MATH 150 – Calculus with Analytic Geometry I

Department of Mathematics and Statistics Hunter College

4.0 hours, 4.0 credits

Instructor:

Email:

Office Hours:

Department Office: 919 Hunter East, (212) 772-5300.

Course Description: This is the first semester of our calculus sequence, suitable for all students majoring in science or mathematics, or any other course of study requiring at least the first semester of calculus.

Mode of Instruction: This is an in-person class. We will be using the online homework platform Lumen (see below). Information will be posted on the BlackBoard page for the course.

Blackboard: This is where I'll post the syllabus (this document), announcements, solutions to exams and various other problems, supple- mental material, and other information relevant to the course. When I email announcements to the class it will be through BlackBoard, so make sure that your email address in the BlackBoard database is one that you check regularly. If the only email address that you check regularly is not the one that is in BlackBoard then that will be a problem.

Lumen:. Lumen is the online homework platform that we will be using. There will be homework problems posted on Lumen. You will need to get a Lumen account if you don't already have one. There is a $25 fee for accessing the class material. You can sign up for a Lumen account at https://ohm.lumenlearning.com.

Dolciani Mathematics Learning Center: The DMLC, located on the 7th floor of the library, is an extremely valuable resource to Hunter math students. They offer a wide range of services, including in-person and online tutoring in Calculus. Their web page is https://www.hunter.cuny.edu/dolciani, or better yet go in and check them out.

Expected Learning Outcomes:

The student will learn about functions of one variable, including the concepts of limit, continuity, the derivative, and the integral.

- The student will be able to compute derivatives of various functions using the definition of the derivative, the power rule, the product and quotient rules, the chain rule, and implicit differentiation.
- 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.
- The student will apply these techniques to computing areas and volumes.

Prerequisites**: MATH 12550, Precalculus, or its equivalent, with a grade of C or better.**

Required Textbook:

Essential Calculus (Second Edition) by James Stewart, Cengage Publishing. You can buy the hardcover version and/or the electronic version. Hardcover editions are available at the campus bookstore which is online, or at other bookstores. Here is a link for purchasing the electronic version of the textbook.

Online Homework: This course will use Lumen, an online homework and exam system.

Topics Covered:

Chapter 1:

1.3 The Limit of a Function
1.4 Calculating Limits
1.5 Continuity
1.6 Limits Involving Infinity

Chapter 2:

2.1 Derivatives and Rates of Change
2.2. The Derivative as a Function
2.3 Basic Differentiation Formulas
2.4 The Product Rule and Quotient Rules
2.5 The Chain Rule2.5 The Chain Rule
2.6 Implicit Differentiation
2.7 Related Rates
2.8 Linear Approximation and Differentials

Chapter 3:

3.1 Maximum and Minimum Values
3.2 The Mean Value Theorem

3.3 Derivatives and the Shapes of Graphs
3.4 Curve Sketching
3.5 Optimization Problems
3.7 Antiderivatives

Chapter 4:

4.1 Areas and Distances
4.2 The Definite Integral
4.3 Evaluating Definite Integrals
4.4 The Fundamental Theorem of Calculus
4.5 The Substitution Rule

Chapter 7:

7.1 Areas Between Curves
7.2 Volumes
7.3 Volumes by Cylindrical Shells

Exams: There will be three midterm exams and a comprehensive final exam. The first exam will be approximately a third of the way through the course, the second exam will be approximately two thirds of the way, and the third exam will be near the end of the semester, before the last class meeting. The final exam will be after the last class meeting, on the date scheduled by Hunter College for this particular section.

Grading: Homework will count for 10% of your course grade, the exams will count for 90%. The final exam will be worth twice as much as the midterm exams. Your lowest exam score will be dropped entirely, if it is a midterm exam. If your lowest exam score is the final exam, then it will be worth only one of the midterm exams.

If you stop attending the course and do not withdraw, you will receive a grade of WU. The last day to drop a course with a 25% tuition refund and nothing appearing on your record is Thursday September 14. The last day to drop the course with no tuition refund and a grade of W appearing on your record is Monday December 11.

NOTE: P/NC grading is not permitted for this course.

Hunter College Policy on 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.

ADA Policy: 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 or (212) 650-3230.

Hunter College Policy on Sexual Misconduct. In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College.

a. Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, or contacting the College's Public Safety Office (212-772-4444).

b. All Other Forms of Sexual Misconduct: Students are also encouraged to contact the college's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123.

Changes:. Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.