COURSE DESCRIPTION: This course is designed for high school students wishing to gain both advanced high school credit and college credit concurrently. College Algebra gives the student the skills needed to perform computations in other math and science courses. It serves as the basis for other math courses to follow, as all require competence in algebraic reasoning.

PRE-REQUISITE: High school Algebra 2 and fulfill TSI requirements.


LEARNING OBJECTIVES:
After completing the course, the student should be able to demonstrate competency in:

1.0 Solving Equations and Inequalities
1.1 Work with graphs and graphing utilities.
1.2 Solve linear and rational equations.
1.3 Use linear equations to model real-world applications.
1.4 Perform operations with complex numbers.
1.5 Solve quadratic equations using a variety of techniques.
1.6 Solve other types of equations, including polynomial, radical, rational exponent, and absolute value equations.
1.7 Solving linear and absolute value inequalities.

2.0 Functions and Graphs
2.1 Use a knowledge of the basics of functions to predict and interpret graphs.
2.2 Recognize and utilize the various forms of the linear equation.
2.3 Utilize slope and its applications in a variety of settings.
2.4 Recognize and utilize the rules for transformations of functions.
2.5 Perform operations on functions, including addition, subtraction, multiplication, and composition.
2.6 Identify inverse functions and their domains.
2.7 Use distance and midpoints and apply them in the context of circle equations.

3.0 Polynomial and Rational Functions
3.1 Interpret the various forms of the quadratic function and what each form reveals about the graph.
3.2 Identify the graphs of polynomial functions by recognizing end behaviors, roots, increasing and decreasing intervals, etc.
3.3 Find the zeros of a polynomial function using the Factor Theorem, Rational Zeros Theorem, Descarte’s Rule of Signs, and the Fundamental Theorem of Algebra.
3.4 Simplify rational expressions and identify vertical, horizontal, and slant asymptotes.
3.5 Solve polynomial and rational inequalities.
4.0 To demonstrate competency in exponential and logarithmic functions, the student should be able to:
   4.1 Apply laws of exponents to simplify exponential expressions.
   4.2 Recognize the characteristics of the graph of an exponential function.
   4.3 Recognize the characteristics of the graph of a logarithmic function.
   4.4 Utilize the properties of logarithms to simplify or expand logarithmic expressions.
   4.5 Solve exponential and logarithmic equations.
   4.6 Use exponential functions to model growth and decay.
5.0 To demonstrate competency in solving systems of equations, the student should be able to:
   5.1 Solve systems of linear equations in two variables.
   5.2 Solve systems of linear equations in three variables.
   5.3 Solve systems of non-linear equations in two variables.
   5.4 Solve systems of inequalities.
   5.5 Use linear programming and objective functions to find maximum and minimum values in applied situations.
6.0 To demonstrate competency in matrices and determinants, the student should be able to:
   6.1 Solve systems of linear equations using matrices.
   6.2 Perform matrix operations.
   6.3 Use determinants and Cramer’s rule to solve linear systems of equations.

EVALUATION STANDARDS:
These course objectives and student learning outcomes will be assessed through the administration of a minimum of 3 in-class exams (60%), quizzes and/or homework (20%) and a comprehensive final exam (20%). Calculators will not be allowed on the final exam.

GRADING KEY:
100-90 = A     89-80 = B     79-70 = C     69-60 = D     59-below = F

GRADING STANDARDS:
A - Student’s work is exceptional and consistently above average.
B - Student’s work is above average. Required assignments were completed in a timely manner and have met at least the minimum required standards.
C - Student’s work is acceptable. Majority of assignments meet the minimum required standards.
D - Student’s work fails to meet the minimum requirements for a grade of "C." Overall performance was sub-standard in comparison to normal expectations for this class.
F - Student’s work is clearly unacceptable. Student either did not attempt the work or failed to meet any of the minimum required standards.

STUDENT DISABILITY SERVICES
ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA), and subsequent legislation.

The Office of Student Affairs is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability, and it is the student’s responsibility to initiate such a request by contacting:

Ms. Dallas A. Swafford
Director of Student Disability Services
•325-942-2047
•dallas.swafford@angelo.edu
•Houston Harte University Center

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TITLE IX STATEMENT
Angelo State University is committed to the safety and security of all students. If you or someone you know experience sexual harassment, sexual assault, domestic or dating violence, stalking, or discrimination, you may contact ASU's Title IX Coordinator:

Michelle Nicole Boone, J.D.
Director of Title IX Compliance
•Michelle.boone@angelo.edu
•325-486-6357
•Mayer Administration Building 204

STUDENT ABSENCE FOR OBSERVANCE OF RELIGIOUS HOLY DAYS
A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Day for more information.

INCOMPLETE GRADE POLICY
It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures for more information.

STUDENT CONDUCT POLICIES
ACADEMIC INTEGRITY
Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

PLAGIARISM
Plagiarism is a serious topic covered in ASU's Academic Integrity policy in the Student Handbook. Plagiarism is the action or practice of taking someone else’s work, idea, etc., and passing it off as one’s own. Plagiarism is literary theft. In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list. Papers are subject to be evaluated for originality via Turnitin. Resources to help you understand this policy better are available at the ASU Writing Center.

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