# MA210 CALCULUS I (4)

Spring 2002

TR 11:00 – 12:20 & T 12:40 – 1:50 HH37

**INSTRUCTOR: DR. CHOCK Y. WONG**

**Office:** Henry Hall 018 (Phone: 739-4682)

**Office Hours:** MW 11:40am–12:50pm, TH 1:00–2:00pm, T 2:00–3:30pm, or by appointments.

**Course Description:** This is the first course of a three-semester sequence of differential and integral calculus. Major topics are limits and continuity, differentiation and integration of algebraic functions and trigonometric functions, and basic applications.

**Prerequisites:** Precalculus (MA110 or equivalent), or placement test.

**Text Book:** Larson/Hoststler/Edwards: **CALCULUS Of A Single Variable** (6th edition).

**Objectives:** By taking this course, the student will

(1) gain understanding of the concept of limits;
(2) gain understanding of the continuity of functions;
(3) gain understanding of the concept of the derivative, and how it is related to the behavior of a function;
(4) develop skills to compute derivatives, and demonstrate a comprehension to use 8 basic formulas and 5 general rules for differentiation;
(5) develop skills to use derivatives in the following applications: Critical point analysis, graph sketching, and optimization problems;
(6) gain understanding of the concepts of indefinite integration and definite integration, and the Fundamental Theorem of Calculus;
(7) develop skills to calculate integrals, and demonstrate a comprehension to handle the basic antidifferentiation formulas and the U-substitution method;
(8) develop skills to solve applied problems using integrals.

**Topics:** Chapters 1 to 4 and selected sections from Chapter 6 will be covered.

(1) Limits and continuity. (Ch.1)
(2) Differentiation. (Ch.2)
(3) The Mean Value Theorem and applications of differentiation. (Ch.3)
(4) Definite and indefinite integration. (Ch.4)
(5) Applications of the integral in geometry: Areas, volumes, and arc lengths. (§§6.1–6.4)

**Homework:** There will be two sets of homework assignments for each subtopic (containing more than one section in general) of the course:

(1) You'll be given a list of selected odd numbered exercises from the text book, for *basic training* purpose. you may work through those problems (*on your own, need not turn in*) to make sure you have grasped the basic material of the subtopic;

(2) You'll will be given handout wooksheets which may contain deeper problems and require better understanding of the material and more skills to complete. **Turn in these worksheets on time for grading.** The due day of a worksheet is usually a week from the day it is assigned. It is important to turn in your homework on time so that the instructor can determine the pace of the course time by time (e.g., whether or not extra time and more instructions are needed for a subtopic) and move the whole class forward. Late homework may receive grading penalty.

## Quizzes and Exams:

10 quizzes (9 best scores will be counted), one mid-term exam (to cover Ch.1 & Ch.2, @ Week 8) and an accumulated Final Exam will be given. Please note in general **no** make-up quiz will be allowed (to discourage class absence), except for strong reasons with documentations.

## Grading:

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| HOMEWORK: | 33% of the total |
| QUIZZES: | 17% of the total |
| Mid-term EXAM: | 17% of the total |
| FINAL EXAM: | 33% of the total |