University of Connecticut UCONN

Dr. Schwendner
MAT1131Q – Section 801

Calculus I / Spring 2025
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COURSE: Calculus I, 4 credits, T/Th, 9^{20}-11 am. **OFFICE HOURS:** T/Th, 8-9^{20} am.

DESCRIPTION: Calculus I (MATH 1131Q) is a **rigorous course** in differential and integral calculus, the mathematical language used in any science concerned with dynamically changing quantities. This course is both a theoretical and analytical study of the processes, theories, and applications of calculus. Topics covered include limits, derivatives, integrals, and the Fundamental Theorem of Calculus.

PREREQUISITES:

- ☑ A qualifying score of 22 on the mathematics placement exam (MPE). Students who fail to achieve this minimum score are required to spend time on the preparatory and learning modules before re-taking the MPE, or to register for a lower-level Mathematics course.
- ☑ A strong knowledge of algebra and trigonometry is **mandatory** for this course. MATH 1131Q is **very challenging and comprehensive.**
- ☑ Not open for credit to students who have passed MATH 1132Q or 1152Q.

COURSE OBJECTIVES:

Upon successful completion of this course, you will be able to:

1. Apply required algebra skills to calculus problems.
2. Use common techniques to evaluate limits and connect limits to derivatives.
3. Interpret derivatives as rates of change.
4. Understand and explain the theoretical concepts used in calculus.
5. Combine ideas from algebra and trigonometry with knowledge of limits and derivatives to recognize features of the graph of a function.
6. Use derivatives to describe the features of a function and its graph, including maximum and minimum values and where they occur.
7. Identify applications of differential and integral calculus and explain how calculus can be used in these applications.
8. Apply the Fundamental Theorem of Calculus and the substitution rule to evaluate definite and indefinite integrals.
9. Demonstrate how integrals are connected to the area under the graph of a function.

TEXTBOOK/DIGITAL REQUIRED MATERIALS:

TEXT: *Calculus Early Transcendentals*, Single Variable by James Stewart (8th Edition) bundled with a WebAssign code for doing online homework.

This course is part of the campus' course material delivery program. The digital required materials for this course have been integrated with Blackboard and can be found in the Course Materials link in your Blackboard course. Please sign into Blackboard to access your course and course materials.

If you opt out of the Husky Book Bundle, you only need to buy ONE of the three textbook/WebAssign bundles listed at the bookstore, OR a 1-term Cengage Unlimited Subscription; your choice will depend on what math classes you plan to take in the future. If you opt out of the Husky Book Bundle, the least expensive way to get WebAssign access for all courses (MATH 1131Q, 1132Q. 2110Q, and 2410Q) in the Calculus sequence is to purchase a $130, 1-term Cengage Unlimited subscription online, directly from WebAssign, at the start of the term. This will give you access to all four courses and corresponding eBooks whenever you take them, even after the 1-term subscription expires. This will also give you access for this term to any other Cengage-based materials.

CALCULATORS: Calculus requires graphing calculators: TI 82, 83, 84, 84 plus, 85 or 86. Cellphone calculators are never allowed.

HOMEWORK: This is work you do outside of class. We will devote little class time to discuss homework problems. Each assignment will be made available on WebAssign before the section is covered in class. Homework questions can be addressed during office hours or with the QCenter tutoring center. I encourage you to put a lot of effort into figuring out a problem first. Additional take-home problems sets may also be assigned (and graded) throughout the semester.

WEBASSIGN ACCESS: To access the WebAssign homework, *you must go through HuskyCT single sign-on*. On the HuskyCT (Blackboard) course page for Math 1131Q, you will find a link to do your homework in WebAssign. There is a due date for each assignment. Extensions to homeworks are not allowed. **You will get five attempts for each question that is not multiple choice; the exact number of attempts for multiple choice questions will depend on the number of choices.** After each attempt, you will be told whether your answer is correct or not. If you are not able to get the correct answer after your initial attempts, we recommend that you seek help from the tutoring center, a tutor, or another student. You will have **two weeks of free access** to WebAssign, which includes the e-book, so you can get started right away in case you need some time to arrange to buy a textbook with the access code.

Note: When accessing your online homework, use **Firefox or Chrome as your browser**; there are problems that can occur if you use Internet Explorer or Safari. WebAssign customer service number is 800.354-9706.

LECTURE NOTES: Lecture notes are on HuskyCT.

WORKSHEETS: Optional (ungraded) worksheets are available to help strengthen your understanding. You access the worksheets through HuskyCT.

MINIMUM TECHNICAL SKILLS:

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

- Use electronic mail with attachments.
- HuskyCT and WebAssign proficiency
- Save files in commonly used word processing program formats.
- Copy and paste text, graphics, or hyperlinks.
- Create, upload, and email a PDF or JPG file showing your handwritten work.

- 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.

COURSE COMMUNICATIONS: Information about this course will be provided in class and online via HuskyCT or email. Please monitor daily Daily monitor the online Course Plan and HuskyCT for announcements and updates related to MATH 1131Q. If you email me, I will try to reply by the end of the following business day.

EXPECTATIONS:
- Students attend class, arrive on time, and are prepared to participate actively in discussions.
- Students understand and schedule the time this course requires beyond attending class.
- Students assume responsibility to learn material missed when they are absent.
- Assessments are mandatory, cannot be made up, retaken, or supplemented (no papers, extra credit).
- Students use office hours for help with problems they have attempted.
- Students take the initiative to get help from the QCenter and other students.
- No cellphones on during class.

HOW TO SUCCEED IN CALCULUS:
1. Be ready to work. This course is difficult and moves very quickly.
2. Don't miss class! Each class builds on the previous one. You can get behind quickly if you miss class. If you get sick or must be absent, talk to your classmates and connect with QCenter.
3. Keep up with the class. Check the online Course Plan every day to ensure you stay on track with the class.
4. Mathematics is learned by solving problems. You cannot memorize this content. Your goal is to understand the theory and build problem solving skills.
5. Expect to spend at least 16 hours per week for a 4-credit course. In addition to class time, schedule time to read the textbook, review lecture notes, do homework, and additional review.
6. Do homework on time. Follow all instructions in the HuskyCT learning modules.
7. Read the textbook. It contains excellent explanations and examples that illustrate the core concepts and theory. Reading mathematics is not like reading a story. Be prepared to go slowly so you can follow explanations. Look up references you don't understand. Use all available aids. To solve a problem, you must clearly identify the given information and what is being asked. Problems with math are often connected to problems reading math content.
8. Seek help early: QCenter, other students, tutors.
9. Join class discussions. This will deepen your understanding and help your grade.

ASSESSMENTS: There are six, 30-minute quizzes and three exams. Assessments are designed to develop the analytic problem solving and critical thinking skills required of STEM majors. All assessments will have new problems that test your ability to apply the principles, theory, process, and concepts discussed in class and your textbook. Assessments are closed notes and closed books. No cellphone use. Attendance is mandatory. **Missed assessments receive a score of zero. No make-ups, re-takes, or supplemental work (papers, etc.)** Consult the online Course Plan often for the most current information about scheduled assessments.

FINAL EXAM: The final exam is **cumulative.** 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 the scheduled time/date, you must contact the Dean of Students. Only the Dean of Students can approve a request to reschedule a final exam. The Dean of Students will notify the instructor. Be aware that previously scheduled vacations, reservations, social events, misreading the Course Plan schedule, showing up at the wrong time, or oversleeping are not acceptable reasons to reschedule your final exam.

Note: A grade of **50 or below** on the final exam will be an automatic failure in this course. A grade above 50 does not guarantee a passing grade in the class.

COURSE GRADE: Your course grade is determined by performance on WebAssign homework, quizzes, exams, and the cumulative final exam. See the table.

	Value	***Target***
WebAssign HomeWorks	20%	Various
Your top 5 quiz grades	20%	See plan
3 Exams	35%	See plan
Comprehensive final	25%	Week of 5/5/25

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/

TUTORING: Math tutors are available through the Academic Q-Center.

HELP: Technical and Academic Help provides a guide to technical and academic assistance. This course is 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 24×7 Course Support including access to live chat, phone, and support documents.

ACADEMIC INTEGRITY/MISCONDUCT 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.

This course expects all students to act in accordance with the Guidelines for Academic Integrity at the University of Connecticut. In mathematics, this means that all work that you turn in should be written up independently by you, in your own words, and should represent your honest understanding of the material. On exams and quizzes, it should be noted in particular that this means you must not consult any sources or materials: neighbors' papers, calculators, and any notes, books, phones, or other electronic devices are off-limits. Violations of this policy may range from a zero on the assignment to a grade of F in the course. If you have questions about academic integrity or intellectual property, you should consult with your instructor or adviser. Additionally, consult UConn's guidelines for academic integrity and UConn's Academic, Scholarly, and Professional Integrity and Misconduct Policy.

The use of calculators, other outside resources, or collaboration with others are NOT allowed on quizzes

and exams.

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 expression, and I've recorded them prior or during my 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.

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.

SOFTWARE/TECHNICAL REQUIREMENTS:

The software/technical requirements for this course include:

- Computer with microphone, speaker, and camera for live video/audio interaction
- HuskyCT/Blackboard (HuskyCT/ Blackboard Accessibility Statement, HuskyCT/ Blackboard Privacy Policy)
- Adobe Acrobat Reader (Adobe Reader Accessibility Statement, Adobe Reader Privacy Policy)
- Google Apps (Google for Education Privacy Policy)
- WebAssign (privacy policy).
- Microsoft Office (free to UConn students through uconn.onthehub.com) (Microsoft Accessibility Statement, Microsoft Privacy Statement)
- Dedicated access to high-speed internet with a minimum speed of 1.5 Mbps (4 Mbps or higher is recommended).

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

FACE COVERINGS: To ensure a safe learning environment, masks/face coverings are always welcome in classrooms and indoor spaces, and masks are strongly recommended if you have any symptoms of respiratory illness. Please join us in welcoming your peers and instructors to wear face coverings properly in the classroom.

MATH 1131Q SPRING 2025 COURSE PLAN (SUBJECT TO CHANGE)

WEEK	DATES	SECTIONS COVERED	QUIZZES, EXAMS	TOPICS
1	1/21 1/23	Overview/2.1 2.1/2.2		. Orientation; Alg/Precalculus Review . The Tangent and Velocity Problems
2	1/28	2.2/2.3		. The Limit of a Function / Calculating Limits Using the Limit Laws
	1/30	2.5/2.6		. Continuity / Limits at Infinity / Horizontal Asymptotes
3	2/4	2.7/2.8	**Quiz 1**	. Derivatives and Rates of Change/The Derivative as a Function . Q1 (2.1-2.3, 2.5-2.6)
	2/6	2.8/2.4		. The Derivative as a Function/ The Precise Definition of a Limit
4	2/11	3.1		. Derivatives of Polynomials and Exponential Fcn
	2/13	3.2	**Quiz 2**	. The Product and Quotient Rules . Q2 (2.7-2.8)
5	2/18	3.3/3.4		. Derivatives of Trig Functions / Chain Rule Chain Rule
	2/20		**Exam 1**	. Sections 2.1-2.3, 2.5-2.8
6	2/25	3.5/3.6		. Implicit Differentiation/ Derivatives of Log Fcns
	2/27	3.8	**Quiz 3**	. Exponential Growth and Decay . Q3 (3.1-3.5)
7	3/4	3.9		. Related Rates
	3/6	3.10		. Linear Approx and Differentials
8	3/11	4.1		. Max and Min Values
	3/13	4/2	**Quiz 4**	. Mean Value Theorem . Q4 (3.7-3.9)
-	3/18 3/20			Spring Break
9	3/25	4.3/4.4		. How Derivatives Affect the Shape of a Graph . Indeterminate Forms and l'Hospital's Rule
	3/27		**Exam 2**	. Sections 3.1-3.6, 3.8-3.10,4.1-4.2
10	4/1	4.7		. Optimization Problem
	4/3	4.8		. Newton's Method
11	4/8	4.9	**Quiz 5**	. Anti-derivatives . Q5 (4.3-4.4,4.7)
	4/10	5.1/5.2		. Areas and Distances/ The Definite Integral
12	4/15	5.3		. The Fundamental Theorem of Calculus
	4/17		**Exam 3**	. Sections 4.3-4.4,4.7-4.9
13	4/22	5.4		. Indefinite Integrals & Net Chg Theorem
	4/24	5.5/6.1		. The Substitution Rule /Areas Between Curves
14	4/29	6.2	**Quiz 6**	. Q6 (5.1-5.5)
	5/1	6.2		. Volumes
15	Finals week		**FINAL**	Cumulative Final Exam during the University scheduled time (TBA)