SCHOOL OF STEM SYLLABUS

TERM:

INSTRUCTOR:

COURSE CODE: MAT-110

OFFICE HOURS:

COURSE TITLE: Precalculus

OFFICE LOCATION:

DAY(S) AND TIME(S):

EMAIL:

LOCATION:

PHONE:

COURSE PREREQUISITE: Complete MAT-100

CREDITS: 4

COURSE DESCRIPTION:

Provides the preparation necessary for students who intend to study calculus for science and engineering programs. Topics include the following: fundamentals of algebra, linear inequalities, functions and relations, polynomials, rational, exponential, and logarithmic functions, trigonometric functions, analytic trigonometry, analytic geometry, complex numbers, and discrete algebra, logic, and proof.

STUDENT LEARNING OUTCOMES:
Upon successful completion of this course, students will be able to:

1. Define function, domain & range
2. Distinguish between a relation and a function
3. Graph elementary functions and combinations of elementary functions
4. Solve applied problems using functions
5. Work out applied problems involving slope and average rate of change
6. Sketch the graph of exponential and logarithmic functions
7. Simplify logarithmic expressions
8. Recognize trigonometric identities
9. Apply law of sine and law of cosine
10. Determine whether a graph is symmetric with respect to the x-axis and the y-axis, and whether a function is even or odd nor neither
11. Graph the transformation under translation, reflections, stretching and shrinking.
12. Analyze Polynomial functions, and rational functions and sketch their graph.
13. Solve problems involving exponential growth and decay, and compound interest.
14. Simplify expressions such as f −1(( ))g x where f x and g x( ) ( ) are functions of the form sin x, cos x,tan x,ln x and ex

TEXTBOOK AND SUPPLEMENTAL MATERIALS:

Textbook: Precalculus Real Mathematics, Real People, 8th edition,
by Larson, Hostetler and Edwards

Supplemental Materials:

- **The online homework is obligatory, and due by the next class meeting.**
- **Students are required to purchase the access code. Codes are available at the bookstore.**

If there are supplemental materials required, you may list them here. Please also indicate how students should acquire these materials, as they will not be in the bookstore.

GRADING POLICY:

3 Class Exams	60%
Final Exam	20%
Homework	20%

SAMPLE COURSE SCHEDULE:

sections	Topic	Homework
Chapter 1	Functions and Their Graphs	
1.1	Lines in The plane	7,8,9,11,15,17,23,25,33,34,35,37,49,50,63,65,67,70, 72,77,81,85,86
1.2	Functions	7,9,13,17,23,31,25,27,31,32,39,40,42,43,55,61,65,7 1,72,73,75
1.3	Graphs of functions	7, 9 , 13, 15, 17,19,21,23,25,31,32,33,35,37,39,44,47,55,57,58,59 ,61,63,65,67,73,77,81,83,87,89,99-104
1.4	Shifting reflections of Functions	5,7,11,13,15,17,19,20,21,23,31,33,35,41,47,48,49,5 1,53,55,58,59,61,73,75,7677,78,79
1.5	Combinations of Functions	7, 9,11,12,13,15,16,17,19,21,23,25,29,33,35,37,39,40, 41,43,45,47,48,50,52,53,55,57,58,59,61,62,63,6770, 67,68,69,70,71,75,76,77,79,
1.6	Inverse Functions	7,9,13,15-18,19,23,25,27,29,30,33,35,39,41,43,45,47,49,56,57 ,58,60,61,63,67,69,71,73,77,79,91,92,93,95,99105,1 07,109,111,113,116,118,121,123,125,127
Chapter 2	Polynomial and Rational functions	

2.1	Quadratic Functions	11,13,15,17,23,25,27,29,31,33,35,37,39,40,41,42,45,47,49,51,55,57,63,64,65,66,67,68,69,70,71,75,
2.2	Polynomial Functions	9-16,17,19,23,25,27,29,31,37,39,41,45,59,61,63,67,75,77,81,83,85,87,89,95,109,110,
2.3	Real Zeros of Polynomial Functions	23,25,27,29,33,35,37,39,43,45,47,49,53,55,57,59,61,63,65,67,71,73,75,79-828789,91,93,105,106,

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https://www.hccc.edu/administration/academic-affairs/syllabus-addendum.html