Math 1404 (Precalculus) Section 10614 TTh 8:30 – 10:15 am

Instructor: Dr. Ongard Sirisaengtaksin  
Office: S711  
Tel: (713) 221-8554  
Email: ongards@dt.uh.edu  
Web: http://cms.dt.uh.edu/faculty/ongards/  
Office Hours: MTWTh 2:00-3:00 pm and by appointment

Catalog description: (4-4-0) A thorough treatment of the elementary functions and their graphs, including polynomials, rational functions, exponential functions and logarithms. Applications of the elementary functions to practical problems such as modeling are stressed. Topics from plane analytic geometry needed in calculus are covered as well, including polar coordinates, conic sections and parametric curves. The course concludes with an introduction to sequences and series.

Course prerequisites: A grade of “C” or better in MATH 1302 or placement by exam taken at UH-Downtown. You should have access to a scientific calculator throughout the course. A scientific calculator is one that includes “ln” and “log” keys.


Course grade: Your course average is determined by quizzes (10%), three major tests (20% each) and a comprehensive final exam (30%). You will receive (based on your course average) a course grade of “A” (90-100), “B” (80-89), “C” (70-79), “D” (60-69), or “F” (below 60).

Note: If you have no more six absences for the semester and your final exam score is higher than one of your test scores, your lowest test score will be automatically replaced by final exam score.

Final exam date: Thursday December 7, 2006 8:30 – 11 am

Class attendance/Make-ups: If you have no more six absences for the semester and your final exam score is higher than one of your test scores, your lowest test score will automatically be replaced by final exam score. Whenever you miss a class, it is your responsibility to check what material was covered.

Make-up tests will not be given in this course except under the most extreme circumstances. If you miss a test, that grade will be replaced by your final exam grade. However, you must notify me as soon as possible if you miss a test or know in advance that you will miss a test. If you do not notify me promptly with an appropriate excuse, you will receive a 0 for the test.

Statement on reasonable accommodations: UHD adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. Students with disabilities should be notified to register with Disabled Student Services and contact the instructor in a timely manner to arrange for appropriate accommodations.

Please remember that as a member of the UHD academic community you are bound to observe the academic honesty code in all your school work. A grade of 0 will be given for any course work where cheating is detected.

Dropping: Please note that the last day to withdraw with a course grade of “W” is Thursday, October 26, 2006. If you do not complete the course requirements and do not officially withdraw, you will receive a course grade of “F.” This is university policy over which I have no control. You cannot receive the grade “I”-Incomplete unless you have a documented personal emergency that prevents you from completing the last fraction of the course, such as the third test and/or the final exam. You must have a passing average based on the work you have already completed to receive an “I.”

Where to get help with the course: The first place to seek help is from me, both inside and outside of class. Next, students enrolled in MATH 1404 at UHD have access to the Math Lab in the Academic Support Center (925-N) where they may get additional help with understanding concepts or improving their skills. The Center is staffed with mathematics faculty and student assistants, and offers tutorial help, videotapes, calculators, and computer-aided drill on a walk-in basis. There are video tapes available specifically designed for our text; ask the assistants in the Math Lab for details. The Math Lab maintains extensive hours which are published each semester. You are encouraged to
visit the Math Lab throughout the semester whenever you feel you need extra help, no appointment required. It is also an excellent place to study the textbook and work on homework problems, so that you can receive immediate help as necessary.

**Goals/Objectives:** At the completion of this course, a student should be able to: (1) state several methods of representing functions; (2) interpret function notation in context; (3) compute the average rate of change of a function over a given interval and interpret this value in context; (4) recognize that linear functions have constant rates of change; (5) state the relationship between rate of change and slope for lines; (6) estimate intervals where a function is increasing or decreasing from a graph of the function; (7) recognize transformations of a function formula that cause horizontal or vertical shifts in the graph and sketch the shifted graph; (8) determine extreme values of quadratic functions; (9) estimate extreme values of functions from graphs; (10) use functions to model various problem situations; (11) use a calculator to draw the regression line that fits a set of data points; (12) use a regression curve to make estimates or predictions; (13) determine the maximum number of x-intercepts and local extrema of a polynomial function; (14) state the relationship between the x-intercepts of a polynomial and the factors of the expression; (15) determine the end-behavior of polynomials; (16) sketch the graph of a polynomial; (17) determine the horizontal and vertical asymptotes of a rational function; (18) sketch the graph of a rational function; (19) use rate of growth and initial value information to construct exponential functions; (20) use exponential and logarithmic functions to model various problem situations; (21) use a calculator to fit exponential and power functions to sets of data points; (22) recognize the usefulness of logarithms in scaling numbers; (23) sketch the graphs of curves defined by parametric equations; (24) sketch the graphs of conic sections where the implicit equation is given in standard or general form; (25) write the implicit equation for conic sections given various types of information about the graph; (26) plot points in polar coordinates; (27) convert polar coordinates to rectangular coordinates and vice versa; (28) sketch the graphs of equations in polar coordinates; (29) recognize arithmetic and geometric sequences; (30) find the nth term in an arithmetic or geometric sequence; (31) interpret sigma notation for arithmetic and geometric series; (32) evaluate arithmetic and geometric series using closed form solutions; (33) use graphs of functions to solve certain types of equations; (34) decompose a function as the composition of two functions.

**Course content:** (material covered approximately in this order)

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