

V63.0121: Calculus I

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Term: Spring 2010

Goals

Welcome to Calc I! In this course, we will study the foundations of calculus, the study of functions and their rates of change. We want you to learn how to model situations in order to solve problems. If you have already taken calculus before, we want you to gain an even deeper understanding of this fascinating subject.

Topics

The derivative measures the instantaneous rate of change of a function. The definite integral measures the total accumulation of a function over an interval. These two ideas form the basis for nearly all mathematical formulas in science. The rules by which we can compute the derivative (respectively, the integral) of any function are called a calculus. The Fundamental Theorem of Calculus links the two processes of differentiation and integration in a beautiful way.

Course Details

Class Meetings

Courses meet MW or TR for 75 minutes each class, along with a 75 minute recitation session. You must register for lecture and recitation separately.

A list of sections, their meeting times and locations, and their instructors can be found on through the Registrar's [Class Schedule Search](#). If you enter "Calculus I" in the course name search field, the current term's listings will automatically come up.

Homework

There are two media for homework in Calculus I.

There will be weekly online assignments administered through [WebAssign](#) (This is why a WebAssign software license is one of the required course materials), WebAssign problems are computational in nature and assess the techniques introduced in class. Many of these problems will resemble examples in the textbook or from class. You will get immediate feedback on your progress and will get several chances to ensure it.

There will also be problems to write up on paper each week and turn in. These problems will require more than just procedure, might connect two more more things together, and will more closely resemble the harder exam problems.

One of the major goals of college-level mathematics education is to move students from computational processes to conceptual thinking and communication. That is the biggest difference between this course and a high school course, even an Advanced Placement course. Mathematics is more than a bag of tricks and there are not a limited number of “types” of problems that can be asked. The goal in class is to *prepare* you to do the homework and not necessarily to *show you* how to do your homework. The learning occurs when you can move yourself into the unknown territory.

Graders will grade the written homework promptly, and solutions will be made available on the course website. Graders will be expecting you to express your ideas clearly, legibly, and completely, often requiring complete English sentences rather than merely just a long string of equations or unconnected mathematical expressions. This means you could lose points for unexplained answers. See the [homework](#) page for a more detailed rubric.

In fairness to fellow students and to graders, late homework will generally not be accepted. Because sometimes things more important than math homework come up, you have some free passes: Your lowest written assignment score and your three lowest WebAssign scores (one week’s worth in both cases) will be dropped in the final grade calculation.

By all means you may work in groups on the homework assignments. Collaboration is a big part of learning and of scholarship in general. However, each student must turn in his or her *own* write-up of the solutions, with an acknowledgment of collaborators.

There is free math tutoring sponsored by the math department, meeting in room 524 of Warren Weaver Hall. Check the signs posted throughout WWH and the [tutoring web page](#).

Exams

There will be one midterm exam, held in class on March 3 (for MW sections) or 4 (for TR sections).

The final exam for all sections (including evening sections) will be Monday, May 10 from 12:00–1:50pm. Please make a note of it and plan your winter travel schedule accordingly.

Exams will contain a mixture of computational and conceptual problems. Some of them will resemble homework problems, while some will be brand new to you.

Quizzes will also be given during class or recitation. The schedule will be determined by your teaching team and published in advance (i.e., no pop quizzes). Quiz scores will be averaged together, again dropping the lowest.

Policy on out-of-sequence exams and missed quizzes

We are only able to accommodate a limited number of out-of-sequence exams due to limited availability of rooms and proctors. For this reason, we may approve out-of-sequence exams in the following cases:

1. A documented medical excuse.
2. A University sponsored event such as an athletic tournament, a play, or a musical performance. *Athletic practices and rehearsals do not fall into this category.* Please have your coach, conductor, or other faculty advisor contact your instructor.
3. A religious holiday.
4. Extreme hardship such as a family emergency.

We will not be able to accommodate out-of-sequence exams, quizzes, and finals for purposes of more convenient travel, including already purchased tickets.

Scheduled out-of-sequence exams and quizzes (those not arising from emergencies) must be taken *before* the actual exam. Otherwise, please talk to your instructor before you return to class.

If you require additional accommodations as determined by the Center for Student Disabilities, please let your instructor know as soon as possible.

Prerequisites

Students who wish to enroll in Calculus I must meet *one* of the following prerequisites:

- An SAT Math score of 750 or higher.
- An ACT/ACTE Math score of 34 or higher.
- A score of 4 or higher on the Advanced Placement (AP) Calculus AB test
- A score of 3 or higher on the Advanced Placement (AP) Calculus BC test
- Completion of Algebra and Calculus (V63.0009) with a grade of C or higher.
- Our department's Calculus I placement test.

See the math department's [placement](#) web page for more information.

Grades

Your course score will be determined as the following weighted average:

Item	Weight
Midterm	25%
WebAssign	10%
Written Homework	10%
Quizzes	15%
Final	40%
Total	100%

We will convert this score to a letter grade beginning with these values as cutoffs:

Cutoff	Letter Grade
93	A
90	A-
87	B+
83	B
80	B-
75	C+
65	C
50	D

These cutoffs might be adjusted, but only in the downward direction (to make letter grades higher).

Textbook and Materials

You need a textbook and you need WebAssign access. We have tried to provide as many options as possible for you to achieve this.

Essential Calculus, Early Transcendentals by James Stewart is the official textbook for the course. NYU has a custom imprint of this text which is sold bundled with access to Enhanced WebAssign. Enhanced WebAssign includes a hyperlinked electronic format of Stewart's *Calculus, Early Transcendentals* (of which *Essentials* is a slimmed-down version) accessible through the web.

In addition to the hardcover custom textbook, the NYU bookstore also has a limited number of looseleaf printings on three-hole punched paper, bundled with access to Enhanced WebAssign. These are less expensive up front, easier to carry around (since you don't have to carry the entire textbook at once), but cannot be sold back to the bookstore.

You may also buy the latest edition of *Essential Calculus, Early Transcendentals*, ISBN-13 978-0-495-01428-7 non-customized, elsewhere. Then you can buy [WebAssign](#) (regular or Enhanced with Stewart's *Calculus, Early Transcendentals*) from them online directly.

Finally, you may decide to go completely electronic. You may buy online (through [iChapters](#)) an electronic format of *Essential Calculus, Early Transcendentals*, or a subset of that text consisting of which chapters you will need. This will be the exact same text, problem numbering, section numbering, and pagination as the official edition, but is not hyperlinked. With this you could buy regular WebAssign without the electronic text included. Or, you may buy Enhanced WebAssign alone, and we will provide the correspondence between problems assigned in *Essentials* with those from the full version of *Calculus*. Or, of course, you could buy both the electronic format of *Essential Calculus, Early Transcendentals*, and Enhanced WebAssign which includes the hyperlinked version of *Essential Calculus, Early Transcendentals*.

Which one is right for you? If you want to minimize your total costs but want some kind of paper textbook, it's either a used textbook and regular WebAssign or the official looseleaf edition which includes Enhanced WebAssign. If you don't desire a paper text, get Enhanced WebAssign and nothing else.

If you want the most textbook for your dollar, you probably want one of the paper textbook plus Enhanced WebAssign bundles sold in the bookstore. You'll have the full paper version with no confusion about staying in sync with the instructor, and the full hyperlinked electronic version. The hardcover can be sold back, but the looseleaf is more convenient.

The calculator question

A graphing calculator is encouraged for class discussion and on homework, but not allowed for exams. No specific calculator is endorsed, so do not buy a new one. If you have one already, continue to use that one; if you do not, try free alternatives such as [Wolfram Alpha](#).

Calendar

The day-by-day [schedule](#) is also available.

Conclusion

We look forward to seeing you in Calculus I!