Syllabus – Math 1131Q (SEC 661) – Fall 2026

Catalog

Calculus I. (4 Credits)
Limits, continuity, differentiation, antidifferentiation, definite integral, with applications to the physical sciences and engineering sciences. Suitable for students with some prior calculus experience. Substitutes for MATH 1120Q, 1126Q, or 1151Q as a requirement. Two credits for students who have passed MATH 1125Q.

Enrollment Requirements: A qualifying score on the math placement assessment (placement.uconn.edu/mathematics-placement). Students cannot receive credit for MATH 1131Q and either MATH 1120Q, 1121Q, 1126Q, or 1151Q (2 credits for students who have passed MATH 1125Q). May not be taken out of sequence after passing MATH 1132Q.

Skill Codes: COMP: Quantitative Competency

Section details

Class time and room: M,W 3:35 - 5:15 PM in ACD 106

Instructor: Jeffrey Connors

E-mail: jeffrey.connors@uconn.edu

Office: ACD 114C

Office hours: Monday and Wednesday 1:30-3:00 PM, or by appointment. In general, just let me know via e-mail if you want to meet. If you need help you should also consider going to the Academic Center in ACD 107. I may also agree to meet online via MS Teams or possibly WebEx (set up a time before hand).

Communication: The instructor e-mail (above) will be the primary method to contact them outside of class. Students are expected to check the e-mail address

they have listed in HuskyCT for communications related to this course, with reasonable frequency (before each class, for example).

Required materials: None, but you are strongly advised to use the course text and online homework. These are available at no cost.

Text: *Calculus, Volume 1*, by G. Strang and E. Herman. PDF is available for free online via OpenStax – or just access it in HuskyCT.

Coursework and grade calculation

Homework: Online homework is available for free (MyOpenMath) – link in HuskyCT. Homework is available as a study tool, but it is not a component of the course grade (see below).

Exams: Three midterms and a final exam; see the schedule below. No notes, study materials or use of any electronic devices will be allowed during exams. No consultation with other students or looking at their exam work during the exam.

Worksheets: See the schedule below.

- We will do a short review aimed at preparing for the worksheet before it starts. PAPER notes can be taken during this time, if desired, and used during the worksheet. Any other resources can be accessed up until the worksheet start time.
- No other notes, study materials or electronic resources will be allowed during the worksheets.
- Students may consult each other and the course instructor during the worksheets.
- Worksheets must be submitted before leaving class.

Course grade: We begin with the following definitions.

- WS = your worksheet score for the entire semester. The lowest individual worksheet score will be dropped in this calculation.

- E_j = score on exam j, for $j = 1, 2, 3, 4$, where E_4 is the final exam.

Each of the five scores above is computed as a percentage. Next, find the lowest score in the following set: {WS, E_1, E_2, E_3}. In case there is not a unique lowest choice, one must be selected at random to represent the minimum. **Reset the lowest score selected in the previous step to be zero now**, then calculate the course grade to be

$$0.25 * (WS + E_1 + E_2 + E_3 + E_4),$$

which is rounded to the nearest whole percentage point. In other words, your course grade is an equally-weighted average of the highest four scores out of the five defined above, except that you must include your final exam score. The final grade is determined via the classical grading scale using this percentage. Classical grading scale: 0 – 59% = F, 60 – 62% = D-, 63 – 66% = D, 67 – 69% = D+, 70 – 72% = C-, 73 – 76% = C, 77 – 79% = C+, 80 – 82% = B-, 83 – 86% = B, 87 – 89% = B+, 90 – 92% = A-, 93% and higher = A.

Course Learning Objectives

By the successful completion of Math 1131Q, students will be able to:

Unit 1: Functions, Limits, and Continuity (Chapters 1 & 2)

- **Manipulate and graph** algebraic, exponential, logarithmic, trigonometric, and inverse functions to model mathematical relationships.
- **Calculate** limits of functions numerically and algebraically using limit laws and algebraic simplification.
- **Determine** the continuity of functions over given intervals and classify points of discontinuity (removable, jump, or infinite).
- **Apply** the precise (ϵ-δ) definition of a limit to verify limit statements.

Unit 2: Differentiation and Derivative Rules (Chapter 3)

- **Calculate** instantaneous rates of change and slopes of tangent lines using the limit definition of the derivative.

- **Compute** derivatives of polynomial, rational, trigonometric, exponential, and logarithmic functions using standard differentiation rules (including product, quotient, and chain rules).
- **Determine** derivatives of implicitly defined relations and inverse trigonometric functions.
- **Interpret** derivatives in physical and engineering contexts as velocities, accelerations, and rates of change.

Unit 3: Applications of Derivatives (Chapter 4)

- **Solve** applied related rates and optimization problems by constructing, differentiating, and analyzing mathematical models.
- **Analyze** the behavior of functions—including intervals of increase/decrease, concavity, local extrema, inflection points, and asymptotes—and sketch accurate graphs.
- **Apply** the Mean Value Theorem and l'Hôspital's Rule to evaluate function properties and resolve indeterminate limit forms.
- **Construct** linear approximations and utilize Newton's Method to calculate numerical approximations of roots.

Unit 4: Integration and the Fundamental Theorems (Chapters 4 & 5)

- **Compute** antiderivatives and evaluate indefinite integrals for standard algebraic and transcendental functions.
- **Approximate** net area under a curve using finite Riemann sums.
- **Evaluate** definite integrals using the Fundamental Theorem of Calculus and apply the Net Change Theorem to calculate accumulated change.
- **Calculate** integrals of composite functions using the substitution rule.

Policies

Diagnostic test: Students are REQUIRED to complete a proctored diagnostic assessment, which is scheduled in the first week of the course (see schedule below). The diagnostic test will help the course instructor to better understand your needs, as well as providing valuable data in aggregate to help inform the faculty about student needs for the Calculus program. Although it is not included as part of the course grade calculation, it will help both the individual student and broader programmatic efforts to make a serious effort on this assessment.

Artificial intelligence (AI): AI tools are not required for this course, but students are encouraged to use AI for study purposes. AI can be used to help explain the course material, provide additional practice, and more. These tools will not be available during any proctored assessments (diagnostic test, worksheets, and exams). Otherwise, these assessments would be rendered meaningless, since the point is for a student to demonstrate their knowledge and skills.

Make-up work: Students are expected to be available during the usual class times, and should try not to schedule activities that create conflicts. Permission to make up proctored assessments must be granted **prior to the start of the assessment** (e-mail the course instructor). Agreement upon a suitable date and time is a requirement for approval. A student forfeits their right to make-up an assessment if they fail to appear at the scheduled date and time. Make-up work must be done in-person.

Final exam rescheduling policy: Finals for Fall 2026 begin the week of Monday, December 14th. Students are required to be available for their exam and/or complete any assessment during the time stated in the Registrar's Office schedule. If you have a conflict with this time you must visit the Avery Point Student Services Office to discuss the possibility of rescheduling this final. The Office of Student Services REQUIRES advance notice from students who have prior knowledge of a conflict (i.e., bunched finals, religious obligation, legal/medical appointments, etc.) Please note that vacations, previously purchased tickets or reservations, graduations, social events, misreading the assessment schedule and over-sleeping are not viable reasons for rescheduling a

final. If you think that your situation warrants permission to reschedule, please contact the Office of Student Services (Branford House 306) to make an appointment.

Student Conduct Code: Students are expected to conduct themselves in accordance with UConn's Student Conduct Code: `https://community.uconn.edu/the-student-code`.

Academic Integrity Statement: 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 with your instructor. Additionally, consult UConn's guidelines for academic integrity: `https://community.uconn.edu/the-student-code-appendix-a`.

Integrity of proctored assessments:

- In this course, graded assessments are proctored and the use of materials or electronic devices during assessments is generally not allowed, with the exception of the paper notes as described in the "Worksheets" section of this syllabus.
- In order to avoid the appearance of any policy violation (for example, having a smart device stored improperly, such as in a pocket or out under a desk), it is recommended either to put away any materials or electronic devices where they cannot be accessed during the assessment, or to place clearly within view on the desk so that the proctor can directly monitor any potential usage.
- Students may not bring any materials or electronic devices in or out of the classroom during proctored assessments.

Classroom behavior: Behavior that is disrespectful and/or disrupts teaching activity during classes is prohibited by the Student Code of Conduct. Students should consider how their behavior may impact others. Please refrain from activities such as talking while the instructor is speaking to the class or using electronic devices in a way that creates an auditory or visual distraction, for example.

Course policy violations: Violations of the above course policies will be handled as follows.

- In case the violation is minor in nature and does not constitute a repeated behavior, the course instructor will provide a verbal warning and clarification of the policy. The instructor will follow up with an e-mail to any students involved, documenting the incident and asking the students to acknowledge that they understand the policy.
- In the case of more serious violations, which include repeated incidents of a less serious nature, the student will receive an e-mail documenting the policy violation, which will be copied to any relevant University staff for further action.
  - Violations related to prohibited resources during a proctored assessment will be considered serious.
  - The instructor will discuss consequences in the written report. In case the violation relates specifically to prohibited resources during an assessment, the consequence will be denial of credit for that assessment, with no opportunity to replace this component of the course grade calculation. More generally, various sanctions may be requested, such as those found here: `https://community.uconn.edu/the-student-code/the-student-code-part-iv/`

Policy Against Discrimination, Harassment and Inappropriate Romantic Relationships: 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 Romantic 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 Romantic relationships, and such behavior will be met with appropriate disciplinary action, up to and including dismissal from the University. (More information is available at `http://policy.uconn.edu/?p=2884`).

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 and 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 will remain private, it will not be confidential and will be shared with University officials who can help. (More information is available at `https://titleix.uconn.edu/`.

Students with Disabilities: The Center for Students with Disabilities (CSD) at UConn provides accommodations and services for qualified students with disabilities. If you have a documented disability for which you wish to request academic accommodations and have not contacted the CSD, please do so as soon as possible. The CSD is located in Wilbur Cross, Room 204 and can be reached at (860) 486-2020 or at csd@uconn.edu. Detailed information regarding the accommodations process is also available on their website at `csd.uconn.edu`.

Date	Sections	Topics	Notes
Aug. 31	1.1-1.3	Review of functions	
Sept. 2	1.4-1.5	Exponential and logarithmic functions, inverses	Diagnostic test
Sept. 7			Labor Day - no class
Sept. 9	2.1-2.2	Tangents, velocity and limits of functions	Worksheet
Sept. 14	2.2-2.3	Calculation of limits	Worksheet
Sept. 16	2.4-2.5	Continuity, Precise limit definition	Worksheet
Sept. 21	1.1-2.6	Review for Exam 1	Worksheet
Sept. 23			**EXAM 1**
Sept. 28	3.1-3.2	Derivatives	
Sept. 30	3.3	Derivative rules, applications	Worksheet
Oct. 5	3.4-3.5	Rates of change, trigonometric derivatives	Worksheet
Oct. 7	3.6-3.7	Chain Rule, derivatives of inverse functions	Worksheet
Oct. 12	3.8-3.9	Implicit differentiation, exponentials and logarithms	Worksheet
Oct. 14	3.1-3.9	Review for Exam 2	Worksheet
Oct. 19			**EXAM 2**
Oct. 21	4.1-4.2	Related rates, linear approximations	
Oct. 26	4.3-4.4	Maxima and minima, Mean Value Theorem	Worksheet
Oct. 28	4.5-4.6	Curve sketches, asymptotes	Worksheet
Nov. 2	4.7-4.8	Optimization, l'Hôspital's Rule	Worksheet
Nov. 4	4.8-4.9	Newton's Method	Worksheet
Nov. 9	4.1-4.9	Review for Exam 3	Worksheet
Nov. 11			**EXAM 3**
Nov. 16	4.10, 5.1	Antiderivatives, Area approximation	
Nov. 18	5.1-5.2	Definite integral	Worksheet
Nov. 23			No class (Fall break)
Nov. 25			No class (Fall break)
Nov. 30	5.3	Fundamental Theorem of Calculus	Worksheet
Dec. 2	5.4	Net Change Theorem	Worksheet
Dec. 7	5.5	Substitution rule	Worksheet
Dec. 9	All	Review for Final Exam	Worksheet
Dec. ?			**FINAL EXAM**