. We feel it very much represents are thoughts and feelings so are including it in a largely unedited way. (With this citation!)

Husky Study Groups

Are you interested in forming a study group with other students in the class? There is a study group application in Nexus that can help you get started. Check out this video wand go here (https://nexus.uconn.edu/secure_per/studygroups/index.php) for more information.

Resources for Students Experiencing Distress

The University of Connecticut is committed to supporting students in their mental health, their psychological and social well-being, and their connection to their academic experience and overall wellness. The university believes that academic, personal, and professional development can flourish only when each member of our community is assured equitable access to mental health services. The university aims to make access to mental health attainable while fostering a community reflecting equity and diversity and understands that good mental health may lead to personal and professional growth, greater self-awareness, increased social engagement, enhanced academic success, and campus and community involvement.

Students who feel they may benefit from speaking with a mental health professional can find support and resources through the **Student Health and Wellness-Mental Health** (SHaW-MH) office. Through SHaW-MH, students can make an appointment with a mental health professional and engage in confidential conversations or seek recommendations or referrals for any mental health or psychological concern.

Mental health services are included as part of the university's student health insurance plan and also partially funded through university fees. If you do not have UConn's student health insurance plan, most major insurance plans are also accepted. Students can visit the **Student Health and Wellness-Mental Health located in Storrs on the main campus in the Arjona Building, 4th Floor,** or contact the office at **(860) 486-4705, or https://studenthealth.uconn.edu/**

for services or questions.

Accommodations for Illness or Extended Absences

Please stay home if you are feeling ill and please go home if you are in class and start to feel ill. (Luckily, most people can still attend class from home. Let us know if you can't!) If illness prevents you from attending class, it is your responsibility to notify your instructor as soon as possible. You do not need to disclose the nature of your illness, however, you will need to work with your instructor to determine how you will complete coursework during your absence.

If life circumstances are affecting your ability to focus on courses and your UConn experience, students can email the Dean of Students at dos@uconn.edu to request support. Regional campus students should email the Student Services staff at their home campus to request support and faculty notification.

COVID-19 Specific Information: People with COVID-19 have had a wide range of symptoms reported – ranging from mild symptoms to severe illness. These symptoms may appear 2-14 days after exposure to the virus and can include:

- Fever,
- Cough,
- Shortness of breath or difficulty breathing
- Chills
- Repeated shaking with chills
- Muscle pain
- Headache
- Sore throat
- New loss of taste or smell

Additional information including what to do if you test positive or you are informed through contract tracing that you were in contact with someone who tested positive, and answers to other important questions can be found here: https://studenthealth.uconn.edu/updates-events/coronavirus/

Students with Disabilities and Special accommodations

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/.

Student Athletes and Students with Disabilities should inform your instructor of your commitments as an athlete, any special needs that you have, etc. within the first three weeks of the semester. You will be expected to bring in a letter from the Athletics Department or the Center for Students with Disabilities.

The University Senate passed a motion on about religious observances which stipulated that 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, as usual, contact the Dean of Students.

Note: We know that this transition to online classes has the chance to increase the number of students who need accommodations and the form those accommodations will take. We will work with all students to the best of our ability to ensure their specific needs are met the best we can. Please contact your instructor to discuss any needs to you.

Student Responsibilities and Resources

As a member of the University of Connecticut student community, you are held to certain standards and academic policies. In addition, there are numerous resources available to help you succeed in your academic work. Review these important standards, policies and resources, which include:

- The Student Code
  - Academic Integrity
  - Resources on Avoiding Cheating and Plagiarism
- Copyrighted Materials
- Credit Hours and Workload
- Netiquette and Communication
- Adding or Dropping a Course
- Academic Calendar
- Policy Against Discrimination, Harassment and Inappropriate Romantic Relationships
- Sexual Assault Reporting Policy

Software/Technical Requirements (with Accessibility and Privacy Information)

The software/technical requirements for this course include:

- HuskyCT/Blackboard (HuskyCT/ Blackboard Accessibility Statement, HuskyCT/ Blackboard Privacy Policy)
- ~~Adobe Acrobat Reader~~ (~~Adobe Reader Accessibility Statement~~, ~~Adobe Reader Privacy Policy~~)
- Google Apps (Google Apps 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).
- WebCam

For information on managing your privacy at the University of Connecticut, visit the University's Privacy page.

NOTE: This course has NOT been designed for use with mobile devices.

Help

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

This course uses 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 24×7 Course Support including access to live chat, phone, and support documents.

Student Technology Training

Student technology training is now available in a new HuskyCT short course created by students for students. It will prepare you to use the IT systems and services that you will use throughout your time at UConn, whether learning online or on-campus. It is available at https://lms.uconn.edu/ultra/courses/_80016_1/cl/outline .

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.
- Scan handwritten work to PDFs.
- Copy and paste text, graphics or hyperlinks.
- Work within two or more browser windows simultaneously.
- Open and access PDF files.

University students are expected to demonstrate competency in Computer Technology. Explore the ~~Computer Technology Competencies~~ page for more information..

Evaluation of Course Experience

Students will be given an opportunity to provide feedback on their course experience and instruction using the University's standard procedures, which are administered by the Office of Institutional Research and Effectiveness (OIRE).

The University of Connecticut is dedicated to supporting and enhancing teaching effectiveness and student learning using a variety of methods. The Student Evaluation of Teaching (SET) is just one tool used to help faculty enhance their teaching. The SET is used for both formative (self-improvement) and summative (evaluation) purposes.

Additional informal formative surveys and other feedback instruments may be administered within the course.

Contact

The course coordinator: Professor Katherine Hall(katie.hall@uconn.edu). Or your instructor.

Tentative Outline

Calculus: Applications and Technology (3rd edition), by E. Tomastik

Week	Section	Topic	Practice Worksheets (not to be turned in)	Practice Worksheet Solutions
1	A.1	Exponents and Roots	Worksheet A.1 .pdf	Solutions .pdf
	A.2	Polynomials and Rational Functions	Worksheet A.2 .pdf	Solutions .pdf
2	A.6	Lines	Worksheet A.6 .pdf	Solutions .pdf
	1.1	Functions	Worksheet 1.1 .pdf	Solutions .pdf
	1.4	Combinations of Functions	Worksheet 1.4 .pdf	Solutions .pdf
3	1.2	Mathematical models	Worksheet 1.2 .pdf	Solutions .pdf
	1.3	Exponential Models	Worksheet 1.3 .pdf	Solutions .pdf
	1.5	Logarithms	Worksheet 1.5 .pdf	Solutions .pdf
4	3.1	Limits	Worksheet 3.1 .pdf	Solutions .pdf
		Exam 1: Chapter A and 1 (Friday, Feb 12)		
5	3.2	Rates of Change	Worksheet 3.2 .pdf	Solutions .pdf
	3.3	The Derivative	Worksheet 3.3 .pdf	Solutions .pdf
6	4.1	Derivatives of powers, exponents and sums	Worksheet 4.1 .pdf	Solutions .pdf
	4.2	Derivatives of products and quotients	Worksheet 4.2 .pdf	Solutions .pdf
7	4.3	Chain rule	Worksheet 4.3 .pdf	Solutions .pdf
	4.4	Derivatives of exponential and logarithmic functions	Worksheet 4.4 .pdf	Solutions .pdf
	3.4	Local Linearity	Worksheet 3.4 .pdf	Solutions .pdf
8	4.5	Elasticity of Demand	Worksheet 4.5 .pdf	Solutions .pdf
		Exam 2: Chapter 3 and 4 (Friday, March 12)		
9	5.1	The first derivative	Worksheet 5.1 .pdf	Solutions .pdf

	5.2	The second derivative	Worksheet 5.2 .pdf	Solutions .pdf
	5.3	Limits at infinity	Worksheet 5.3 .pdf	Solutions .pdf
10	5.4	Curve sketching	Worksheet 5.4 .pdf	Solutions .pdf
	5.5	Absolute Extrema	Worksheet 5.5 .pdf	Solutions .pdf
11	5.6	Optimization and modeling	Worksheet 5.6 .pdf	Solutions .pdf
	6.1	Antiderivatives	Worksheet 6.1 .pdf	Solutions .pdf
12	6.2	Substitution	Worksheet 6.2 .pdf	Solutions .pdf
		Exam 3: Chapter 5 and 6.1 (Friday, April 9)		
—		Spring Break Week		
13	6.4	The definite integral	Worksheet 6.4 .pdf	Solutions .pdf
	6.5	The fundamental theorem of calculus	Worksheet 6.5 .pdf	Solutions .pdf
14	6.6	Area between two curves	Worksheet 6.6 .pdf	Solutions .pdf
Finals Week		**Cumulative Final**	Final Exam Review Packet .pdf Review Packet with space to write .pdf	Solutions