Course Description

MATH 1314 College Algebra (3 college credits): Exponents and radicals, logarithms, factoring, algebraic quotients, systems of equations, inequalities, absolute value, complex numbers, quadratic equations, binomial theorem, progressions, theory of equations, and determinants. Since this class functions as both a high school junior/senior mathematics class and a dual credit College Algebra class, it will not only cover the Pre-Calculus TEKS 111.42, but also the Core Curriculum Student Learning Objectives used in Texas colleges.


Prerequisite: Completion of Mathematics Texas Success Initiative (TSI) requirements.

Grading: Tests 50%, Quizzes 15%, Homework 10%, Final Exam 25%

Your Responsibilities: This is a college course. You will be held to the same standards as college students. In order to be successful, you must do the following:
1. Attend class regularly.
2. Take notes.
3. Ask questions during class.
4. Do your homework.
5. Study for quizzes and tests.

Miscellaneous

1. If you will be absent on a test or quiz day, you must make arrangements to take the test or quiz prior to your absence or the day the you return.

2. Exams are to be finished during class time. No additional time will be given. On the day of a test or quiz, students must store all phones, iPads, and smart watches in an area designated by the teacher.

3. To receive credit for a question, you must show your work clearly, in order, and legibly.

4. If you turn in an assignment late, 10 points will be deducted per day, up to 5 calendar days, that it is late. If you are to be absent for a school activity, or other scheduled event, on the day an assignment is due, the assignment should be turned in before you leave for the event, to avoid a penalty. If you have an unexpected absence, then the assignment may be turned in the first day you are back at school without penalty.
5. The use of a graphing calculator is not allowed for most of this course. The calculator will be used when dealing with logarithms and systems with three variables. You may use your own calculator, or you may use one from our classroom set. Calculators will not generally be allowed on quizzes or tests. Even when calculators are allowed, all answers must be non-calculator based, meaning exact solutions are required. Algebraic work must be shown. You will not be allowed to share calculators. You will also not be allowed to use the calculators on a cell phone or I-Pad.

6. Cell phone use in class is strictly prohibited.

7. If you are absent, it is your responsibility to contact a classmate or me to find out what you missed.

8. Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding the Academic Honor Code, which is available on the web at [http://www.angelo.edu/forms/pdf/honorcode5.pdf](http://www.angelo.edu/forms/pdf/honorcode5.pdf).

9. Persons with disabilities which may warrant academic accommodations must contact the Student Affairs Office, in order to request such accommodations prior to any accommodations being implemented. You are encouraged to make this request early in the semester so that appropriate arrangements can be made.

   Ms. Dallas A. Swafford, Director of Student Disability Services
   Houston Harte University Center, Suite 112 Phone: 325-942-2047 or by E-mail: dallas.swafford@angelo.edu

10. Other course rules and policies will be discussed in class.

**Student Learning Outcomes**

1. **Students will demonstrate factual knowledge including the mathematical notation and terminology used in this course.** Students will read, interpret, and use the vocabulary, symbolism, and basic definitions used in college algebra including the real numbers, exponents, radicals, polynomials, factoring, functions, equations, inequalities, and graphs.

2. **Students will describe the fundamental principles including the laws and theorems arising from the concepts covered in this course.** Students will identify and apply the laws and formulas that result directly from the definitions; for example, the quadratic formula, rules of exponents, and properties of logarithms.

3. **Students will apply course material along with techniques and procedures covered in this course to solve problems.** Students will use the facts, formulas, and techniques learned in this course to simplify algebraic expressions, graph functions, and solve inequalities, equations and systems of equations.

4. **Students will develop specific skills, competencies, and thought processes sufficient to support further study or work in this field or related fields.** Students will acquire a level of proficiency in the fundamental concepts and applications necessary for further study in academic areas requiring college algebra as a prerequisite, or for work in occupational fields requiring a background in algebra.
These fields might include education, business, finance, marketing, computer science, physical sciences, and engineering, as well as mathematics.

**Course Content**


0. **A Review of Basic Algebra:** Real Numbers; Integer Exponents and Scientific Notation; Rational Exponents and Radicals; Polynomials; Factoring Polynomials; Rational Expressions.

1. **Equations and Inequalities:** Linear Equations and Rational Equations; Applications of Linear Equations; Complex Numbers; Quadratic Equations; Applications of Quadratic Equations; Other Types of Equations; Inequalities; Absolute Value.

2. **Functions and Graphs:** Functions and Function Notation; The Rectangular Coordinate System and Graphing Lines; Linear Functions and Slope; Writing and Graphing Equations of Lines.

3. **Functions:** Graphs of Functions.

4. **Polynomial and Rational Functions:** Quadratic Functions.

5. **Exponential and Logarithmic Functions:** Exponential Functions and Their Graphs; Logarithmic Functions and Their Graphs; Properties of Logarithms; Exponential and Logarithmic Equations.

6. **Linear Systems:** Systems of Linear Equations; Partial Fractions.

**Core Curriculum Student Learning Objectives**

- **Core Objective (Critical Thinking):** Gather, analyze, evaluate, and synthesize information relevant to a question or issue. (CT1)
  - **Course Student Learning Objective:** Students will use mathematical facts, formulas, and techniques to analyze and interpret information related to algebraic expressions and equations.
  - **Assessment:** Assessment exam that demonstrates CT1.

- **Core Objective (Communication):** Develop, interpret, and express ideas through effective visual communication. (CS3)
  - **Course Student Learning Objective:** Students will create and interpret graphs of algebraic and transcendental functions.
  - **Assessment:** Assessment exam that demonstrates CS3.

- **Core Objective (Empirical and Quantitative Skills):** Manipulate and analyze observable facts and arrive at an informed conclusion. (EQS2)
  - **Course Student Learning Objective:** Students will use the facts, formulas, and techniques learned in this course to draw conclusions about the properties of various algebraic expressions, equations, and functions.
  - **Assessment:** Assessment exam that demonstrates EQS2.
Tentative Schedule: The following is a tentative schedule of this course. This is likely to change throughout the semester.

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