



MATH 230
CC Approval: 05/03/2007
BOT APPROVAL:
STATE ID: CCC000088840
EFFECTIVE DATE:

College of the Sequoias
COLLEGE ASSOCIATE DEGREE COURSE OUTLINE

SECTION I

SUBJECT AREA AND COURSE NUMBER: MATH 230

COURSE TITLE: INTERMEDIATE ALGEBRA

Units: 4

TOP Code: -

Cross-Listed Courses:

CATALOG COURSE DESCRIPTION:

This is a four-hour-a-week intensive one-semester course in intermediate algebra covering: radical expressions and equations, quadratic equations, functions, logarithmic and exponential functions, and conic sections. This course satisfies the math requirement for an Associate's degree. Supplemental learning assistance is available for students to strengthen skills and to reinforce student mastery of concepts. Students enrolled in MATH 230 may access the supplemental learning assistance by enrolling in MATH 400, an open entry/open exit non-credit course. Approved for Distance Learning format.

REQUISITES:

Prerequisites:

MATH 200 or equivalent college course with "C" or better
or
MATH 205 or equivalent college course with "C" or better
or
or equivalent college course with "C" or better

FIELD TRIP REQUIREMENTS: Not Required

LECTURE HOURS PER WEEK: 4

TOTAL LECTURE HOURS PER SEMESTER: 70

LAB HOURS PER WEEK:

TOTAL LAB HOURS PER SEMESTER:

ACTIVITY HOURS PER WEEK:

TOTAL ACTIVITY HOURS PER SEMESTER:

TOTAL HOURS PER WEEK: 4

TOTAL CONTACT HOURS PER SEMESTER: 70

GRADING: -

REPEATABLE: A - Not designed as repeatable

TRANSFERABLE:
No Transfer Status Selected

SECTION II

OUTCOMES:

Student Learning Outcomes

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

1. Solve absolute value equations and inequalities.
2. Solve rational and quadratic inequalities.
3. Add, subtract, multiply, and divide complex numbers and radical expressions.
4. Solve radical equations.
5. Solve equations that are quadratic in form and their applications by factoring, extracting roots, completing the square and the quadratic formula.
6. Identify and graph the following conic sections whose equations are given in standard form: circles, parabolas, ellipses, and hyperbolas.
7. Understand and apply the definition of a function, function notation, and the vertical and horizontal line tests.
8. Graph and determine the domain and range of the square root function, the absolute value function, the squaring and cubing functions, the reciprocal function, and the exponential and logarithmic functions including translations and reflections of these core graphs.
9. Find the inverse of core functions, determining when functions have inverses and recognizing properties of inverse functions.
10. Solve exponential and logarithmic equations including those that require simplification through the use of various properties of logarithmic and exponential functions.
11. Solve applications of logarithmic and exponential equations (for ex: exponential growth and decay, pH, compound and continuous interest, carbon dating, half-life, and earthquake magnitudes).

COURSE TOPICS:

Outline Of Topics:

The following topics are included in the framework of the course but are not intended as limits on content. The order of presentation and relative emphasis will vary with each instructor.

A. Absolute Value Equations and Inequalities

- i. Solve absolute value equations and inequalities

B. Radical Expressions and Equations

- i. Properties of radicals
- ii. Rational exponents
- iii. Simplify radical expressions
- iv. Operations with radicals
- v. Solve radical equations
- vi. Solve radical equations which come from real-world applications
- vii. Operations with complex numbers

C. Quadratic Equations

- i. Solve quadratic equations using factoring, extracting roots, completing the square, and quadratic formula
- ii. Solve applications problems (for ex: max/min problems)
- iii. Graph quadratic equations
- iv. Solve quadratic and rational inequalities
- v. Solve equations that are quadratic in form

D. Functions

- i. Understand and apply the definition of a function
- ii. Function notation
- iii. Apply the vertical and horizontal line tests
- iv. Graph and determine the domain and range of the core functions (see #8 for list)
- v. Evaluate and apply the algebra of functions including addition, subtraction, multiplication, division, and composition
- vi. Find the inverse of core functions

E. Logarithmic and Exponential Functions

- i. Graph logarithmic and exponential functions
- ii. Apply the properties of logarithmic functions
- iii. Solve logarithmic and exponential equations
- iv. Solve applications of logarithmic and exponential functions including exponential growth and decay, pH, compound and continuous interest, carbon dating, half-life, and earthquake magnitudes

F. Conic Sections

- i. Apply the midpoint and distance formulas
- ii. Convert the following conic sections into standard form by completing the square: parabolas, circles, ellipses, and hyperbolas

iii. Identify and graph the following conic sections: parabolas, circles, ellipses, and hyperbolas

G. Optional Topics

i. Solve 3X3 systems of linear equations

ii. Solve nonlinear systems of equations

METHODS OF EVALUATION:

A student's grade will be based on multiple measures of performance unless the course requires no grade. Multiple measures may include, but are not limited to, the following:

Skill demonstrations

Multiple choice tests

Short answer quizzes or exams

Problem solving quizzes or exams

METHODS OF INSTRUCTION:

Methods of instruction may include, but are not limited to, the following:

* Collaborative Group Work

* Demonstration

* Distance Education

* Lecture

* Web-based Presentation

* Class Activities

* Class Discussions

REQUIRED TEXTS AND SUPPLIES:

Textbooks may include, but are not limited to:

TEXTBOOKS:

MANUALS:

PERIODICALS:

MATERIALS FEE: None

OTHER:

Honors Course Outline Addendum

ORIGINATOR: Joseph Albert

DATE: 04/17/2007

DE Addendum

Course Number: 230

Course Title: Intermediate Algebra

Address the following questions:

Need/Justification

How does the DE delivery of this class support the mission of the College?

College of the Sequoias affirms that our mission is to help our diverse student population achieve their transfer and/or occupational objectives and to advance the economic growth and global competitiveness of business and industry within our region.

College of the Sequoias is committed to supporting students' mastery of basic skills and to providing programs and services that foster student success.

Course Quality Standards: The same standards of course quality shall be applied to distance education as are applied to traditional classroom courses (Title 5, 55202). Identify any instructional method in the original course outline that must be adapted for distance education delivery. If there is a difference between instructional methods in a traditional face-to-face class and distance education delivery of the class, explain how you will maintain the quality of instruction. For example, if the original course outline calls for debate, how will you arrange for debate in the distance education environment?

Regular, effective contact:

Please describe how you will ensure and document regular, effective contact with and among your students. Please include information about the types and frequency of your communication, including feedback to students on assignments, notifying students about how to contact you, notifying students about any unexpected instructor absence or expected delay in communications. Please refer to the COS Regular Effective Contact Policy.

Discussion area/bulletin board - as needed

E-mail - as needed

Orientation Sessions - as needed

Other (please describe below) - Posted online announcements