

Lecture: Monday-Wednesday-Thursday, 1:35pm–2:40pm, Richards Hall 237.

Instructor: Evan Dummit, Lake Hall 571, edummit@northeastern.edu.

Office Hours: Monday-Thursday 10:45am–12:15pm + Thursday 3:00-4:00pm, or by appointment.

Course Webpage: https://web.northeastern.edu/dummit/teaching_fa19_1341.html.

Course Textbook: The instructor will write lecture notes for the course (in lieu of an official textbook) as the semester progresses. The course will generally follow the presentation in the two books “Worldwide Differential Calculus” and “Worldwide Integral Calculus” by D. Massey, but it is not necessary to purchase either of these books for this course.

Course Topics: This course provides an introduction to differential and integral calculus of one variable. Specifically, the course covers rates of change, limits and their applications, differentiation and numerous applications (analyzing motion, graphing, finding minimum and maximum values, antiderivatives), and the basic theory of integration (definite integrals, Riemann sums, the fundamental theorem of calculus, integration techniques, computing areas). Success in this course will require facility with the basic concepts and with computational applications.

Grades: Your course grade consists of **15% WeBWorK/Quizzes** and **85% exams**.

There are three exams (two midterms and a final): each 1-hour midterm contributes 22.5% of your grade, while the 2-hour final contributes 40%.

The homework score consists of your total WeBWorK and quiz points divided by the total number of WeBWorK and quiz problems assigned.

An overall raw score of 92% will be **at least** an A, 89% will be **at least** an A-, 86% will be **at least** a B+, 82% will be **at least** a B, 79% will be **at least** a B-, 76% will be **at least** a C+, 72% will be **at least** a C, and 69% will be **at least** a C-.

If you feel that an assignment or exam has been misgraded, please talk to the instructor directly. Requests for regrading will not be considered more than two days past the date the assignment or exam was returned.

Exams: There will be two 1-hour midterm exams, each contributing 22.5% of the total course grade, along with a 2-hour common final exam, contributing 40% of the total course grade.

If you miss an exam for any reason, you will receive a 0; make-up exams will not be given.

The midterms are scheduled for Thursday, October 17th and Wednesday, November 20th in class. The final exam is scheduled for 10:30am-12:30pm on Thursday, December 12th, location TBA.

Homework Assignments: Homework assignments will be assigned weekly via WeBWorK and due at 5am, typically on Tuesdays. WeBWorK is an electronic homework-assessment system that is free for students and has been designed specifically for courses in mathematics.

It is highly recommended to start work on the assignments early, because some problems are quite lengthy. Many students like to work on the problems as soon as the corresponding material is covered in lecture. Do not fall into the trap of only starting the assignment the evening before it is due!

All problems on all assignments will be counted (no assignments or problems will be dropped), so you should do as much as you can on each assignment even if you cannot completely finish it.

You are allowed **TWO** 24-hour extensions on WeBWorK assignments during the semester. To claim an extension on a set, email the instructor within 24 hours of the due date requesting to use your extension (the 24-hour extension applies to the original due date, not to the time you request the extension) as follows: “I would like to use a 24-hour extension on Set #”. You need not give any reason for requesting an extension. **Additional extensions will not be granted under any circumstances.**

Quizzes: Quizzes may be given in-class (with at least one day’s notice) at the instructor’s discretion on topics recently covered in class.

Students who have scored at least 95% on the most recent WeBWorK assignment automatically receive full points on a quiz. Makeup quizzes will not be given, and an unexcused quiz absence counts as a 0.

Course Schedule: The course and lecture notes are tentatively organized into five chapters, as follows:

Weeks 1-2: Chapter 0 ~ Preliminaries: Functions and inverse functions, trigonometric and inverse trigonometric functions, exponentials and logarithms.

Weeks 2-3: Chapter 1 ~ Limits and Continuity: Limits, the limit laws, one-sided limits, infinite limits, continuity and its applications.

Weeks 3-6: Chapter 2 ~ Introduction to Differentiation: Motivation of the derivative, the formal definition of the derivative, derivatives of basic functions, differentiation rules, logarithmic and inverse differentiation, implicit differentiation, parametric derivatives, related rates, linearization.

Week 7: Midterm 1, covers chapters 0-2.

Weeks 8-10: Chapter 3 ~ Applications of Differentiation: Minima and maxima, critical points, increasing and decreasing functions, Rolle's theorem and the mean value theorem, concavity, graphing with calculus, L'Hôpital's rule, applied optimization, antiderivatives and applications to physics.

Week 12: Midterm 2, covers chapter 3 and first half of chapter 4.

Weeks 11-14: Chapter 4 ~ Introduction to Integration: Definite integrals and Riemann sums, the fundamental theorem of calculus, computing definite integrals, substitution methods, computing areas using integrals.

Week 15: Final exam, covers chapters 0-4.

Collaboration/Technology Policy: You are free to use calculators and computer technology for homework problems, and calculators are allowed on exams **provided that they are not capable of symbolic algebra**.

Mathematics is fundamentally a collaborative endeavor, and discussing the course material with others is an excellent way to solidify your own understanding. In particular, you are allowed to work on, and discuss, homework assignments together, as long as the actual submissions are your own work.

A warning: it is critical not to outsource your learning! You cannot expect to retain knowledge if you do not solve your homework problems yourself, whether because you relied on other people to explain to you how to do the problems, or because you relied too heavily on technological assistance.

Please also note that 85% of the course grade is determined by the exams, on which collaboration is not allowed!

Attendance Policy: It is expected that you will attend every class. This course moves very fast, and it is quite possible to fall behind even if you only miss one day. If you miss class for any reason, it is highly advisable to consult the course lecture notes to catch up, and you may also wish to obtain notes from another student. It is your responsibility to be aware of all information announced in class, including modifications to the course syllabus or schedule, even if you are absent.

If you will be absent from a class activity due to a religious observance or practice, or for participation in a university-sanctioned event (e.g., university athletics), it is your responsibility to inform the instructor during the first week of class and provide appropriate documentation if required. Your instructor will work with you on alternative and reasonable arrangements for any time missed.

Statement on Academic Integrity: A commitment to the principles of academic integrity is essential to the mission of Northeastern University. Academic dishonesty violates the most fundamental values of an intellectual community and undermines the achievements of the entire University. Violations of academic integrity include (but are not limited to) cheating on assignments or exams, fabrication or misrepresentation of data or other work, plagiarism, unauthorized collaboration, and facilitation of others' dishonesty. Possible sanctions include (but are not limited to) warnings, grade penalties, course failure, suspension, and expulsion.

Statement on Accommodations: Any student with a disability is encouraged to meet with the instructor during the first week of classes to discuss accommodations. The student must bring a current Memorandum of Accommodations from the Office of Student Disability Services.

Statement on Classroom Behavior: Disruptive classroom behavior will not be tolerated.

In general, any behavior that impedes the ability of your fellow students to learn will be viewed as disruptive. Examples of disruptive behavior include, but are not limited to, ringing cell phones, listening to an audio player during class, constant talking, eating food noisily, or laptop usage (except for note-taking).

Statement on Inclusivity: Faculty are encouraged to address students by their preferred name and gender pronoun. If you would like to be addressed using a specific name or pronoun, please let your instructor know.

Statement on Evaluations: Students are requested to complete the TRACE evaluations at the end of the course.

Miscellaneous Disclaimer: The instructor reserves the right to change course policies, including the evaluation scheme of the course. Notice will be given in the event of any substantial changes.