MATH 155 – Calculus with Analytic Geometry II

Spring 2021 Section 01

Department of Mathematics and Statistics Hunter College

M/Th 11:10am-1:00pm Zoom:professorthompson 4.0 hours, 4.0 credits

Instructor: Prof. Rob Thompson robert.thompson@hunter.cuny.edu

Office Hours: M/Th 2:00-3:00 PM, and by appointment.

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

Mode of Instruction: This is a fully online class. All classes and exams will be held during the regularly scheduled class time, which is M and Th, 11:10am-1:00pm. We will be using **three different online platforms** (however make sure you read the Lumen item below).

- **Blackboard:** The Blackboard page for this course will be home base for information. This is where I'll post the syllabus (this document), announcements, solutions to exams and various other problems, supplemental material, links to the videos of the classes, and other information relevant to the course. The homework problems and exams will also be accessed on the BlackBoard site as well (see Lumen item below). As a Hunter student registered in the course, you should automatically have access to the Blackboard page. 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.

- **Zoom:** The actual, real time classes, MTh 11-1, will be held on Zoom. You do not need to have a Zoom account to use Zoom, but you will have to install the app on your computer or phone, if you don't have it already. My Zoom name is **professorthompson**. Alternatively you can use my Zoom ID number **589 480 2594**. At the start of each class I will open a session and you can enter it. There will not be a passcode required.

- **Lumen:**. Lumen is the online homework and exam platform that we will be using. All the homework problems will be on Lumen, and you will also take the exams on Lumen. You do NOT need to get a Lumen account. I have integrated the Lumen site for our course into BlackBoard so you will access the Lumen homework problems and exams directly through BlackBoard. If you already have a Lumen account from a previous class that's fine, but you won't be accessing Lumen for our course through that account, you'll access it through BlackBoard instead.

Expected Learning Outcomes:

The student will learn to

- differentiate and manipulate transcendental functions,
- evaluate definite and indefinite integrals using substitution, integration by parts, trigonometric substitution, and partial fractions,
- approximate definite integrals using numerical techniques,
- compute arc lengths of curves and areas of surfaces of revolution in rectangular and polar coordinates,
- evaluate the convergence of infinite series, and compute and manipulate power series representations of functions.

Prerequisites: MATH 150, Calculus with Analytic Geometry I, 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. There is information and a link for purchasing the textbook on the Blackboard page.

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

Topics Covered:

Chapter 5: Inverse Functions
5.1 Inverse Functions
5.2 The Natural Logarithmic Function
5.3 The Natural Exponential Function
5.5 Exponential Growth and Decay
5.6 Inverse Trigonometric Functions
5.8 Indeterminate Forms and l'Hospital's Rule

Chapter 6: Techniques of Integration
6.1 Integration by Parts
6.2 Trigonometric Integrals and Substitutions
6.3 Partial Fractions
6.5 Approximate Integration
6.6 Improper Integrals

Chapter 7: Applications of Integration
7.4 Arc Length
7.5 Area of a Surface of Revolution
7.6 Applications to Physics and Engineering
7.7 Differential Equations

Chapter 8: Series
8.1 Sequences
8.2 Series
8.3 The Integral and Comparison Tests
8.4 Other Convergence Tests
8.5 Power Series
8.6 Representing Functions as Power Series
8.7 Taylor and Maclaurin Series
8.8 Applications of Taylor Polynomials

Chapter 9: Parametric Equations and Polar Coordinates
9.1 Parametric Curves
9.2 Calculus with Parametric Curves
9.3 Polar Coordinates

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.

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 attended most class periods, taken all the exams, including the Final Exam, and completed most of the homework.

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).

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'sTitle 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 complimentaryservices through the Counseling and Wellness Services Office, Hunter East 1123.

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