

APPROVED COURSE

MATH 23

CATALOG INFORMATION

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Dept & Nbr: MATH 23 Title: ELEMENTARY ALGEBRA
Full Title: ELEMENTARY ALGEBRA

| Units | Course Hours | Per Week | Nbr of Weeks | Course Hours | Total |
|----------|-----------------|----------|--------------|-----------------|-------|
| Max: 5.0 | Lecture | 5.0 | 17 (18) | Lecture | 90.0 |
| Min: 5.0 | Lab | 0.0 | | Lab | 0.0 |
| | Contact DHR | 0.0 | | Contact DHR | 0.0 |
| | Contact Total | 5.0 | | Contact Total | 90.0 |
| | Non-contact DHR | 0.0 | | Non-contact DHR | 0.0 |

Title 5 Category: 01 AA Degree Applic
Grading: GC Credit course for grade or CR/NC
Repeatability: 00 Not repeatable except under Sec. #58161b
Also listed as:

CATALOG DESCRIPTION:

Presents a first course in algebra for the student without any algebraic background. Topics include solving linear equations and inequalities, solving quadratic equations by factoring, polynomial expressions, factoring, graphing linear equations and inequalities in the variables, solving systems of two linear equations and radical expressions and equations.

PREREQUISITES:

MATH 7 or equivalent with a grade of C or better

COREQUISITES:

RECOMMENDED PREPARATION:

No advisories.

LIMITS ON ENROLLMENT:

SCHEDULE OF CLASSES INFORMATION:

Prerequisites: MATH 7 or equivalent with a grade of C or better
Presents a first course in algebra for the student without any algebraic background. NOTE: Students are encouraged to enroll in MATH 8. (Grade or CR/NC)

ARTICULATION and CERTIFICATE INFORMATION

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|-------------------|----------------------------------|-----------|
| ASSOCIATE DEGREE: | Effective: SUMMER 1992 | Inactive: |
| Area: | B COMMUNICATN/ANALYTICL THINKING | |
| CSU GE: | Effective: | Inactive: |
| Transfer area: | | |
| IGETC: | Effective: | Inactive: |
| Transfer area: | | |

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CSU TRANSFER: Effective: Inactive:

UC TRANSFER: Effective: Inactive:

CAN:

CERTIF/MAJOR APPLICABLE: Y CERTIFICATE-APPLICABLE COURSE

APPROVAL AND DATES

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Version 02 Submitted by: MARIE LARSEN Date: 03/27/2007
Department approved: Date:
Curriculum approved: 05/05/1999 Version approved: 05/04/2007
Prerequisites approved: 05/04/2007 Last reviewed: 05/04/2007
Term effective: SPRING 2008 Last taught: Inactive:

COURSE CONTENT

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OUTCOME AND OBJECTIVES:

By the end of the course the student should be able to:

1. Identify and solve linear equations and linear inequalities in one variable.
2. Combine and simplify polynomials with addition, subtraction, multiplication and division.
3. Factor polynomials with a common factor, with two terms as a difference of squares or a sum or difference of cubes, with three terms, and with four terms by grouping.
4. Solve quadratic equations with real solutions by factoring and by the quadratic formula.
5. Find the distance between two points in the plane.
6. Identify and graph linear equations in two variables.
7. Find the slope and x and y intercepts of a line.
8. Find the equation of a line.
9. Identify and graph linear inequalities in two variables.
10. Solve systems of equations by graphing, elimination and substitution.
11. Solve applications of linear equations, linear inequalities, quadratic equations and systems of equations.
12. Use the properties of exponents to simplify expressions with integer exponents.
13. Use the properties of radicals to add, subtract, multiply, divide and simplify expressions with radicals.
14. Solve equations with radical terms.

TOPICS AND SCOPE:

BASIC PROPERTIES OF REAL NUMBERS

The Real Number System

Inequality notation

Properties of real numbers

Real number addition, subtraction, multiplication and division

LINEAR EQUATIONS AND INEQUALITIES IN ONE VARIABLE

Simplifying expressions

Addition and multiplication properties of equality

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Solving linear equations and inequalities in one variable
Translating verbal statements to symbols
Applications of linear equations
EXPONENTS AND POLYNOMIALS
Properties of exponents
Addition, subtraction and multiplication of polynomials
Special binomial products
Polynomial division
Applications
FACTORING
Prime factorization of integers
Greatest common factor
Grouping
Factoring trinomials and perfect square trinomials
Difference of squares, sum and difference of cubes
Solving equations by factoring
Applications
CARTESIAN COORDINATE SYSTEM
Graphing ordered pairs
Distance formula
LINEAR EQUATIONS AND INEQUALITIES
Slope
Parallel and perpendicular lines
Graphing linear equations in two variables
Finding the equation of a line
Graphing linear inequalities in two variables
SYSTEMS OF TWO LINEAR EQUATIONS IN TWO VARIABLES
Solving by graphing
Solving by substitution
Solving by elimination
Applications
EXPONENTS AND RADICALS
Negative exponents
Properties of radicals
Addition, multiplication and division of radicals
Solving radical equations
Applications
Quadratic Formula

ASSIGNMENTS:

Primarily College Level.
Library has resources needed for assignment completion.
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.
A typical daily assignment consists of reading the appropriate section in the text and completing assigned problems from the accompanying exercise set. Homework will include a full range of problems from the exercise set which develop and reinforce manipulative skills, extend skills to more difficult problems, and use these skills to solve applied (word) problems. Class participation and assignments require and develop critical thinking. Critical thinking is necessary to solve the following typical problems:
1. The length of a rectangle is three more than twice the width. If the perimeter is to be at least 51 meters, what are the possible values for

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- the width?
2. Mr. Smith had \$15,000 to invest. He invested part at 6% and the rest at 7%. If he earns \$980 annual interest, how much did he invest at each rate?
 3. A boat travels 30 miles up a river in the same amount of time it takes to travel 50 miles down the same river. If the current is 5 miles per hour, what is the speed of the boat in still water?
 4. Solve: $2x + 9 = x + 5$

METHODS OF EVALUATION:

This is a degree-applicable course, but substantial writing assignments are NOT appropriate, because the course primarily:

- Is computational
- Involves skill demonstrations or problem solving

The problem-solving assignments required:

- Homework problems
- Quizzes
- Exams

The types of skill demonstrations required:

None

The types of objective examinations used in the course:

None

Other category:

None

REPRESENTATIVE TEXTBOOKS:

Primarily College Level

Blitzer, Robert. "Introductory and Intermediate Algebra for College Students" New Jersey: Pearson Education, Inc., 2006 or Current edition

Plato Learning Interactive Mathematics, Current Edition, Plato Learning, Inc. Bloomington MV

REASON FOR REVISION

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RESOURCES REQUIRED

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MISCELLANEOUS

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Advisory generate desc: N NO
Area department: MATH Mathematics
Audit flag: N NOT AUDITABLE
Basic skills: X NOT BASIC SKILLS
Classification: A Liberal Arts and Sciences Education Cour
Cost level: 00 NOT USED
CVU/CVC status: X CVU/CVC UNKNOWN OR NOT DISTANCE ED
Disciplines: UNKNOW UNKNOWN
Division: 57 Math
Faculty service area: MAT80B DEVELOPMENTAL MATHEMATICS
Fee: \$0.00
In-service: X NOT AN IN-SERVICE COURSE
Level below transfer: X NOT APPLICABLE
Matric-requiring: M Requires math assessment
Maximum class size: 0
Maximum wait list: 0
Method of instruction: 02 LECTURE
Non-credit category: X NOT APPLICABLE, CREDIT COURSE
Open entry/exit: N Not open entry/open exit
Pacs activity: 1701 Mathematics, General
Pacs program project: 0000 Unrestricted
Preq/coreq generate desc: N NO
Preq/coreq provisional: N NO
Preq/coreq reg check: Y PREREQUISITE RULES EXIST
Repeat group id: 000016 MATH2323SI
Requires instructor sig: N INSTRUCTOR'S SIGNATURE NOT REQUIRED
SAM classification: E Non-occupational
Selected/special topic: N NOT A SELECTED TOPIC COURSE
Special class: X NOT A SPECIAL COURSE
TOP code: 1701.00 Mathematics, General
Work-based learning N DOES NOT INCLUDE WORK-BASED LEARNING
Workload: 0.0000