# MATH 116     College Algebra     Summer 2018

*Instructor:* Mrs. M. Jackson          *Office:* 4133 COHH          *Phone:* 745-2538 (my office)

*e-mail:* michelle.jackson@wku.edu

*Office Hours:*  after class and other times by appt.

*Pre-Requisites:*   Students should have mastered high school Algebra I and II and have a satisfactory score on the Math Placement Exam; or a grade of "C" or better in DMA 096C.

*Course Description*: This course satisfies the Colonnade Quantitative Reasoning requirement. It is intended to familiarize you with the fundamentals of College Algebra. Topics include functions, analysis of graphs, and logarithms. After completing MA 116C, students will be able to use fundamental mathematical reasoning principles; use graphical, symbolic, and numeric methods to solve practical problems; and interpret information presented in tables and graphical displays.

*General Education Objectives:*  This course will help the student understand and apply mathematical skills and concepts as well as apply an appropriate mathematical model to the problem to be solved.

*Optional Text:*  College Algebra: Graphs and Models, 5th ed. by Bittinger, Beecher, Ellenbogen & Penna

*Required Technology*: MathXL Student Access Code     **Course ID: XL30-W1Y8-301Z-7NO2**

*Calculator:*   A graphing calculator (TI-83 or TI-84) is required. The TI-89 calculator is not allowed.

*Attendance:*  **Regular attendance in this course in mandatory.**   As an adult, you are responsible for finding out what work you missed during your absence (either from classmates or from me).  *No distinction is made between excused and unexcused absences.*

*Homework:*  Practicing new concepts outside of class is vital to your long-term understanding of the material. Therefore, homework problems will be assigned and completed daily on the computer using MathXL. **You must have access to a computer with online capabilities.** If you do not have a home computer, you may use computers in any of the labs on south campus or the main campus. In order to master the material in the homework stage, you are expected to work on each assignment until a grade of 100% is attained.  Each homework assignment will be graded on the computer and will be assigned with a deadline. Non-computer homework may also be assigned.

*Cell Phones. IPods, Computers & Text Messaging:*  These items and activities are strictly prohibited. If you have a cell phone with you, it must be set on silent. You may not use a cell phone as a calculator at any time. Text messaging during class is not allowed.

*Make-up Exams:* NO MAKE-UP EXAMS WILL BE GIVEN FOR THIS CLASS.  If for some reason, a student must miss an exam then the student's percentage on the comprehensive final will be used to replace the missing exam score.  If a student misses more than one exam, all subsequent missed exam scores will be recorded as zeros.

*Course Grade:* Your course grade will be based on computer homework assignments, worksheets, quizzes (which may be both announced **and** unannounced), 4 unit exams, and a comprehensive final exam.  Quizzes **will not** be allowed to be made up **or** taken early regardless of the reason.  However, when computing your grade, the lowest quiz score will be dropped. Worksheets will be due **no** later than the day of the unit exam and will not be accepted after that date. The grade you receive in this course will be determined by the following:

| | |
|---|---|
| Exams | 50% |
| Quizzes & Worksheets | 20% |
| MathXL Homework | 15% |
| Final Exam | 15% |

**\*\*The comprehensive final exam will be given on Thursday, August 9th (last day of class).**

Final grades will be assigned as follows:

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

*Student Accessibility Resource Center (SARC):*  "In compliance with University policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Student Accessibility Resource Center located in Downing Student Union, 1074. The phone number is 270-745-5004 [270-745-3030 V/TTY] or email at sarc.connect@wku.edu. Please do not request accommodations directly from the professor or instructor without a faculty notification letter (FNL) from The Student Accessibility Resource Center.")

**Title IX**
"Western Kentucky University (WKU) is committed to supporting faculty, staff and students by upholding WKU's Title IX Sexual Misconduct Policy (#0.2070) at https://wku.edu/eoo/documents/titleix/wkutitleixpolicyandgrievanceprocedure.pdf *and*

*Discrimination and Harassment Policy (#0.2040) at* https://wku.edu/policies/hr_policies/2040_discrimination_harassment_policy.pdf.

Under these policies, discrimination, harassment and/or sexual misconduct based on sex/gender are prohibited.  If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Title IX coordinator, Andrea Anderson, 270-745-5398 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121.

Please note that while you may report an incident of sex-gender based discrimination, harassment and/or sexual misconduct to a faculty member, WKU faculty are "Responsible Employees" of the University and **MUST** report what you share to WKU's Title IX Coordinator or Title IX Investigator.  If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU's Counseling and Testing Center at 270-745-3159."


**WKU QEP (Quality Enhancement Plan) Goal**: "Western Kentucky University prepares students to be productive citizens of a global society and provides service and lifelong learning opportunities for its constituents."


**<u>Course Outcomes</u>:**
Upon successful completion of this course (earning a course grade of C or better) students will be able to:

- interpret functions, graphs, and models
- solve linear and quadratic functions and equations using both algebraic and graphical methods
- solve polynomial and rational functions and equations using both algebraic and graphical methods
- solve exponential and logarithmic functions and equations using both algebraic and graphical methods
- solve and understand the use of application problems involving various functions
- identify behavior and translations of several basic functions

**Course Outline:**  The following course outline is subject to change at the discretion of the instructor. Any changes will be announced in class.

## Unit 1:  Graphs, Functions & Models (Chapter 1)
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 & Applications
1.6  Solving Linear Inequalities

**Exam 1**

## Unit 2:  More on Functions  (Chapter 2)
2.1  Increasing, Decreasing & Piecewise Functions; Applications
2.2  The Algebra of Functions
2.3  The Composition of Functions
2.4  Symmetry
2.5  Transformations

**Exam 2**

## Unit 3:  Quadratic Functions and Equations; Inequalities  (Chapter 3)
3.1  The Complex Numbers
3.2  Quadratic Equations, Functions, Zeros & Models
3.3  Analyzing Graphs of Quadratic Functions
3.4  Solving Rational Equations & Radical Equations
3.5  Solving Equations & Inequalities with Absolute Value

**Exam 3**

## Unit 4:  Polynomial and Rational Functions  (Chapter 4)
4.1  Polynomial Functions & Modeling
4.2  Graphing Polynomial Functions
4.3  Polynomial Division; The Remainder & Factor Theorems
4.4  Theorems About Zeros of Polynomial Functions
4.5  Rational Functions
4.6  Polynomial and Rational Inequalities

**Exam 4**

## Unit 5:  Exponential and Logarithmic Functions  (Chapter 5)
5.1  Inverse Functions
5.2  Exponential Functions & Graphs
5.3  Logarithmic Functions & Graphs
5.4  Properties of Logarithmic Functions
5.5  Solving Exponential & Logarithmic Equations

**Exam 5**