Comprehensive Course Syllabus, Math 1113 Precalculus

Text: Swokowski-Cole, *Precalculus: Functions and Graphs*, 11th ed, Cengage Publishing

Course Webpage: http://www.math.uga.edu/116/1113home.htm

Course Assessment tool: homework, tests and webquizzes are administered via www.webassign.net

Course Description and Objectives: This course is designed to prepare a student for calculus. It is the culmination of the study of function prior to calculus. The successful student will complete an algebra review, a detailed study of functions and models, and study of specific functions including powers, exponentials, logarithms, rational functions, and trigonometric functions; and demonstrate understanding of each. This study includes solving equations involving the relevant functions. In addition, a successful student will be able to model functions and apply the models to concrete settings. A complete content description can be found below; the course webpage includes a list of suggested text exercises.

Course Grades: The course has a uniform grading scale and attendance policy. There are 5 tests at 12% each, the comprehensive final exam is worth 25%, webquizzes are 5% and in-class assignments are 10% of the total grade. See the course webpage for the attendance policy (withdrawal for nonattendance).

Intensive Sections of 1113: Each term Math 1113 is also offered in an intensive format, with extra lectures each week. Additional content is covered from sections 1.1-1.4 of the text: real numbers and interval notation, definition of and working with absolute value, order of operations and laws of exponents, operations involving exponents: radicals and fractional exponents, definition of polynomials, factoring polynomials, solving linear, quadratic, and rational equations. Most of these concepts are introduced as needed within the context of the content studied in the individual units of the precalculus course.

Unit 1: The Cartesian plane, interval notation, midpoint and distance formula, circles, graphs of equations, their intercepts and symmetry tests; lines and linear models, the definition of function, identifying functions, computing function values, function domains and ranges, difference quotients, linear functions, modeling functions
Sections 2.1, 2.2, 2.3, 2.4

Unit 2: Graphs of functions, even/odd functions, shifts, reflections, or stretching/compressing of graphs; greatest integer function and absolute value functions, quadratic functions, extreme values of quadratics, operations on functions, modeling and interpreting function models, one-to-one functions and their inverses
Sections (1.4), 2.5, 2.6, 2.7, 4.1

Unit 3: Exponential and Logarithmic functions and applications. Definitions, domain/range and graphs, the number e, exponential and logarithm properties, modeling with exponential and logarithmic functions, including business models, and solving equations involving exponentials and logarithms.
Sections 4.2, 4.3, 4.4, 4.5, 4.6

Unit 4: Elementary trigonometry: Angle measure using degrees and radians, arclength and sector area, right triangle trigonometry and extension to arbitrary angles, reciprocal and Pythagorean identities, trigonometric functions of real numbers, graphs of the 6 trigonometric functions and domain/range, computation of trigonometric functions of arbitrary special angles via reference angles. Some applications using trigonometric functions.
Sections 5.1, 5.2, 5.3, 5.4

Unit 5: Advanced trigonometry: analyzing and modeling functions of the form y = Asin(bx+c) (or cosine). Applications involving right triangle trigonometry, depression/elevation, bearings, triangle area. Solving trigonometric equations, addition and double angle formulas for sine and cosine.
Sections 5.5, 5.7, 6.2, 6.3, 6.4

Additional content studied before the final exam: Inverse trigonometric functions, the graphs, domains/ranges, properties, computations, and uses for solving trigonometric equations, Laws of Sines and Cosines and their applications.
Sections 6.6, 7.1, 7.2

Academic Honesty Policy: As a University of Georgia student, you have agreed to abide by the University's academic honesty policy: "A Culture of Honesty", and the Student Honor Code. All academic work must meet the standars described in "A Culture of Honesty: found at: www.uga.edu/honesty . Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

The course syllabus is a general plan for the course: deviations announced to the class by the instructor may be necessary.