

Calculus I MATH 150.08  
Fall 2015  
4.0 Hours, 4.0 Credits  
Department of Mathematics and Statistics  
Hunter College

**Instructor:** Professor Lev Shneerson, Department of Mathematics and Statistics.

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**Time and location:** Tuesday, Friday. 9:10-11 AM. Room 415 HW.

**Office hours:** Tuesday, 11:10AM-12:40 PM, Wednesday, 1PM-1:45 PM (by appointment).

**Course Description:** This is a one semester introduction to differential and integral calculus, suitable for all students majoring in science or mathematics, or any other course of study requiring calculus.

**Expected Learning Outcomes:** The student will learn about functions of one variable, including the concepts of limit, continuity and the derivative. The student will be able to compute derivatives of various functions such as polynomials, rational functions, trigonometric functions, exponential and logarithm functions. The student will learn the Mean Value Theorem and the Intermediate Value Theorem. These concepts will be applied by the student to various problems involving related rates, curve sketching and optimization, and linear approximation. The student will learn about antidifferentiation and the Riemann integral, and will be able to compute Riemann integrals of some simple functions using the Fundamental Theorem of Calculus. Finally, the student will apply these techniques to compute areas.

**Prerequisites:** Completion of MATH 125 or the equivalent with a grade of C or higher, or appropriate score on the CUNY math placement exam.

**Textbook:** **Calculus (Single variable) 2nd Edition**, *William Briggs, Lyle Cochran, Bernard Gillett*, Pearson.

**Topics to be covered:**

Chapter 2

2.1 The Idea of Limits

2.2. Definition of Limits

2.3 Techniques for Computing Limits

2.4 Infinite Limits

2.5 Limits at Infinity

2.6 Continuity

2.7 Precise Definition of Limits

### Chapter 3

3.1 Introducing the Derivative

3.2 Working with the Derivatives

3.3 Rules of Differentiation

3.4 The Product and Quotient Rules

3.5 Derivatives of Trigonometric Functions

3.6 Derivatives as Rates of Change

3.7 The Chain Rule

3.8 Implicit Differentiation

3.9 Related Rates

### Chapter 4

4.1 Maxima and Minima

4.2 What Derivatives Tell Us

4.3 Graphing Functions

4.4 Optimization Problems

4.5 Linear Approximation and Differentials

4.6 Mean Value Theorem

4.9 Antiderivatives

### Chapter 5

5.1 Approximating Areas under Curves

5.2 Definite Integrals

5.3 Fundamental Theorem of Calculus

5.4 Working with Integrals

5.5 Substitution Rule

## Chapter 6

6.1 Velocity and Net Change

6.2 Regions between curves

## Chapter 7

7.2 The Natural Logarithmic and Exponential Functions

7.4 Exponential Models

The official text for the course is a **bundle**, consisting of (single variable) Calculus by Briggs, Cochran and Gillett (2nd edition) + **MyMathLab** .

**Course Name: Calculus 1-Math 150**

**Course ID: shneerson36829**

Use this Course ID to add your class after you have purchased the textbook bundle (or signed up for MML online at coursecompass.com, if you don't want a physical book) and have created your own student account with your Access Code.

**Attendance:** It is important to attend every class because almost every lecture is based on previous material.

If you miss a class, you should **contact with one of your classmates** or the instructor to find out what was done in a class and whether important announcements were made and read the appropriate sections of the book.

### **Policy on Homework, Exams and Grades:**

Homework will be assigned on a regular basis and will count for 10% of your grade. We will use MyMathLab Web, an online homework system.

**Homework will consist of two types of assignments: (1) problems with the textbook which will not be graded but very important for understanding the course and (2) web assignments which will be graded by the MyMathLab system.**

It is expected that you will spend a lot of time working on the problem sets. The deadline for completing the online homework can be extended by the student's request but you must do the homework problems before they are tested on. The request for an extension of the homework will not be accepted after 5 days of the exam testing the corresponding topic.

There will be three exams and a *cumulative* final exam. The dates of the class exams will be announced 7-10 days in advance. The final exam is created by the course coordinator. The exams will count for 90% of your grade. The final will be worth two of the other exams.

You will not need to prove any theorems during the exam. However the proofs or their outlines are very important for understanding the basic ideas of the course and the solution methods of many problems.

**You are allowed to use only a scientific calculator (no graphing display) on the class exams and the final exam. All electronic devices must be turned off.**

**THERE ARE NO MAKEUP EXAMS.**

**Your lowest exam grade will be dropped. (If the final is the lowest grade it will be counted as one exam.)** If you miss an exam, that will count as your lowest grade, so it will be dropped. If you miss *two* exams prior to the final then your status in the course will be in serious jeopardy.

If you **stop attending** the course and do not withdraw, you will receive a grade of **WU**. There are no exceptions.

**IF YOU MISS THE FINAL** and have a **D** or **F** average in the course (without dropping any grade!) **YOU FAIL THE COURSE.**

**IN ORDER TO RECEIVE AN INCOMPLETE YOU MUST HAVE A JUSTIFIED ABSENCE FROM THE FINAL EXAM AND HAVE TAKEN AT LEAST TWO IN-CLASS EXAMS WITH AN AVERAGE OF 70 OR MORE.**

You may elect to take the course on a **credit/no credit** basis if you are eligible, but this is subject to the College's rules, which means you that you will not be eligible for credit/no credit grading unless you have taken all the exams, including the Final Exam, and completed most of the homework. Students on **probation** are **not eligible** for **CR/NC**.

**Academic Integrity:** *Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.*

**Disabilities: If you have a disability that you believe requires special accommodations:** In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical and/ or Learning) consult the Office of AccessABILITY located in Room E1214B to secure necessary academic accommodations. For further information and assistance please call (212- 772-4857)/TTY (212- 650- 3230).

**GOOD LUCK!**