SAN DIEGO COMMUNITY COLLEGE DISTRICT
CONTINUING EDUCATION
COURSE OUTLINE

SECTION I

SUBJECT AREA AND COURSE NUMBER

HSDP 465

COURSE TITLE

ALGEBRA 3-4

ALTERNATE TITLES(S):

ALGEBRA 3-4, FIRST SEMESTER

TYPE COURSE

NON-FEE HSDP

CATALOG COURSE DESCRIPTION

This two semester course complements and expands the mathematical content and concepts of Algebra 1-2 and Geometry. Students who master Algebra 3 gain experience with algebraic solutions of problems in various content areas, including the solution of systems of quadratic equations, logarithmic and exponential functions, and the complex number system. (FT)

LECTURE HOURS

90

LABORATORY

ADVISORIES

Successful completion of Algebra 1-2 or equivalent.

RECOMMENDED SKILL LEVEL

Skill level equivalent to Algebra 1-2.

INSTITUTIONAL STUDENT LEARNING OUTCOMES

1. Social Responsibility
   SDCE students demonstrate interpersonal skills by learning and working cooperatively in a diverse environment.
2. Effective Communication
   SDCE students demonstrate effective communication skills.

INSTITUTIONAL STUDENT LEARNING OUTCOMES (CONTINUED)

3. Critical Thinking
   SDCE students critically process information, make decisions, and solve problems independently or cooperatively.
4. Personal and Professional Development
   SDCE students pursue short term and life-long learning goals, mastering necessary skills and using resource management and self-advocacy skills to cope with changing situations in their lives.

COURSE GOALS

Achievement of the course objectives will enable students to begin to master the California Math Standards for Intermediate Algebra. Among these standards are: solving systems of linear equations an inequalities by substitution with graphs or with matrices; mastering operations on polynomials; factoring polynomials; demonstrating knowledge of how real and complex numbers are related both arithmetically and graphically; adding, subtracting, multiplying and dividing complex numbers; performing operations and evaluating rational expressions with monomial and polynomial denominators; knowing the laws of fractional exponents.

COURSE OBJECTIVES

Upon successful completion of the course, the student will be able to:

1. Identify and use the arithmetic properties of subsets of integers and rational, irrational and real numbers.
2. Simplify expressions before solving linear equations and inequalities.
3. Solve multi-step problems, including word problems.
4. Add, subtract, multiply and divide monomials and polynomials.
5. Solve equations and inequalities involving absolute value.
6. Use operations and evaluate rational expressions with monomial and polynomial denominators and use negative exponents.
7. Solve, graph quadratic equations by factoring, completing the square or suing quadratic formula.
8. Use properties from number systems to justify steps in combining and simplifying functions.
9. Understand inverse relationship between exponents and logarithms.
10. Demonstrate the laws of fractional exponents, exponent functions and use these functions in problems involving exponential growth and decay.
11. Understand and use the properties of logarithms.

SECTION II

COURSE CONTENT AND SCOPE

1. Tables and Graphs of Linear Equations
2. Slopes and Intercepts
3. Linear Equations in Two Variables
4. Direct Variation and Proportion
5. Scatter Plots and Least-Squares Lines
6. Solving Equations
7. Solving Inequalities
8. Solving Absolute Value Equations and Inequalities
9. Operations with Numbers
10. Properties of Exponents
11. Introduction to Functions
12. Operations with Functions
13. Inverses and Functions
14. Special Functions
15. Solving Systems of Equations by Graphing or Substituting
16. Solving Systems by Elimination
17. Linear Inequalities in 2 Variables
18. Systems of Linear Inequalities
19. Linear Programming
20. Parametric Equations
21. Using Matrices to Represent Data
22. Matrix Multiplication
23. Inverse of a Matrix
24. Solving Systems with Matrix Equations
25. Using Matrix Row Operations
26. Quadratic Functions
27. Solving Quadratic Equations
28. Factoring Quadratics
29. Completing the Square
30. Quadratic Formula
31. Quadratic Equations and Complex Numbers
32. Solving Quadratic Inequalities
33. Exponential Growth and Decay
34. Exponential Functions
35. Logarithmic Functions
36. Applications of Common Logarithms
37. The Natural Base

APPROPRIATE READINGS

Assigned text and supplemental readings.

WRITING ASSIGNMENTS

Teachers may require students to keep portfolio or journal.

OUTSIDE ASSIGNMENTS

Students are expected to spend 30 minutes outside of class for each lesson on:

1. Text readings
2. Assigned problems
3. Collecting data to solve real world problems (including use of internet)

APPROPRIATE ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING

Students may be assigned to collect data and apply data to skills learned in class.

EVALUATION

Students will be evaluated through the use of three or more of the following:

1. Midterm and final exams
2. Unit tests or quizzes
3. Pre/Post tests
4. Review of work completed
5. Class participation
6. Attendance

Upon successful completion of each individual course a Certificate of Course Completion will be issued. Upon successful completion of all courses included in the program a Certificate of Program Completion will be issued.

METHOD OF INSTRUCTION

The primary methods of instruction will include but not be limited to: lectures, individualized instruction, group work, cooperative learning and field trips. This course, or sections of this course, may be offered through distance education.

TEXTS AND SUPPLIES

Holt Algebra 2, Schultz and Ellis, current edition
Guide to Teaching Intermediate Algebra 1-2, San Diego Unified School District
SDUSD created work books

PREPARED BY: MAXINE SHERARD/JOHN SULLIVAN DATE: JULY, 1982

REVISED BY: HEIKO FREDERICKS DATE: SEPTEMBER 1985

REVISED BY: GARY GLECKMAN DATE: FEBRUARY 10, 2007

REVISED BY: Instructional Services, SLOs added DATE: March 16, 2017

Instructors must meet all requirements stated in Policy 3100 (Student Rights, Responsibilities and Administrative Due Process), and the Attendance Policy set forth in the Continuing Education Catalog.

REFERENCES:

San Diego Community College District Policy 3100
California Community Colleges, Title 5, Section 55002
Continuing Education Catalog