MA211-02 CALCULUS II (4)

Fall 2015 8/24 – 12/04/2011

TTH 10:00 – 11:20AM, **EIBN 202** & M 1:30 - 2:20PM, **EIBN 202**

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: Continuation of MA 210. Differentiation and integration of transcendental functions including exponential, logarithmic, and inverse trigonometric functions, and more techniques of integration make up the first part of the course. The second part covers topics in sequences and series, limits of sequences, L'Hpital's rule, convergence and divergence of series, Taylor series, and general discussion of power series.

Prerequisites: Calculus I (MA210) or equivalent.

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 more transcendental functions (logarithmic functions, exponential functions, inverse trigonometric functions): their differentiation and integration;

(2) acquire basic knowledge of differential equations that apply to growth and decay, and logistic models;

(3) develop advanced skills in integration (integration by parts, trigonometric substitution, and partial fractions) and limit evaluation (L'Hospital's rule);

(4) develop skills to solve applied problems (in physics and geometry) using integration;

(5) gain understanding of the concepts of sequences and series;

(6) develop skills to test the convergence of series and represent functions by power series.

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

• to develop mathematical maturity to undertake higher-level studies in mathematics and related fields.

Topics & Tentative Schedule:

Chapter 5, 6, 7, 8, and 9 will be covered. Main topics include:

(1) The transcendental functions: Their derivatives and integrals. (Ch.5)
   (i) The natural logarithmic function. Week 1
   (ii) Exponential functions. Week 2
   (iii) Inverse trigonometric functions. Week 3 — Week 4

(2) Differential equations. (Ch.6: selected sections)
   Week 5 — Week 6

(3) More techniques of integration; L'Hospital's rule. (Ch.8)
   (i) Integration by parts. Week 7
   (ii) Trigonometric integrals. Week 8
   (iii) Trigonometric substitution. Week 9
   (iv) Partial fractions. Week 10
   (v) L'Hospital's rule. Week 10

(4) Applications of the integral: Area, volume, and work problems. (Ch.7)
   Week 11 — Week 13

(5) Infinite series: Convergence, Taylor series, Power series. (Ch.9: selected sections)
   Week 14 — Week 15

Homework: Usually odd numbered problems from the textbook will be assigned either as **on-your-own** exercises or as homework to turn in — it will be indicated by handout homework worksheets. It is important for you to work through the assignments (both from textbook and worksheets) on time so that you can grasp the content of the course in a timely manner and keep up with the progress of the class. **Grading panalty will be given to late homework papers.** You are encouraged to seek help from calculus tutoring web sites (for example, www.WolframAlpha.com — may be required) and form study groups when doing assignments.

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:

Quizzes will be given as needed with prior announced details. To stress the importance of regular attendance, **no** make-up quiz will be allowed in general. A mid-term exam will be on Week 9, to cover Chapter 5, 6, and a part of Chapter 8. The Final Exam is expected to be accumulative.

Grading: (subject to changes)

ATTENDANCE:	8% of the total	**A:**	$90-100\%$
HOMEWORK:	40% of the total	**B:**	$80-89\%$
QUIZZES:	12% of the total	**C:**	$70-79\%$
Mid-term EXAM:	15% of the total	**D:**	$60-69\%$
FINAL EXAM:	25% of the total	**F:**	below 60%