MATH0012-01
SUPPLEMENTAL MATH
Spring 2020

Class Time and Location: TR 2:00 – 2:50. S245

Instructor: Kim Meeks, BSE, MSE, Henderson State University
Cell: (479) 234-5770 Office: (479) 394-7622 ext. 1335
Email: kmeeks@uarichmountain.edu
Office Hours: MW 11:30 – 2:00, 3:15 – 3:30
TuTh 10:45 – 2:00, 3:00 – 3:30
F 10:00 – 12:00 by appointment

Co-requisite: MTH 203 (College Algebra) with a score of 19, 20, or 21 on the mathematics section of the ACT (or equivalent score on COMPASS or Accuplacer).

Resources:

Text: No additional textbook required. Use College Algebra Book . . . *A Graphical Approach to College Algebra*, 6th Edition, John Hornsby, Margaret L. Lial, and Gary K. Rockswold, Pearson Education, Copyright 2015, ISBN-10: 0-321-92030-9

Required Materials:

1. Loose-leaf binder.
2. Pencils with good erasers (no ink)
3. TI 84 plus graphing calculator

Course Description: This is a supplemental course to accompany College Algebra. The content of this course includes concepts linear and quadratic functions; transformations of basic curves, composition of functions; direct and inverse variations; solving and graphing problems whose mathematical models are polynomial, rational, exponential and logarithmic functions; solving systems of linear and nonlinear equations and inequalities with applications for each; determinants and matrices; linear programming; conic sections; binomial expansions; arithmetic and geometric sequences and series; and counting techniques and probability.

Program Outcomes: The purpose of the Associate of Arts Program is to provide students with the knowledge and critical thinking skills that will enable students to analyze problems, arrive at intelligent conclusions, and make reasoned choices in their professional and personal lives.

- Students will demonstrate competency in mathematics, including analysis and applications..
- Students will apply technological skills to process information.
- Students will be prepared academically upon transfer to a four-year institution.

Rationale: An objective of post-secondary education is to provide a core of knowledge that is shared with most educated people. By studying and developing a deeper understanding of mathematical computations, students can better analyze, problem solve, and prepare critical thinking strategies for real world scenarios. Technological skills with the graphing calculator are necessary for future math courses.

Course Objectives: Upon successful completion of MTH 203 College Algebra, the student should be able to:

1. Graph equations and inequalities by hand and on the graphing calculator.
2. Solve basic algebraic equations using appropriate vocabulary and technology.
3. Analyze functions including linear, absolute value, quadratic, polynomial, rational, logarithmic, and exponential functions.
4. Synthesize information from a variety of sources to solve problems and interpret results.
5. Use technology appropriately to supplement and enhance conceptual understanding.
6. Analyze and solve applications of systems of equations, inequalities, and matrices.

Students will demonstrate mastery of the above objectives by grades of C or above on quizzes and classwork.

Topical Course Outline:

Chapter 1: Linear Functions, Equations, and Inequalities Weeks 1 – 3 1/14 – 1/30

1.1 Real Numbers and Coordinate System
1.2 Introduction to Relations and Functions
1.3 Linear Functions
1.4 Equations of Lines and Linear Models
1.5 Linear Equations and Inequalities
1.6 Applications of Linear Functions

Chapter 2: Analysis of Graphs of Functions Weeks 4 – 6 2/4 – 2/20

2.1 Graphs of Basic Functions and Relations; Symmetry
2.2 Vertical and Horizontal Shifts of Graphs
2.3 Stretching, Shrinking, and Reflecting Graphs
2.4 Absolute Value Functions: Graphs, Equations, Inequalities, Applications
2.5 Piecewise – Defined Functions
2.6 Operations and Composition of Functions

Chapter 3: Polynomial Functions Weeks 7 – 9 2/25 – 3/12

3.1 Complex Numbers
3.2 Quadratic Functions and Graphs
3.3 Quadratic Equations and Inequalities
3.5 Higher Degree Polynomial Functions and Graphs
3.6 Topics in the Theory of Polynomial Functions (I)
3.7 Topics in the Theory of Polynomial Functions (II)
3.8 Polynomial Equations and Inequalities; Further Applications

Chapter 4: Rational, Power, and Root Functions Weeks 10 – 11 3/17 – 4/2

4.1 Rational Functions and Graphs
4.2 More on Graphs of Rational Functions
4.3 Rational Equations, Inequalities, Applications, and Models
4.4 Functions Defined by Powers and Roots
4.5 Equations and Inequalities Defined by Powers and Roots

Chapter 5: Inverse, Exponential, and Logarithmic Functions Weeks 12 – 14 4/7 – 4/23

5.1 Inverse Functions
5.2 Exponential Functions
5.3 Logarithms and Their Properties
5.5 Exponential and Logarithmic Equations and Inequalities
5.6 Further Applications and Modeling with Exponential and Logarithmic Functions

Chapters 6-7: Analytic Geometry Week 15 4/28 – 4/30

6.1 Circles and Parabolas

Systems of Equations and Inequalities

7.1 Systems of Equations

Important Dates:

February 10 (M)	Four week grades due
February 17 (M)	Winter Break
March 9 (M)	Eight Week (Mid-term) grades due
March 23-27	Spring Break
April 6-10 (M-F)	Priority Registration for Summer and Fall
April 13 (M)	Twelve week grades due
April 29 (W)	Honors Evening
May 1 (F)	Last day of classes/ last day to drop the class with a W
May 4 - 7 (M - Th)	Final Exams
May 7 (F)	Graduation; Grades due

Course Conduct:

The class will be taught using a combination of lecture, group work, question and answer, and independent study. Because this class supplements College Algebra, the same topics are covered, by either pre-teaching or re-teaching the material. Topics will be demonstrated using the board, overhead (Elmo) projector, and TI 84+ Smartview computer program for support of graphing calculator use. Students are strongly encouraged to discuss concepts and examples as opportunities are presented during instructor presentation and group work. It is the student's responsibility to inform the instructor when a concept is confusing or otherwise unclear.

U OF A RICH MOUNTAIN Credit Hour Calculator:

For every course credit hour, you should expect to spend at least three clock hours per week of concentrated attention on course-related work, including but not limited to time attending class, as well as out-of-class time spent completing homework, seeking help from instructor or tutors, preparing for upcoming quizzes/tests/exam, reviewing material, problem solving, and organizing your notebook. **A typical student should expect to spend at least six hours per week dedicated to this two hour course**. This includes the time spent in class. Please see credit hour calculator attached to end of syllabus.

Course Requirements / Evaluation (Grading):

Your grade for this course comes from attendance/participation (50%) and daily quizzes (50%). Grades are assigned on the basis of the following percentage scale:

90 – 100 = A 80 – 89 = B 70 – 70 = C 60 – 69 = D 0 – 59 = F

Class Procedures/Student Requirements:

Computer and On-Campus Resources: Computer labs with printers are available in several places on campus including the Johnson Learning Commons. UA Rich Mountain offers students assistance with quality tutors available in the Student Support Services (SSS) and Learning Enrichment and Counseling Center (LEAC) in the Johnson Learning Commons. You may access www.tutor.com/uarichmountain nights and weekends when SSS is not available.

Attendance / Make-up Policy: If a student is absent from any class, it is the student's responsibility to contact the teacher before the next class meets to determine if the absence is to be excused and if the student will be allowed to make up the missed work. There will be no make-up tests, quizzes, or exam given except in instances of the most unavoidable, serious circumstances. Approved make-ups will be taken **before** the class period following the absence unless other arrangements are made ahead of time with the teacher. Meanwhile, the student is responsible for instruction missed during that class by studying the material in the book, seeking help from tutors, and/or by getting class notes from another student.

Cell Phones**:** The use of cell phones in the classroom is prohibited. Turn cell phone off or on vibrate and store it out of sight during class time.

Academic Dishonesty: Any suspicion of academic dishonesty will result in no credit for the paper in question.

Disability Policy: It is the policy of UA Rich Mountain to accommodate students with disabilities, pursuant to state and federal law. Any student with a disability who needs accommodations should contact the Vice Chancellor for Student Affairs Office, 394-7622, ext. 1460.

Arkansas Clean Air Act: In compliance with the Arkansas Clean Air Act, UA Rich Mountain is a smoke and tobacco free facility. Students and guests are to refrain from the use of all tobacco products while on campus.

Student Misconduct: Students committing misconduct are subject to disciplinary sanction(s) and/or restrictions. Misconduct or prohibited behavior includes, but is not limited to endangerment, harassment, disruption, sexual misconduct, illegal drugs and/or alcohol, fire or safety issues, gambling, property violations, computer violations or other violations as listed in the UA Rich Mountain catalog.

U OF A RICH MOUNTAIN Mission: University of Arkansas Rich Mountain exists to provide all residents of the Ouachita Mountain Region with exemplary educational and enrichment opportunities to improve the quality of life and standard of living.

Credit Hour Requirement Calculator

Course Information				
Department, Course Number	Mathematics			MATH0012
Course Title				Supplemental Math
Credit Hours	2			
Mode of Delivery	Traditional			
Weeks in Part of Term	15			
Level of Reading Material	Advanced/Scientific/Technical (2)			2
Reading Level of Students	Average Student (2)			2
Average Pages per Hour	11			
		Enter either week or term, not both		
Contact Hours		**Hours/Week**	**Hours/Term**	**Total Hours**
Lecture/Recitation			30	30
	Pages Asg'd	**Hours/Week**	**Hours/Term**	
Syllabus Items				
Weekly Homework Assignments		4		60
Prepare for Chapter tests			8	8
Prepare for Final Exam			4	4
				0
				0
				0
				0
				0
				0
				0
Total Hours				102
Required Hours				75
Difference				Ok + 27