Global High School
Dual-Credit
UT Tyler

COURSE SYLLABUS

MATH 1314 Section: D031   Semester: Spring 2025   College Algebra
                                                 Jan 13 – May 2

Instructor: April Pitts

Contact: E-mail: apitts@wisd.org

<u>**ACGM Description**</u>:

MATH 1314

In-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Additional topics such as sequences, series, probability, and conics may be included.

<u>**Catalog Description**</u>:

Lecture Hours: <u>3</u>   Lab Hours: <u>0</u>   Semester Credit Hours:. <u>3</u>

<u>Prerequisites</u>: Meet TSI college-readiness standard for Mathematics; or equivalent

<u>Introduction and Purpose:</u>

This course is meant both as a terminal math course and to prepare students for more advanced topics in mathematics.

<u>Instructional Materials:</u>

Pearson MyLab Math
Supplies: Pencils, notebook, and TI-84 calculator

<u>Student Learning Outcomes:</u>

By the end of this course, the successful student should be able to

• Demonstrate an understanding of functions by graphing and analyzing functions, evaluating functions at specific real numbers and at variable values, computing new functions from old functions through algebraic operations on functions, and using functions as models of real-world phenomena.

• Solve a wide variety of equations and inequalities, including linear, quadratic, polynomial, rational, exponential, and logarithmic equations as well as polynomial and rational inequalities.

• Apply the Fundamental Theorem of Algebra, Rational Root Test, the Factor Theorem, and synthetic division to factor polynomials, find their zeroes, and to graph polynomials

• Demonstrate an understanding of inverse functions by determining when the inverse of a function exists, finding the inverse function, and verifying when two functions are inverses of each other. Further, the student should be able to recognize many common inverse function pairs and take advantage of these pairs for the purposes of simplification of expressions and equations.

Methods of Instruction:

This course will be hybrid. Notes and Lectures will be taken before class. Additional examples and assignments will be completed while in the classroom. Audio-visual materials and computer-based technology will be used when appropriate. Students will be shown how to use a calculator where appropriate.

Methods of Evaluation:

Assignments	15%
Pre-Tests(Quiz)	15%
Lecture Notes	15%
Average of Tests	40%
Final Exam	15%

Course Outline:

Lecture notes will be due by the start of class. Assignments, Quizzes, and Tests will be due by the end of class.   Tests may be over one chapter, or multiple chapters as decided by the instructor.

Class policies:

Regular attendance at all class meetings is expected. Disruptions in class will not be tolerated. This is a college course, therefore even if you miss class, <u>you are responsible</u> for all things that took place in class. Pay close attention to the course schedule.

Topic Outline:

Graphs, Functions, and Models
  1.1 Introduction to Graphing
  1.2 Functions and Graphs
  1.3 Linear Functions, Slope, and Applications
  1.4 Equations of Lines and Modeling
  1.5 Linear Equations, Functions, Zeros, and Applications
  1.6 Solving Linear Inequalities

More on Functions
  2.2 The Algebra of Functions
  2.3 The Composition of Functions
  2.4 Symmetry
  2.5 Transformations

Quadratic Functions and Equations; Inequalities
  3.1 The Complex Numbers
  3.2 Quadratic Equations, Functions, Zeros, and Models
  3.3 Analyzing Graphs of Quadratic Functions
  3.4 Solving Rational Equations and Radical Equations
  3.5 Solving Equations and Inequalities with Absolute Value

Polynomial Functions and Rational Functions
  4.1 Polynomial Functions and Models
  4.2 Graphing Polynomial Functions

4.3 Polynomial Division; The Remainder Theorem and the Factor Theorem
4.4 Theorems about Zeros of Polynomial Functions
4.5 Rational Functions
4.6 Polynomial Inequalities and Rational Inequalities

Exponential and Logarithmic Functions
  5.1 Inverse Functions
  5.2 Exponential Functions and Graphs
  5.3 Logarithmic Functions and Graphs
  5.4 Properties of Logarithmic Functions
  5.5 Solving Exponential and Logarithmic Equations
  5.6 Applications and Models: Growth and Decay; Compound Interest

Systems of Equations and Matrices
  9.3 Matrices and Systems of Equations
  9.4 Matrix Operations
  9.5 Inverses of Matrices
  9.6 Determinants and Cramer's Rule
  9.7 Systems of Inequalities and Linear Programing

Instructor's Class Content:

Information in this syllabus is subject to change during the semester when deemed appropriate by the instructor. Students will be informed immediately of any changes.

Tentative Test Dates:

 Test #1 – January 28   Test #2 – February 6   Test #3 – February 25

 Test #4 – March 18   Test #5 – April 1   Test #6 – April 11

 Comprehensive Final Exam (covers chapters 1-5, 9)   April 28 (to be determined)

Anyone who is caught cheating during a test will receive a zero for that test. If you are absent on a test day, it is your responsibility to ask to take a make-up test and arrange a time to take it. You have **one week** to complete this make-up work.

 Grades in this course will be based on the following evaluative criteria:

90-100%	A
80-89%	B
70-79%	C
60-69%	D
Below 60%	F

College Algebra

Tues 1/14	Syllabus, Orientation Assn.	Thurs 2/27	4.1, 4.2
Thurs 1/16	1.1, 1.2	Fri 2/28	4.3, 4.4
Fri 1/17.	1.3, 1.4	Tues 3/4	4.5, 4.6
Tues 1/21	1.5, 1.6	Thurs 3/6	Quiz Pretest 4
Thurs 1/23	Quiz Pre-Test 1	Tues 3/18	Test 4
Tues 1/28	Test 1		
Thurs 1/30	2.2, 2.3	Thurs 3/20	5.1, 5.2
Fri 1/31	2.4, 2.5	Tues 3/25	5.3, 5.4
Tues 2/4	Quiz Pre-Test 2	Thurs 3/27	5.5, 5.6
Thurs 2/6	Test 2	Fri 3/28	Pre-Test 5
		Tues 4/1	Test 5
Tues 2/11	3.1, 3.2		
Thurs 2/13	3.3, 3.4	Thurs 4/3	9.4, 9.5
Tues 2/18	3.5	Tues 4/8	9.6, 9.7
Thurs 2/20	Quiz Pretest 3	Thurs 4/10	Quiz Pretest 6
Tues 2/25	Test 3	Fri 4/11	Test 6
	4/15-4/23	Review for Final	
	4/25	Pre-Test Final Exam	
	4/28	Final Exam	

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