This is a SouthArk Master Syllabus. The course syllabus distributed by the instructor may include additional requirements, must be followed by the student in the given term, and is considered to supersede the Master Syllabus.

Course Number
MATH 1023

Course Title
COLLEGE ALGEBRA

Course Description
Prerequisite: Meets basic studies math requirement. This is a college-level mathematics course. Topic include solutions to quadratic equations, solutions to quadratic and rational inequalities, functions (including linear, absolute value, quadratic, polynomial, rational , exponential, and logarithmic), graphing functions, shifting and reflecting of graphs, combinations of functions, inverse functions, system of equations (including a matrix method).

College Mission
South Arkansas Community College promotes excellence in learning, teaching, and service; provides lifelong educational opportunities; and serves as a cultural, intellectual, and economic resource for the community.

College Wide Student Learner Outcomes

☒Critical Thinking   ☐Responsibility   ☐Communication

ACTS Course☒   **Program Cours**e ☐

Program Outcomes: N/A

ACTS Outcomes

The student will demonstrate the ability to:
1.   Perform and solve basic function operations and algebraic problems, using appropriate vocabulary.
2.   Formulate decisions and solve problems based on reasoning and analysis.
3.   Use technology appropriately to supplement and enhance conceptual understanding, visualization, and inquiry.
4.   Synthesize information from a variety of sources to solve problems and interpret results
5.   Analyze and perform various functions including absolute value, quadratic, polynomial, rational, logarithmic, and exponential; and the graphing of inequalities and quadratic inequalities.
6.   Solve and apply systems of equations and matrices.

Course Outcomes

CLO#	Course Outcomes	Unit Outcomes/ Competencies	ACTS Outcomes	Program Outcomes	Critical Thinking	Communication	Responsibility	Assessment
CLO 1	Perform and solve basic function operations and algebraic problems using appropriate vocabulary.	I, II	1		CT2			Final Exam
CLO 2	Formulate decisions and problem solving based on reasoning and analysis.	I, II, III, IV, V	2		CT2			Final Exam

CLO 3	Use technology appropriately to supplement and enhance conceptual understanding, visualization, and inquiry.	I, II, III, IV, V	3		CT2			Final Exam
CLO 4	Synthesize information from a variety of sources to solve problems and interpret results	I, II, III, IV, V	4		CT2			Final Exam
CLO 5	Analyze and perform various functions, including absolute value, quadratic, polynomial, rational, logarithmic, and exponential; and the graphing of inequalities and quadratic inequalities.	II, III, IV	5		CT2			Final Exam
CLO 6	Solve and apply systems of equations and matrices.	v	6		CT2			Final Exam

Unit Outcomes/ Competencies

I. Graphing, Quadratic Equations. The student should be able to:

1. Sketch the graph of equations in two variables on a set of rectangular coordinates.
2. Interpret information about a graphing utility's viewing rectangle or table.
3. Use a graph to determine intercepts.
4. Interpret information given by graphs.
5. Solve quadratic equations by factoring, by extracting roots, and by using the quadratic formula.
6. Determine the most efficient method to use when solving a quadratic equation.
7. Solve problems modeled by quadratic equations.

II. Functions and Their Graphs. The student should be able to:

1. Decide whether or not an equation represents a function.
2. Use function notation to evaluate functions.
3. Graph functions by plotting points.
4. Use the vertical line test for functions.
5. Obtain information about a function from its graph.
6. Identify the domain and range of a function.
7. Identify intercepts of a function.
8. Use functions to model and solve real-life problems.
9. Locate relative maxima and minima of a function.
10. Identify and graph the basic "common" functions, namely linear functions, the squaring function, the cubing function, the absolute value function, the square root function and the cube root function.
11. Use vertical shifts, horizontal shifts, and reflections to graph functions.
12. Find the domain of a function.
13. Combine functions using the algebra of functions and specifying domains.
14. Form composite functions and determine their domains.
    Basic Skills Reviewed: Squaring a binomial.

15. Verify inverse functions.
16. Find the inverse of a one-to-one function.
. 17. Find the inverse of a function and graph both functions on the same axes.

III. Polynomial and Rational Functions. The student should be able to:

1. Recognize characteristics of parabolas.
2. Graph parabolas.
3. Determine the maximum value or the minimum value of a quadratic function.
4. Solve problems involving the maximum or minimum value of a quadratic function.
5. Recognize characteristics of graphs of polynomial functions.
6. Determine end behavior of a polynomial function.
7. Find the zeros of polynomial functions.
8. Understand the relation between the degree of a polynomial function and turning points.
9. Graph polynomial functions.
10. Find the domains of rational functions.
11. Identify vertical and horizontal asymptotes.
12. Graph rational functions.
13. Solve applied problems using rational functions.
14. Solve polynomial and rational inequalities.
15. Solve problems modeled by an inequality.

IV. Exponential and Logarithmic Functions. The student should be able to:

1. Evaluate exponential functions.
2. Graph exponential functions.
3. Solve problems that apply exponential functions.
4. Convert between logarithmic form and exponential form.
5. Evaluate logarithmic functions.
6. Use basic logarithmic properties.
7. Find the domain and sketch logarithmic functions.
8. Solve applications of logarithmic functions.
9. Use the properties of logarithms to rewrite logarithmic expressions.
10. Solve exponential and logarithmic equations.
11. Solve applied problems involving exponential and logarithmic equations.

V. Systems of Equations.   The student should be able to:

1. Solve linear systems of equations by substitution and addition.
2. Solve applied problems using a system of equations.
3. Solve nonlinear systems of equations.
4. Solve applied problems using nonlinear systems of equations.
5. Write the augmented matrix for a linear system.
6. Use the augmented matrix and Gauss-Jordan elimination to solve systems. (may apply "rref" program).
7. Solve applied problems by using the above matrix method.

Assessment Description(s)
Students completing the course will take a departmental final exam. For each of the outcomes listed above, two questions on the final exam will be chosen as best measuring that outcome. A student will be judged proficient on the outcome if they correctly solve at least one of those two problems. For each outcome, the percent of course completers showing satisfactory proficiency will be indicated on the assessment report. The goal is that for each outcome at least 70% of the course completers would demonstrate proficiency.

Materials and Technological Requirements
College Algebra (with MyLabsPlus access code), 5e by Robert Blitzer. ISBN;125667738
TI-84 Plus graphing calculator (or TI-83 Plus).
Graph paper

Notebook.

Class Attendance Policy
Students are expected to attend all classes in which they are enrolled. If a student is absent from a class session, it is the student's responsibility to make arrangements to complete or make up any work missed. No make-up work for missed classes will be allowed without the approval of the instructor. Students who enroll late must assume all responsibility for work missed. Classes not attended as a result of late enrollment may be counted toward excessive absences. Students not attending the entire class period may be counted absent for that period. An instructor may drop students with a grade of "WE" if students have been absent for an excessive number of days. Warning letters will be sent to the students advising them of the consequences of nonattendance and urging them to contact their instructors immediately. Excessive absences are defined as follows:

Regular Semester
Courses which meet once a week ....2 absences
Courses that meet twice per week..3 absences
Courses that meet four times per week ....5 absences

Summer Session
Courses that meet four times per week in a five week session ....3 absences
Courses which meet two evenings per week in a 10 week session ....3 absences

Students enrolled in special programs or individualized instruction should contact their program director/instructor regarding specific attendance requirements for the program/course. Some of the selective-admission, health-science programs have specific criteria regarding attendance. Students are encouraged to refer to program policies in these matters.

Jury Duty/Military/Official School Function
Scheduled absences are those that occur due to college-related activities or as a result of summons to jury duty or military duty. Classes missed as a result of scheduled absences will not be counted as excessive absences if the instructor is notified and provided documentation prior to the absence(s). Make-up work for scheduled absences will be at the discretion of the instructor.

In all instances, documentation must be provided to the instructor within 24 hours of receipt. Documentation should come from an appropriate party on letterhead or other official stationery with a signature and contact information. Documentation should list the corresponding dates of the leave.

Medical leave
For medical-related absences, documentation must include written notice from the treating medical professional documenting time needed off related to medical reasons and time student may resume classes. The medical reason does not need to be listed on the documentation; the documentation must include only that there is a medical reason, the amount of time the student needs to be absent, and the time the student should be able to return to classes. Students who elect to work at home while on excused leave must meet with their instructors to make arrangements to do so. Working on coursework while on medical leave is not a requirement but can be requested by students. If students request that they be allowed to work at home while on an excused leave, the instructor will make every reasonable effort to ensure that the student is able to do so.

For students who have a medical condition necessitating time off or accommodation:

1) They may work at home on assignments if they choose to if on medical leave approved by a medical professional
2) Receive appropriate accommodations related to coursework (i.e., excused from labs with potentially harmful chemicals, have a larger desk, etc.)
3) Resume their studies where they left off once they return to classes
4) Be allowed to make up any missed work related to medical leave
5) Receive incompletes on their transcripts until coursework is completed, according to the incomplete grade contract.
6) Be given a reasonable time frame in which to complete missed coursework

Academic Honesty Policy
Students enrolled at South Arkansas Community College are expected at all times to uphold standards of integrity. Students are expected to perform honestly and to work in every way possible to eliminate academic dishonesty. Academic dishonesty includes cheating and plagiarism, which are defined as follows:

- Cheating is an attempt to deceive the instructor in his/her effort to evaluate fairly an academic exercise. Cheating includes copying another student's homework, class work, or required project (in whole or in part) and/or presenting another's work as the student's own. Cheating also includes giving, receiving, offering, and/or soliciting information on a quiz, test, or examination.

- Plagiarism is the copying of any published work such as books, magazines, audiovisual programs, electronic media, and films or copying the theme or manuscript of another student. It is plagiarism when one uses direct quotations without proper credit or when one uses the ideas of another without giving proper credit. When three or more consecutive words are borrowed, the borrowing should be recognized by the use of quotation marks and proper parenthetical and bibliographic notations.

If, upon investigation, the instructor determines that the student is guilty of cheating or plagiarism, the following penalties will apply:

- The student will receive a penalty of no less than a zero on the work in question.
- The instructor will submit a Student Academic Misconduct Form, written report of the incident, to the appropriate dean.
- The dean will submit form to Vice President for Learning to determine disciplinary action.
- The Vice President for Learning will determine whether further disciplinary action will be taken.
- All decisions may be appealed for review through the college's academic appeals procedure.

Equal Opportunity-Affirmative Action Statement
South Arkansas Community College does not discriminate on the basis of age, race, color, creed, gender, religion, marital status, veteran's status, national origin, disability, or sexual orientation in making decisions regarding employment, student admission, or other functions, operations, or activities.

Library Services
Library Homepage: http://southark.libguides.com/homepage Library Contact: LibraryStaff@southark.edu or 870.864.7115

Procedures to Accommodate Students with Disabilities:
If you need reasonable accommodations because of a disability, please report this to the Vice President of Student Services with proper documentation. . VPSS Contact: 870.875.7262

The Early Alert System
In an effort to ensure student retention and success, South Arkansas Community College employs an Early Alert System to identify and support at-risk students as soon as possible in a given semester. The intent of Early Alert is to provide this assistance while there is still time to address behaviors or issues that have the potential of preventing students from completing their courses and degree plans. Students referred through the Early Alert System will be required to work on a corrective action plan with their student advising coach and to include attendance accountability and mandatory academic tutoring either in the academic division or in the Testing and Learning Center (TLC).

Once the Student Advising Coach has met with the referred student, and again when the student has met the prescribed corrective actions, the coach will update the Early Alert System so that the instructor is kept informed of the progress in resolving issues.

Behavioral Review Team
At South Arkansas Community College (SouthArk), we are committed to proactive leadership in student wellbeing and campus safety. By focusing on prevention and early intervention with campus situations that involve any person experiencing distress or engaging in harmful or disruptive behaviors, the BRT will serve as the coordinating hub of existing resources to develop intervention and support strategies and offer case management. Students, faculty, staff, and campus guests are encouraged to report any person on campus who is a concern. BRT Contact: 870.875.7262 BRT@southark.edu

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