

MA110-02 PRECALCULUS

Fall 2015 8/24 – 12/4/2011

MWF 11:30am – 12:20pm CTCC 253

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: Foundation for further study in mathematics. Primarily the preparatory course for MA 210. Topics include polynomials in general, functions and inverse functions, functions and graphs, exponential and logarithmic functions, trigonometric functions and their inverses, the binomial theorem, mathematical induction, all complex numbers. Not open to students with credit in MA 210 or higher courses.

Prerequisites: MA103 or equivalent, or by placement test.

Text Book: PRECALCULUS: Concepts through Functions (Custom Edition for Chaminade University). Sullivan/Sullivan. *Pearson Learning Solutions*. ISBN 1-269-37602-0.

Learning Outcomes: This course is designed to prepare students for calculus courses. By taking this course, students will

- (1) gain better understanding of the fundamentals of coordinate geometry;
- (2) gain understanding of the concept of functions: (i) algebraic definition and graph of a function, and (ii) combinations of functions;
- (3) develop algebraic and graphical skills to work with polynomial and rational functions;
- (4) develop algebraic and graphical skills to work with exponential and logarithmic functions;
- (5) gain better understanding of trigonometric functions of real numbers;
- (6) gain better understanding of trigonometric functions of angles;
- (7) develop skills in analytic trigonometry: Using trigonometric identities in simplification and evaluation of trigonometric expressions;
- (8) develop skills to solve trigonometric equations;
- (9) gain understanding of more advanced topics in integer functions.

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

Topics & Tentative Schedule This course will cover the following 11 lessons:

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| (1) Foundations: Distance formula; lines and linear functions; circles. | Week 1 |
| (2) Functions – basics: Algebraic and graphical aspects. | Week 2 - 3 |
| (3) Quadratic functions & quadratic modeling. | Week 4 |
| (4) Polynomial functions: graphs; real zeros. | Week 5 |
| (5) Rational functions: asymptotes. | Week 6 |
| (6) Exponential and logarithmic functions. | Week 7 - 8 |
| (7) Trigonometric functions: In right triangle and in unit circle. | Week 9 |
| (8) Graphs of trigonometric functions. | Week 10 |
| (9) Trigonometric identities; inverse trigonometric functions. | Week 11 - 12 |
| (10) Solving right triangles. | Week 13 |
| (11) Integer functions; mathematical induction. | Week 14 |

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.]

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 math 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 (10.5x8 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) Use **graph paper** for graph sketching.
- (5) Staple all pages with the handout worksheet (if there is one) as the **cover page**.

Quizzes and Exams:

Quizzes will be given in most weeks, with prior announced details. To stress the importance of regular attendance for this class, **no make-up quiz** will be allowed in general. An one-hour mid-term exam will be given on Week 9, to cover Chapter 1, 2, 3, and 4. The Final Exam is expected to be accumulative.

Grading: (subject to changes)

ATTENDANCE:	5% of the total	A:	90 – 100%
HOMEWORK:	30% of the total	B:	80 – 89%
QUIZZES:	20% of the total	C:	70 – 79%
Mid-term EXAM:	15% of the total	D:	60 – 69%
FINAL EXAM:	30% of the total	F:	below 60%