

**FRESNO CITY COLLEGE
COURSE OUTLINE OF RECORD**

Course Subject and Number <p style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Mathematics 3</p>	Discipline(s) <p style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Mathematics</p>
Course Title <p style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Intermediate Algebra</p> <p style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">(Formerly Math B)</p>	Term Effective: <p style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Fall 2001</p>

Catalog Description	<input type="checkbox"/> no change	<input checked="" type="checkbox"/> revised/clarified	<input type="checkbox"/> new (check one)
Prerequisite	<input checked="" type="checkbox"/> no change	<input type="checkbox"/> revised/clarified	<input type="checkbox"/> new (check one)
Corequisite	<input checked="" type="checkbox"/> no change	<input type="checkbox"/> revised/clarified	<input type="checkbox"/> new (check one)
Advisory	<input checked="" type="checkbox"/> no change	<input type="checkbox"/> revised/clarified	<input type="checkbox"/> new (check one)
Units, hours, repeatability, credit/no credit, number of weeks (If revised is checked, underline item(s) revised above)	<input checked="" type="checkbox"/> no change	<input type="checkbox"/> revised	<input type="checkbox"/> new (check one)

3 unit(s) 5 lecture hour(s) 0 laboratory hour(s) 0 number of repeats (maximum = 3)

 credit/no credit only 18 number of weeks

Prerequisite: Math 1 or the equivalent

Corequisite: None

Advisory: Eligibility for English 25 and 26 or English 53 or ESL 67 and 68 recommended.

Description: Polynomial, rational, and algebraic expressions; linear, quadratic, exponential, and logarithmic functions; systems of equations and inequalities; matrices; conic sections; sequences and series; and the binomial theorem.

Entry Level Skills: Upon entering the course, the student should be able to:

1. perform the order of operations and evaluate algebraic expression using signed numbers;
2. simplify expressions by using the rules of exponents;
3. solve systems of equations involving two variables by graphing, the addition method, and the substitution method, and solve application problems by using at least one of these methods;
4. employ various techniques to recognize and use new vocabulary;
5. demonstrate ability to analyze material critically;
6. demonstrate skills to employ reading strategies and the reading process; and
7. demonstrate skill in selecting and using appropriate study skills.

Requested Credit Classification (check all that apply)

- | | |
|---|---|
| <input checked="" type="checkbox"/> Degree Applicable | <input type="checkbox"/> Noncredit |
| <input type="checkbox"/> Nondegree Applicable | <input type="checkbox"/> Transfer Level |

Course contains an international component.

Course contains American pluralism and identity content.

Expected Outcomes/Objectives: Upon successful completion of the course, the student will be able to:

1. solve and graph the solutions to linear equations, inequalities, and systems of linear equations and inequalities including absolute value statements;
2. solve more advanced application problems;
3. use a variety of factoring techniques to simplify polynomial and rational expressions and to solve polynomial and rational equations;
4. derive the quadratic formula and use it to solve quadratic equations;
5. graph numbers on the complex plane and simplify complex expressions;
6. graph quadratic, exponential, and logarithmic equations;
7. graph relations, functions, and their inverses;
8. simplify factorial expressions and determine binomial coefficients;
9. simplify expressions and solve equations written in exponential and logarithmic forms;
10. identify and graph conic sections;
11. solve systems of linear equations by the elimination or Gauss-Jordan method;
12. solve and graph solutions to non-linear systems of equations and inequalities in two variables; and
13. utilize the properties, notation, and formulas for sequences and series.

Texts, Other Readings, and Materials:

Text(s)

Bittinger, Marvin L., Intermediate Algebra, 8th Edition, Addison-Wesley Publishing: Menlo Park, CA, 1999.
Johnston, C.L., Willis, Alden T., and Lazeris, Jeanne, Intermediate Algebra, 7th Edition, ITP Publishing: Belmont, CA, 1999.
McKeague, Charles P., Intermediate Algebra, 5th Edition, HBC/Saunders College Publishing: Orlando, FL, 1999.

Primarily College Level

Primarily Not College Level

Professional Judgment

(How Determined)

Out-of-Class Assignments

4 hours per week (or equivalent)

Permissible exceptions to the common interpretation as stated are as follows: (AR 7200) 1 2 3 4 (circle one)

List types:

1. Read and study assigned material.
2. Work assigned problems from textbook and/or supplementary material.
3. Use graphing calculators and/or the computer laboratory to solve problems and applications using technology.

Class participation and assignments require and develop critical thinking (see Expected Outcomes/Objectives).
Describe how:

Students must analyze problems to identify desired outcomes. Students must then decide on which algebraic principles to apply and in what sequence in order to obtain valid conclusions.

Primarily College Level

Not Primarily College Level

2 hours of independent work done out of class per each hour of lecture or class work, or 3 hours lab, practicum, or the equivalent per unit.

Ratio of amount of work per unit of credit required by curriculum committee for a nondegree credit course is met.

Assessment:

Grades will be based upon:

ESSAY*

Assignments and exams consist mainly of reading and solving problems. They do not involve significant use of written explanations.

COMPUTATION*

NONCOMPUTATIONAL PROBLEM SOLVING*
Examples:

SKILL DEMONSTRATION
Kind:

MULTIPLE CHOICE

OTHER: Describe. (Examples: tests, quizzes, homework)

Grading will be based on a combination of scores on assignments, mid-term examinations, and a comprehensive final examination.

***For degree credit: At least one of the first three boxes above must be checked, and if "essay" is not checked, it must be explained why essays are an inappropriate basis for at least 25% of the grade in the course.**

Expanded Description of Content and Methods:

Content:

I.	Introduction	1 week
	A. Sets	
	B. Signed numbers	
	C. Properties of real numbers	
	D. Evaluating and simplifying algebraic expressions	
II.	Equations and Inequalities in One Variable	2 weeks
	A. Solving equations and inequalities	
	B. Graphing solutions on the number line	
	C. Application problems	
III.	Polynomials	1 week
	A. Terminology	
	B. Addition and subtraction	
	C. Multiplication and division	
IV.	Factoring and Special Forms	1 week
	A. GCF	
	B. Factoring by grouping	
	C. Factoring the difference of two squares	
	D. Factoring trinomials	
	E. Factoring the sum or difference of two cubes	
	F. Solving equations by factoring	
V.	Rational Expressions	2 weeks
	A. Reducing rational expressions	
	B. Multiplication and division of rational expressions	
	C. Least Common Multiple	
	D. Addition and subtraction of rational expressions	
	E. Simplifying complex rational expressions	
VI.	Radicals and Exponents	2 weeks
	A. Simplifying radicals	
	B. Adding, subtracting, multiplying and dividing radicals	
	C. Rational exponents	
	D. Radical equations and the Pythagorean Theorem	
	E. Complex numbers	
VII.	Graphing	1 week
	A. Graphing linear equations and inequalities	
	B. Determining the equation of a line	
	C. Functions, relations, and inverses	
VIII.	Quadratics	2 weeks
	A. Solving by factoring	
	B. Completing the square and the quadratic formula	
	C. Graphing a quadratic function	
	D. Conic sections	
IX.	Systems of Equations	2 weeks
	A. Graphing method	
	B. Elimination method	
	C. Substitution method	
	D. Gauss-Jordan elimination method	
	E. Application problems	

Expanded Description of Content and Methods:

Content:

- | | | |
|------------|---|----------------|
| X. | Logarithms | 2 weeks |
| | A. Exponential and logarithmic functions | |
| | B. Rules of logarithms | |
| | C. Calculating with logarithms | |
| | D. Application of the logarithmic model | |
| | | |
| XI. | Sequences and Series | 1 week |
| | A. Arithmetic and geometric progressions | |
| | B. Infinite geometric series | |
| | C. The binomial coefficient | |

METHODS:

1. The primary method of instruction will be the presentation of material by the lecture method. The instructor will present to the students the development and application of mathematical models for use in problem solving situations.
2. The secondary method of instruction will be through the cooperative efforts of the members of the classroom community, the instructor and students, to assist in the further development and utilization of the skills taught.
3. Additional instruction may be provided through the use of electronic and graphing calculators.