MA210-02 CALCULUS I (4)

Fall 2015 8/24 – 12/04/2015

MWF 10:30 – 11:20AM, **CCTC 253**, & T 1:30 - 1:20PM, HENR 104

INSTRUCTOR: Dr. CHOCK Y. WONG

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Office Hours: M: 12:30 – 1:20pm; T: 11:30am – 1:00pm; TH: 11:30am – 12:20PM; W& F: TBA; or by appointments.

Course Description: The first course in the calculus sequence. Topics include limits, differentiation and integration of single variable functions including polynomials, rational powers, and trigonometric functions, the mean value theorem, and the fundamental theorem of calculus. Both concepts and techniques as well as application will be stressed. Fulfills Track D general education requirement in mathematics.

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

Text Book: Larson/Edwards: **CALCULUS Of A Single Variable** (10th edition). ISBN 1-285-06028-8.

Learning Outcomes: 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.

These learning outcomes are directly linked to the Program Learning Outcomes, especially in terms of

• to demonstrate the understanding and skills in reading, interpreting and communicating mathematical contents which are integrated into other disciplines or appear in everyday life

• to articulate the understanding of more advanced mathematical concepts and computational skills to support the study of other disciplines, including skills with numeric, analytic and graphic methods

Standard writing format and basic algebraic skills will be emphasized throughout the course. Most assignments, quizzes and exams are not in multiple-choice format. Be ready (or learn how) to write solutions in step-by-step manner.

Topics & Tentative Schedule:

Chapters 1 to 4 and selected sections from Chapter 7 will be covered.

(1) Limits and continuity. (Ch.1)
Week 1 — Week 2.

(2) Differentiation. (Ch.2)
Week 3 — Week 7.

(3) The Mean Value Theorem and applications of differentiation. (Ch.3)
Week 9 — Week 11.

(4) Definite and indefinite integration. (Ch.4)
Week 12 — Week 14.

(5) (Optional) Applications of the integral in geometry: Areas, volumes, and arc lengths. (§§7.1–7.4)
Week 15.

Homework: To get success in this course, you need to attend and actively participate in all classes, and **do more exercises**. In order to keep up with the fast pace of the course, you are advised to do as many assigned "on-your-own" problems as you could, meanwhile turn in each assignment worksheet **on time**. You are encouraged to seek help from calculus tutoring web sites (for example, www.WolframAlpha.com) and form study groups when doing assignments. Sometimes I may issue a temporary "R" grade to your paper and ask you to REDO some problems — that is basically a second chance for you to correct errors and work for a higher score.

Follow the guidelines below when turning in your assignment worksheet:

(1) Most importantly, be **on time**. Grading penalty will be given to late homework papers.
(2) Use regular (10.5 x 8 in.) ruled paper, and write on only **one side** of the paper.
(3) Use **pencil only** to write your solutions and leave **spaces between problems**.
(4) Staple all pages with the assignment handout sheet (if there is one) as the **cover page**.

Calculators/Electronic Devices: A scientific calculator is required in class and is allowed in all quizzes and exams; graphic calculators are helpful, but not required. **Please note that cellular phones are not allowed to be used as calculators in all quizzes and exams.** [Also, according to the CUH Student Handbook, the use of cellular, wireless and other mobile telephones while in class is prohibited; emergency calls shall be engaged in outside of the classroom; and according to the NS&M Division's policy, use of music devices and cell phones is prohibited during all Natural Science and Mathematics classes at Chaminade.]

Quizzes and Exams:

Up to 10 quizzes will be given, with prior announced details for each quiz. To stress the importance of regular attendance for this class, **no make-up quiz** will be allowed in general; please also be aware that more often quizzes will be given in the 4th hour.

A mid-term exam will be given on Week 9, to cover Chapter 1 and 2. The Final Exam is going to be accumulative.

Grading: (subject to changes)

ATTENDANCE:	8% of the total	**A:**	$90 - 100\%$
HOMEWORK:	35% of the total	**B:**	$80 - 89\%$
QUIZZES:	15% of the total	**C:**	$70 - 79\%$
Mid-term EXAM:	14% of the total	**D:**	$60 - 69\%$
FINAL EXAM:	28% of the total	**F:**	below 60%