Math 161-01 – Precalculus and Elements of Calculus for Economics and the Social Sciences
UNIVERSITY OF HAWAI'I AT MANOA

Instructor:  Ka Lun Wong (Allan)
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Office hours: MW 9:30-10:30am
              TTh 11:00a-12:00n
              (or by appointment)

Course Coordinates:  TTh 12:00-1:15pm    Keller 303

Text:  Pearson Custom Mathematics for UHM Math 161
       (It comes with a Pearson's MyMathLab student access kit)

Course Description:  This course will cover algebra review, functions with special attention to polynomials, rational, exponential, and logarithmic functions, algebra of functions, techniques of graphing, differentiation and integration of algebraic functions, and applications in economics and the social sciences. Credit is allowed for only one of the following: MATH 135, MATH 140, or MATH 161. Grade Options: A-F, CR/NC or Audit.

Course Outline:

- **Fundamentals (3 Weeks):** Sets of real numbers, review of elementary algebra, solving equations and inequalities, coordinate geometry, and graphs of lines.

- **Polynomial and Rational Functions (3 Weeks):** Graphing polynomial and rational functions, asymptotes and singularities, the division algorithm, factor theorem, remainder theorem, and the Fundamental Theorem of Algebra.

- **Logarithmic and Exponential Functions (3 Weeks):** Graphing exponential and logarithmic functions, laws of logarithms, modeling and applications.

- **Differentiation (3.5 Weeks):** Tangent lines, differentiability, rules of differentiation and derivatives of algebraic functions, the derivative as rate of change, and applications.

- **Integration (2.5 Weeks):** Integrability, Fundamental Theorem of Calculus, areas under graphs and accumulation, as well as applications.
Grade: Your final grade for the course is determined according to the following scheme:

**Homework (written and online):** 20%
**Quizzes/In-class assignments:** 10%
**Midterm 1:** 15%
**Midterm 2:** 15%
**Midterm 3:** 15%
**Final:** 25%

**Course Objectives:** Upon successful completion of MATH 161, the student will be able to work with, apply, and answer questions pertaining to Precalculus, differentiate and integrate algebraic functions, and apply basic ideas of calculus to economics and the social sciences. MATH 161 is a course designed to strengthen the mathematical preparation of students in economics and the social sciences, and to expose these students to basic uses of calculus.

**Homework:** There will be a combination of written and online homework this semester. Written homework will be assigned for every class period and they are due at the beginning of each class. **NO late homework is accepted** unless you have a doctor-signed medical excuse or a University-approved excuse for off-island athletic events. You are encouraged to work with your classmates. Simplify your answers for the written homework. Give exact answers instead of decimals unless specified. Online homework will utilize Pearson's MyMathLab. There will be one online homework assignment assigned each week (after Tuesday lecture) and it is due on Tuesday at noon.

**Quizzes/In-class assignment:** Quizzes will be given in class at advance notice.

**Exams:** Exams are closed book. No notes. No calculators. The final exam will be a cumulative written exam given in class on May 7, 2013 at 12:00-2:00pm.

**Important Dates:**
- Drop Deadline w/o "W" ................................................. January 14
- Holiday: Mattin Luther King Day .................................................. January 21
- Withdrawal Deadline ................................................................. March 8
- Spring Recess........................................................................March 25-29
- Holiday: Kuhio Day .................................................................March 26
- Holiday: Good Friday .................................................................March 29
- Last Day of Instruction .............................................................. May 1
- Study Days............................................................................... May 2-3
- Final Exam............................................................... May 7 12:00-2:00pm