

MTH-045 ALGEBRA COURSE SYLLABUS

James A. Rhodes State College
Division of Arts and Sciences

5 Credit Hours
5 or 6 Contact Hours

ADA Accommodations

The Learning Center provides free education assistance to any Rhodes State College student who is enrolled for credit. Students are responsible for informing the instructor of any instructional accommodations and/or special learning needs by the end of the first week of the quarter. Assistance is available to eligible students through The Learning Center, Science Building Room 151, or call (419) 995.8039 [adopted from a statement provided by the Learning Assistance Program].

Mathematics Mission Statement

The mission of the Rhodes State College mathematics department is to provide mathematical foundations for underprepared students and the mathematics courses needed for the different technologies at Rhodes State College. The courses furnish students with mathematical concepts pertinent to our programs of study and allow flexibility in career and educational choices.

Dean of Arts & Sciences Division: Will Wells
Chair of Mathematics Department: Mary Ann Hovis

I. OVERVIEW

Math 045 is an introduction to basic techniques in algebra, geometry, and trigonometry. This course provides the prerequisite knowledge necessary for students in the health areas or the engineering technology areas to begin the technical mathematics sequence. Students entering this course must have a mastery of the algebra portion of MTH 030.

Prerequisite: Math Placement or MTH-030 Pre-Algebra with a grade of C or better.

Lecture and Class: 5 or 6 hours of lecture and 0 lab hours per week.

II. TEXT AND MATERIALS/SUPPLIES

Blitzer, R., Introductory Algebra for College Students, 4th Edition, Prentice Hall, 2006
plus Measurement & Geometry with Right Triangle Trigonometry Supplement

OPTIONAL: Blitzer, R., Student Solutions Manual for Introductory Algebra for College Students, 4th Edition, Prentice Hall, 2006

CALCULATORS: Students will need at least a scientific calculator for this course.

Note: Students taking MTH-121, MATH I, will be required to have a **TI-86** calculator. Students taking MTH-126 Statistics will be required to have one of the **TI-83** or **TI-84** types of calculators.

III. COURSE OBJECTIVES

A. GENERAL

1. Linear Equations
2. Inequalities
3. Problem Solving
4. Graphing
5. Exponents
6. Polynomials
7. Rational Expression
8. Roots and Radicals
9. Measurement
10. Geometry
11. Right Triangle Trigonometry

B. SPECIFIC

The student should be able to:

1. Add, subtract, multiply, and divide real numbers
2. Solve linear equations in one variable
3. Solve literal equations
4. Solve linear inequalities
5. Model application problems using linear equations
6. Graph points
7. Graph functions
8. Add, subtract, multiply, and divide polynomials
9. Simplify polynomials
10. Evaluate algebraic expressions
11. Use the laws of exponents
12. Factor polynomials
13. Solve quadratic equations by factoring
14. Add, subtract, multiply, and divide algebraic fractions
15. Solve equations involving algebraic fractions
16. Simplify, add, subtract, and multiply radicals
17. Convert between units
18. Calculate the measure of angles when given appropriate information
19. Find the perimeter and area of polygons

20. Find the circumference and area of circles
21. Find the volume and surface area of certain solids.
22. Use the Pythagorean Theorem
23. Solve problems with right triangles using the trigonometric function

IV. SCHEDULE OF INSTRUCTION TOPICS

- A. Linear Equations and Inequalities in One Variable
 1. The Addition Property of Equality
 2. The Multiplication Property of Equality
 3. Solving Linear Equations
 4. Formulas and Percents
 5. An Introduction to Problem Solving
 6. Solving Linear Inequalities

- B. Problem Solving
 1. Further Problem Solving
 2. Ratio and Proportion
 3. Problem Solving in Geometry

- C. Linear Equations
 1. Ordered Pairs and Graphs
 2. Graphing Linear Equations
 3. Graphing Linear Equations Using Intercepts

- D. Exponents and Polynomials
 1. Adding and Subtracting Polynomials
 2. Multiplying Polynomials
 3. Special Products
 4. Polynomials in Several Variables
 5. Dividing Polynomials
 6. Dividing Polynomials by Polynomials
 7. Negative Exponents and Scientific Notation

- E. Factoring Polynomials
 1. The Greatest Common Factor and Factoring by Grouping
 2. Factoring Trinomials Whose Leading Coefficient Is One
 3. Factoring Trinomials Whose Leading Coefficient Is Not One
 4. Factoring Special Forms
 5. A General Factoring Strategy
 6. Solving Quadratic Equations by Factoring

- F. Rational Expressions
 1. Rational Expressions and Their Simplification
 2. Multiplying and Dividing Rational Expressions

3. Adding and Subtracting Rational Expressions with the Same Denominator
 4. Adding and Subtracting Rational Expressions with Different Denominators
 5. Complex Rational Expressions
 6. Solving Rational Equations
 7. Applications
- G. Roots and Radicals
1. Finding Roots
 2. Multiplying and Dividing Radicals
 3. Operations with Radicals
- H. Measurement
1. Measuring Length; The Metric System
 2. Measuring Area and Volume
 3. Measuring Weight and Temperature
- I. Geometry
1. Points, Lines, Planes, and Angles
 2. Triangles
 3. Polygons, Quadrilaterals, and Perimeter
 4. Area and Circumference
 5. Volume
 6. Right Triangle Trigonometry

V. **SCHEDULE OF ACTIVITIES**

Sections from Chapters 2 – 4 and 6 – 9 will be covered from the text along with the Measurement & Geometry with Right Triangle Trigonometry Supplement

COURSE OUTLINE

<u>Chapter No.</u>	<u>Week No.</u>	<u>Subject</u>
2	1	Linear Equations and Inequalities in One Variable
3	2	Problem Solving & Linear Equations
Measurement & Geometry	2 & 3	Measurement and Geometry
4	4	Linear Equations in Two Variables
6	5 & 6	Exponents and Polynomials
7	6 & 7	Factoring Polynomials
8	8	Rational Expressions
9	9	Roots and Radicals
Geometry	9 & 10	Right Triangle Trigonometry

NOTE: The time frame set out above is approximate.

VI. LABORATORIES, CLINICALS

There are no formal labs.

VII. SPECIAL OR ADDITIONAL COURSE REQUIREMENTS

No children, cell phones, or pagers in class without prior permission of the instructor.

VIII. ATTENDANCE

Given the volume of material covered in the class, students are:

- 1. expected to be in class the entire time the class is in session.**
- 2. responsible for everything presented or covered in class.**

Attendance is an important part of the grade you receive for this course. Regular attendance is needed to gain an understanding of the course's content and to satisfactorily demonstrate required competencies. Lack of attendance will negatively impact the earned grade and if flagrant, could result in a grade of "E".

Student Conduct: Students are responsible for helping to maintain the decorum of the classroom. Therefore the following behaviors are deemed unacceptable: habitual attendance/punctuality problems; disruptive behavior (to include eating or sleeping during class, holding private conversations during class, performing antics during class, deriding or embarrassing other students and/or racist or sexist comments or behaviors); or any other activity, which tends to compromise the academic integrity and subvert the process of education. As outlined in the Rhodes State Student Code of Conduct, students in violation of these guidelines may be removed from the class or exposed to other disciplinary measures.

Information about Withdrawals:

- ✓1. Before 5:00 p.m. of the 4th Friday of a quarter, a student may withdraw for a course and no mark will be entered on their official permanent record.
- ✓2. Between 5:00 p.m. of the 4th Friday and 5:00 p.m. of the 7th Friday of a quarter, a student may withdraw from a course and their official permanent record shall bear the notation of "W".
- ✓3. After the 7th Friday documented and extenuating circumstances will be required to withdraw from a course.

✓ **PROPER PAPERWORK** must be done by the student. Please see catalog for more details.

IX. TESTING AND EVALUATION PROCEDURES

Please note the following policy on missing an exam or quiz:

If a student is absent on an exam or a quiz day, a score of zero will be recorded unless other arrangements are made with the instructor.

Class specific information is provided on an additional sheet.

X. COURSE BIBLIOGRAPHY AND/OR ADDITIONAL REFERENCES

- * Blitzer, R., Introductory Algebra for College Students, 4th Edition, Prentice Hall, 2006 plus Measurement & Geometry with Right Triangle Trigonometry Supplement

OPTIONAL: Blitzer, R., Student Solutions Manual for Introductory Algebra for College Students, 4th Edition, Prentice Hall, 2006

FREE TUTORING is available in the Skills Center: Science 240. Hours are posted each quarter.

Videos are available in the Skills Center

- * Textbook

XI. PLAGIARISM AND ACADEMIC HONESTY

Plagiarism is the use of someone else's writing and/or work without giving proper credit - or perhaps without giving any credit at all to the writer of the original material. Whether plagiarism is intentional or unintentional, it represents a serious academic offense that can be easily avoided by adhering closely to the following advice. A student must document his/her source of information whenever she/he:

1. uses a direct quotation.
2. copies a table, chart, or diagram.
3. constructs a table from data provided by others.
4. paraphrases a passage in his/her own words.
5. presents specific examples, figures, or factual information taken from a specific source and used to explain or support his/her judgments (James M. McCrimmon, Writing With A Purpose, p. 499)

In addition to this definition, the Instructional Division of Rhodes State College, considers plagiarism to include: (1) submitting the work of another student, (2) copying from another student, or (3) using unauthorized notes or crib sheets to complete assigned work. [adopted from a statement used by the Human Services Program at Rhodes State College]

Academic Honesty. All class members are assumed to be honest. Attempting to deceive, defraud, or use dishonesty for one's own gain cannot be tolerated in any form. Cheating during any class activity is unethical and compromises the integrity of the college and subverts the process of education (note: individual programs may impose greater penalties). Cheating may result in a grade of "0" for the activity. Instructors may report questionable behavior to the office of the Vice President for Academic Affairs who will bring the incident to the attention of the Academic Misconduct Committee. Students are encouraged to review the Code of Student Conduct in the college's catalog for specific details and examples of academic dishonesty.

Submitting Substantially The Same Work. Submitting substantially the same work to satisfy requirements for one course that has been previously submitted and satisfied the requirements for another course, without permission of the instructor for which the work is being submitted and without including the original work for comparison is not permitted. See Section 10.5, paragraph 5 of the code of Student Conduct.

This syllabus can be changed at the discretion of the instructor and/or chair of the program.