Calculus with Analytic Geometry 3
Course Outline
MATH 250 Section 02[2660], Spring 2016
Mondays and Wednesdays 5:35PM - 7:25PM, Room: HW406
CUNY Hunter College

Instructor: Byungdo Park

Email: byungdpark@gmail.com

Office hours: By appointment.

Section webpage: Announcements, homework, exam schedules and other relevant information will be posted on the following webpage: http://tinyurl.com/s16huntermath250 which is also accessible via instructor's webpage: http://wfs.gc.cuny.edu/bpark/www

Textbook: Jerrold Marsden and Anthony Tromba, *Vector Calculus*, 6th Edition, W. H. Freeman, ISBN-10: 1429215089

Course description: We shall study differential and integral calculus in several variables. We will begin with a brush-up on Euclidean spaces and establish terminologies and notations. Then we will discuss differentiation of functions, Taylor series, critical points and extrema in several variables, vector-valued functions, multiple integrals, Fubini's theorem, and change of variables theorem.

This course is one of the most important underpinnings of *MATH 255: Vector Analysis* wherein Stokes' theorem is discussed as well as several higher-level mathematics courses such as real analysis, complex analysis, and differential geometry. Therefore, the course progression will be accomodating more to mathematics major in order to help them to form necessary background. In particular, this section of MATH 250 will put an emphasis on ability to write mathematical proofs, by allocating approximately 30% of exam questions asking proofs.

We are planning to cover 27 sections of the textbook in 26 lectures. There is a high possibility that we would not have to time for problem sessions.

Exam policies: One midterm exam and one cumulative final exam. An exam might not be of a form of an in-class written exam. Depending on class atmosphere and performance, a take-home exam or an oral exam may replace an in-class exam. If the exam is not an in-class exam, the announcement will be made at least two weeks in advance.

Make-up exam policies: If you miss the midterm exam under a justifiable and documentable reason, your final exam score will be used also for the midterm score. There will be no make-up midterm exam. There will be an emergency make-up for final exam for those who meet the criteria.

Homework policies: A list of homework problems will be posted on the webpage roughly in

weekly basis. Late homework will be accepted. The instructor will assign as many homework problems as it is needed to master the subject. The instructor will scan through each submitted homework and assign a score 2, 1, or 0 depending on quality of work. The homework score for the total grade will be calculated based on the following formula: $(\sum_{i=1}^{h} h_i \cdot n_i)/(\sum_{i=1}^{h} 2 \cdot n_i)$, where h is total number of homework assignment, h_i is the score for the i^{th} homework score, n_i is the number of problems in the i^{th} homework.

Attendance policies: Attendance data will be collected in every class meeting and will be used for various purposes, including determination of grades INC, WN, or WU. However the total score for the final letter grade will not reflect the attendance record.

Grading Policies: 30% from homework, 35% from Midterm Exam, and 35% from Final Exam.

Cell phone and electronic device policies: Cell phones are not allowed to use in class. Electronic devices should not be shown in any in-class exam.

Important dates:

- Monday, February 15th: No class — Presidents day
- Wednesday, March 23rd: No class — CUNY Friday
- Monday, April 25th: No class — Spring recess
- Wednesday, April 27th: No class — Spring recess
- Wednesday, May 18th: Last class meeting.

Tentative list of sections to be covered:

Chapter 1. The Geometry of Euclidean Space

1.1. Vectors in Two- and Three-Dimensional Space

1.2. The Inner Product, Length, and Distance

1.3. Matrices, Determinants, and the Cross Product

1.4. Cylindrical and Spherical Coordinates

1.5. n-Dimensional Euclidean Space

Chapter 2. Differentiation

2.1. The Geometry of Real-Valued Functions

2.2. Limits and Continuity

2.3. Differentiation