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Math 4B - 56180: Precalculus/Trig
Text: Precalculus with **MyLab** 5/e, Lial
Class meets: M-F 7:45-8:50 in FEM 4
Prerequisite: Math 4A.
Basic Skills Advisories: Eligibility for English 126.

Description

This course comprises both Math 4A and Math 4B. The course is an analytic and comprehensive study of algebra, analytic geometry and trigonometry designed to prepare students for calculus. Topics include linear, quadratic, and rational equations and inequalities; functions and relations and their graphs; exponential and logarithmic functions; trigonometric and inverse trigonometric functions and their graphs; right and oblique triangles; graphs, identities, and trigonometric equations.

Expectations / Responsibilities

Instructor

- Provide a classroom climate in which the student takes responsibility for learning.
- Provide the necessary instruction and model the quality of work to be successful in Math 4C.
- Clearly communicate progress being made in a timely fashion.

Student

- Follow the class rule – **Be Nice**.
- Be in each class on time with ***full participation*** from ***start to finish***.
- Study Math daily.
- Learn the material that is taught and ***seek additional assistance*** when necessary.
- All written work must be neat, complete, concise and accurate to receive full credit.
- Promptly communicate any class related issues.
- If you miss any class time it may be counted as an absence.
- If you have more than 3 absences, you may be dropped

Important Dates

January 25, 2013	F	Last day to register for a full-term fall class
January 25, 2013	F	Last day to drop a fall full-term class to avoid a "W"
March 8, 2013	F	Last day to drop a full-term class to avoid a grade
May 15, 2013	W	***Final Exam 8:00-9:50 in FEM 4***

Grading

Scale **A** 90-100% **B** 80-89% **C** 70-79% **D** 60-69%

***Tests* 70%** There will be between 4 and 6 tests plus a final. There are **no make-up tests**. A test may be taken early with prior approval.

***Homework* 25%** A majority of the homework assignments will be completed on Course Compass. Written assignments will be collected as assigned. **No late homework is accepted.**

***Quizzes* 5%** Quizzes may be online or in class. There are **no make-up quizzes**.

*Test Dates are subject to change.

Academic Dishonesty

Cheating is the act or attempted act of taking an examination or performing an assigned, evaluated task in a fraudulent or deceptive manner, such as having improper access to answers, in an attempt to gain an unearned academic advantage. Cheating may include, but is not limited to, copying from another's work, supplying one's work to another, giving or receiving copies of examinations without an instructor's permission, using or displaying notes or devices inappropriate to the conditions of the examination, allowing someone other than the officially enrolled student to represent the student, or failing to disclose research results completely.

Plagiarism is a specific form of cheating: the use of another's words or ideas without identifying them as such or giving credit to the source. Plagiarism may include, but is not limited to, failing to provide complete citations and references for all work that draws on the ideas, words, or work of others, failing to identify the contributors to work done in collaboration, submitting duplicate work to be evaluated in different courses without the knowledge and consent of the instructors involved, or failing to observe computer security systems and software copyrights. Incidents of cheating and plagiarism may result in any of a variety of sanctions and penalties, which may range from a failing grade on the particular examination, paper, project, or assignment in question to a failing grade in the course, at the discretion of the instructor and depending on the severity and frequency of the incidents.

***NOTE**: If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act or section 504 of the Rehabilitation act please contact me as soon as possible.*

Please refer to SCCCD policies for guidance on all matters relating to this course.

Objectives

In the process of completing this course, students will:

A. Graph and identify the domain and range of conic sections and the following types of functions and their transformations: polynomials, square root, cube root, absolute value, rational, exponential, logarithmic, and trigonometric.
B. Solve the following types of equations: polynomial, rational, radical, absolute value, trigonometric, logarithmic, and exponential.
C. Identify the solution set for inequalities with absolute value, polynomial, and rational expressions.
D. Set-up and solve mathematical modeling problems including: interest problems, exponential growth and decay, motion, and surveying problems.
E. Apply the analytic aspects of trigonometric functions of right, acute, and related angles.
F. Derive basic trigonometric identities and use them to simplify trigonometric expressions and solve trigonometric equations.
G. Apply the unit circle to trigonometry and perform angle conversions.
H. Memorize the trigonometric values of the fundamental angles.
I. Apply the analytic aspects of inverse trigonometric functions and trigonometric formulas to simplify and solve trigonometric problems.
J. Find the inverse of one-to-one functions, and graph the functions and it's inverse.
K. Optional Topics (if time permits)
    - Solve systems of equations
    - Use partial fraction decomposition to prepare an expression for integration.
    - Represent vectors in the rectangular coordinate system and identify their magnitude and direction; perform operations (addition, subtraction, scalar multiplication, dot product) with vectors.

Course Outline

A. Polynomials
1. Solve equations algebraically (including use of the Rational Root Theorem and other techniques)
2. Graphs of polynomials and their transforms, including: linear, quadratic, quadratic forms, cubic, and power functions (domain and range, even and odd functions)
3. One-to-one functions and their inverse
4. Quadratic Formula
5. Application problems (such as motion, maximizing profit, and minimizing volume)

B. Exponential and Logarithmic Functions
1. Graphing functions and transformations of graphs (domain and range)
2. Applications including but not limited to interest, population growth and decay, exponential growth and decay
3. Solve equations
4. One-to-one functions and their inverses

C. Trigonometric Functions
1. Graph including transformations of graphs (domain and range, period, amplitude)
2. Pythagorean and reciprocal identities
3. Unit circle and right triangles
4. Various formulas including but not limited to: sum and difference
5. Solve equations and applied problems

D. Circles
1. Equation manipulation into standard form
2. Graph

E. Rational Functions
1. Graph including: vertical, horizontal, and oblique asymptotes and points of discontinuity
2. Indentify the domain and range
3. Long or synthetic division of polynomials for oblique asymptote identification
4. Solve equations
5. Remainder and Factor Theorems

F. Inequalities
1. Graphic and algebraic solutions of inequalities with rational expressions, polynomials, absolute value, and conic sections