2021-2022
Mathematics Department

College Algebra
UMSL Math 1030:
3 credit hours
Alexis Mathews

Course Number: Math 1030
Text Book: ***PreCalculus Common Core Edition, Glencoe***
Required Materials:

- Pencil
- Notebook paper
- Binder
- Graphing calculator TI-82, TI-83, TI-83 Plus, TI-84 (Any of these)
  - Please refrain from buying Casio graphing calculators!
- Textbook ***PreCalculus Common Core Edition, Glencoe***

Dual College Credit Option

This course is available for dual credit at the University of Missouri St. Louis. When you successfully complete this course with a "C" or above you will have earned three college credit hours if you enroll with the University of Missouri – St. Louis. Please ask Ms. Mathews for handouts and more information if you are interested in taking this course for dual credit. You will be able to sign up for the course at this website: http://umsl.edu/acp

Faculty Information

Office Location: Rm. 107
Telephone: **(636) 266 – 2895** *(this is a textnow number, so you can call or text)*
Email Address: **amathews@vp.k12.mo.us**
Website: amathewsvphs.weebly.com

Course Description

Topics in this course include factoring, complex numbers, rational exponents, simplifying rational functions, functions and their graphs, transformations, inverse functions, solving linear and nonlinear equations and inequalities, polynomial functions, inverse functions, logarithms, exponentials, solutions to systems of linear and nonlinear equations, systems of inequalities, matrices, and rates of change.

Objectives (what you will learn!)

- ✓ Use multiple representations of functions to interpret and describe how two quantities change together
- ✓ Measure, compute, describe, and interpret rates of change of quantities embedded in multiple representations
- ✓ Use appropriate tools and representations to investigate patterns and relationships present in multiple function types
- ✓ Create, use, and interpret linear equations and convert between forms as appropriate.
- ✓ Create, use, and interpret exponential and logarithmic equations and convert between forms as appropriate
- ✓ Create, use, and interpret polynomial, power, and rational functions
- ✓ Construct, use, and describe transformations, operations, compositions, and inverses of functions
- ✓ Use algebraic techniques to simplify expressions and locate roots
- ✓ Use algebraic reasoning to simplify a variety of expressions and find roots of equations involving multiple function types
- ✓ Use rational exponents to express and simplify a variety of expressions and solve equations
- ✓ Solve and apply systems of equations and inequalities

Calculation of Grade

Homework/practice	5%
Quizzes	25%
Tests	45%
Final Exam	25%

Grading Scale:

Percentage	Grade
90- 100	A
80-89.9	B
70-79.9	C
60-60.9	D
Below 60	F

Class Expectations

1. Be Here.
2. Be Prepared. Bring required materials every day.
3. Be your best self.

Course outline/calendar

Topics in Sequence of Discussions:	**Approximate # of weeks**
Linear, quadratic, and other types of equations. Linear inequalities and inequalities involving absolute values. Complex numbers. Models and Applications. Using rational exponents to simplify expressions and solve equations.	2.5 weeks
Functions and graphs. Definition and basic notations of a function. Equations and graphs of linear functions. Transformation, combination, and composite functions. Finding the domain and range of a function. Decomposing functions into basic functions. One-to-one functions. Inverse functions.	2.5 weeks
Polynomial and rational functions. The quadratic function and its graph. Graph of a circle. Dividing polynomials, remainder and factor theorems. Zeros of polynomials. Graphing polynomials including vertical, horizontal, and oblique asymptotes. Polynomial and rational inequalities.	3 weeks
Exponential and logarithm functions and their properties (including growth, decay, half-life, and doubling) Exponential and Logarithm equations. Comparing/contrasting exponential, logarithmic, linear and power functions	2 weeks
Systems of linear equations with two and three variables. Inconsistent and Dependent systems of equations. Systems of nonlinear equations with two variables. Applications of systems of equations. Graph systems of inequalities.	1 week
Perform matrix operations. Using matrices to solve systems with two and three variables.	1 week
Constant, Average, and Instantaneous rates of change	1 week

Note: *The instructor reserves the right to make minor changes to the syllabus at any time during the semester.*

In case a change is made, an announcement regarding the change will be made during class hour.