

**Proposal for Course Revisions
Fall 2018**

Subject and Number: Mathematics 73

Descriptive Title: Intermediate Algebra for General Education

Course Discipline(s): Mathematics

Division: Mathematical Sciences

Department: Mathematics

Faculty Proposer: Lars Kjeseth

Division CCC Rep: Diaa Eldanaf

Division Curriculum Committee Approval Date:

Course Review Rationale (The standard rationale verbiage is included. Add additional rationale information if needed): This course is being reviewed to meet Title 5 regulations and local standards. Add additional justification as needed:

Inactivation

Justification:

(If this course is being inactivated, stop here. No other parts of the form need to be complete.)

I. Course Name and Number

No changes

Revisions

Justification:

Descriptive Title

No Changes

Revisions

Justification:

Catalog Description

No Changes

Revisions

Justification:

Conditions of Enrollment

No Changes

Revisions (If prerequisite changes are being proposed, contact the Curriculum Advisor.)

Justification: In light of AB 705, all conditions of enrollment for this class should be removed.

II. Student Learning Outcomes (SLOs)

No Changes

Revisions

Justification:

III. Objectives

No Changes

Revisions

Justification:

IV. Major Topics

No Changes

Revisions

Justification:

V. Primary Methods of Evaluation

No Changes

Revisions

Justification:

VI. Instructional Methods

No Changes

Revisions

Justification:

VII. Work Outside of Class

No Changes

Revisions

Justification:

VIII. TEXTS AND MATERIALS

No Changes

Revisions

Justification: Updated to current edition.

IX. Distance Education Addendum

If a Distance Education Addendum exists for this course, you must complete the Distance Education Addendum below. Please refer to CurricUNET version if needed.

Distance Education Version of this Course

Current version Online Hybrid

No Changes

Revisions

Justification:

Delivery Method:

Online (Complete Section A)

Hybrid (Complete Section B)

A. Online (51% or more online instruction with an optional or mandatory on-campus orientation.)

Complete this section.

I. Methods of Regular Effective Contact Between Instructor and Student (Check all that apply)

A. Group Meetings:

Chat Room

Interactive Videoconferencing

Teleconference

On Campus

Other(Please specify)

B. Electronic/Technology-Assisted Contact

Online

Email

Listserv

Chat Room

Interactive Videoconferencing

Website/Bulletin Board

Telephone

U.S. Mail

On Camus

Other (Please specify)

C. Office Hours

Online

On Campus

II. Methods of Evaluation

Methods of Evaluation do NOT differ from those in the Course Outline of Record

Methods of Evaluation in the Course Outline of Record are modified or supplemented

III. Administration of Examinations

- On Campus
- Online
- Email
- U.S. Mail
- Proctored Off Campus
- Not applicable
- Other (Please specify)

IV. Text/Supplemental Readings/Materials

- Texts, Supplemental Readings, and Materials do NOT differ from those listed in the Course Outline of Record
- Texts, Supplemental Readings, and Materials differ from those listed in the Course Outline of Record

V. Accommodations for Students with Disabilities and Instructional Delivery

In compliance with ECC Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973 – Sections 504 and 508, and the Americans with Disabilities Act, instructional delivery shall provide access, full inclusion, and effective communication for students with disabilities. Instructional delivery methods may include, but are not limited to, Braille/audiotape for print material, on-site interpreter/real-time transcription/live captioning for audio material, captioning for video material, alternative text for images, and captioning of audio information for electronic media materials (such as web and online).

- Instructors of the distance education version of this course will read and will comply with the Accommodations for Students with Disabilities and Instructional Deliver.

B. Hybrid (51% of more online instruction with regularly scheduled mandatory on-campus meetings.)

Complete this section.

I. Methods of Regular Effective Contact Between Instructor and Student (Check all that apply)

A. Group Meetings:

- Chat Room
- Interactive Videoconferencing
- Teleconferencing
- On Campus
- Other (Please specify)

B. Electronic/Technology-Assisted Contact

- Online
- Email
- Listserve
- Chat Room
- Interactive Video Conferencing
- Website/Bulletin Board
- Telephone
- U.S. Mail
- On Campus
- Other (Please specify)

C. Office Hours

- Online
- On Campus

II. Methods of Evaluation

- Methods of Evaluation do NOT differ from those in the Course Outline of Record
- Methods of Evaluation in the Course Outline of Record are modified or supplemented

III. Administration of Examinations

- On Campus
- Online
- Email
- U.S. Mail
- Proctored Off Campus
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- Texts, Supplemental Readings, and Materials do NOT differ from those listed in the Course Outline of Record
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- Instructors of the distance education version of this course will read and will comply with the Accommodations for Students with Disabilities and Instructional Delivery.

Instructions:

To facilitate course review, please make your changes directly on this document and indicate the changes using strikethroughs (strikethroughs), highlights, or by changing the color of the font. Please do not use Track Changes.



El Camino College

COURSE OUTLINE OF RECORD - Past Draft**I. GENERAL COURSE INFORMATION**

Subject and Number: Mathematics 73
Descriptive Title: Intermediate Algebra for General Education
Course Disciplines: Mathematics
Division: Mathematical Sciences

Catalog Description:

This intermediate algebra course is designed for students who are not considering further study in the sciences, technology, engineering or mathematics. In the context of studying basic functions and their graphs, students strengthen and expand their algebra skills. Functions studied include linear, quadratic, exponential functions, as well as the square root and absolute value functions. Particular emphasis is placed on the operations on functions, solving equations and inequalities, as well as using functions to model real life situations, both by hand and using technology. Other topics include solving systems of equations and applications.

Note: Mathematics 73 serves as a prerequisite course for all transfer-level mathematics course sequences, except the calculus sequence (Mathematics 170, 180, 190, 191 and 220).

Conditions of Enrollment:

~~**Prerequisite:** Mathematics 40 or Mathematics 43 with a minimum grade of C in prerequisite or qualification by testing (El Camino College Mathematics Placement Test) and assessment~~

Course Length: X Full Term Other (Specify number of weeks):

Hours Lecture: 5.00 hours per week TBA

Hours Laboratory: 0 hours per week TBA

Course Units: 5.00

Grading Method: Letter

Credit Status: Associate Degree Credit

Transfer CSU: Effective Date: Proposed

Transfer UC: No

General Education:

El Camino College:

6 – Mathematics Competency

Term:

Other:

CSU GE:

IGETC:

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

1. Given information on two sides of a right triangle, the student will be able to correctly determine the third side using the Pythagorean Theorem and write the solution in simplest exact form.
2. The student demonstrates the ability to interpret, draw conclusions or solve problems using visual or graphical representations.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at <http://www.elcamino.edu/academics/slo/>.

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each)

1. Carry out numerical operations and manipulate algebraic expressions.
Objective Exams
2. Recognize functional relationships in the form of graphs, data or symbolic equations.
Objective Exams
3. Solve problems involving linear, quadratic, exponential, square root and absolute value functions.
Objective Exams
4. Graph functions and use the graphs to solve problems.

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Objective Exams

5. Solve a variety of equations and inequalities, as well as systems of equations and inequalities, using algebraic and graphical methods.

Objective Exams

6. Using numerical, symbolic and graphical methods, model application problems, solve them and interpret the results in the context of the problem.

Objective Exams

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topic
Lecture	10	I	BASIC OPERATIONS AND MANIPULATIONS: A. Review of operations on expressions B. Factoring polynomial expressions of degree 2 or lower
Lecture	16	II	FUNCTIONS: A. Definitions of function, domain and range B. Function notation use C. Functions as rules, as sets of ordered pairs, as algebraic equations, and as graphs (function types include linear, quadratic, exponential, square root and the absolute value) D. Operations on functions, including addition, subtraction, multiplication, division, and exponentiation E. Determining the equation for the linear, quadratic, and exponential functions, given either the graph or sufficient data
Lecture	16	III	GRAPHING: A. Graphing functions, including transformations of the following functions: $f(x) = x$, x^2 , $ x $, \sqrt{x} , and $a(b^x)$ B. Graphing solutions to equations and inequalities C. Graphing quadratic functions using the completing-the-square technique to identify the vertex of a parabola and using the symmetry of the parabola D. Graphing equations of circles, using the completing-the-square technique to identify the center of the circle
Lecture	16	IV	EQUATIONS AND INEQUALITIES:

			<ul style="list-style-type: none"> A. Algebraic and graphical methods for solving equations and inequalities for the types of functions listed in Major Topic II B. Using interval notation to express solutions of inequalities C. Systems of linear equations (2 x 2 systems only)
Lecture	16	V	<p>SCATTERGRAMS AND REGRESSION MODELING</p> <ul style="list-style-type: none"> A. Representations of real world data using scattergrams B. Creation of linear, quadratic, and exponential regression functions using a graphing calculator C. Determining which regression function is the best fit for a set of data. D. Using the best fit regression function to make predictions in the context of the data.
Lecture	16	VI	<p>APPLICATIONS:</p> <ul style="list-style-type: none"> A. Model verbally-expressed problems numerically, symbolically and graphically B. Model numerically expressed problems verbally, symbolically and graphically C. Model symbolically-expressed problems numerically, verbally and graphically D. Model graphically-expressed problems numerically, symbolically and verbally E. Solve problems numerically, symbolically and graphically F. Pattern recognition problem solving techniques G. Applications using perimeter and area of rectangles, triangles, and circles H. Applications of the Pythagorean Theorem I. Applications of Rate, distance and time problems J. Applied problems whose solutions require the use of systems of linear equations
Total Lecture Hours		90	
Total Laboratory Hours		0	
Total Hours		90	

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. **PRIMARY METHOD OF EVALUATION:**

Problem solving demonstrations (computational or non-computational)

B. **TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION:**

Solve the inequality $x^2 - 2 > 2$, check your work and present the solution in interval notation. Also, graph the solution on a number line.

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C. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:

- 0. Give an example of a quadratic equation in one variable that has 4 as its only solution. Explain why in a sentence or two and provide a graph to illustrate your reasoning.
- 1. If $H(t) = 1.59t + 90.31$ is the total number of U.S. households, in million, at t years since 1990 and if $B(t) = 4.33t - 40.63$ is the number of Broadband cable subscribers and $D(t) = 0.536t^2 - 10.32t + 52.85$ is the number of DSL subscribers, both in millions, at t years since 1990, find an equation for the percentage $P(t)$ of U.S. households who are either Broadband or DSL subscribers. Assume no one household subscribes to both services. Predict when 90% of U.S. households will have either Broadband or DSL subscriptions.

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:

- Other exams
- Quizzes
- Homework Problems

V. INSTRUCTIONAL METHODS

Lecture

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

- Study
- Required reading
- Problem solving activities

Estimated Independent Study Hours per Week:

VII. TEXTS AND MATERIALS

A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS

Jay Lehmann. Intermediate Algebra-Functions & Authentic Applications. ~~4th~~ 6th ed. Pearson, 2011~~8~~.

B. ALTERNATIVE TEXTBOOKS

C. REQUIRED SUPPLEMENTARY READINGS

D. OTHER REQUIRED MATERIALS

Graphing Calculator

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
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Course Prerequisite Mathematics 40 or	Sequential
Course Prerequisite Mathematics 43	Sequential

B. Requisite Skills

Requisite Skills
Manipulate algebraic expressions including expressions with fractions and radicals. MATH 40 – Use the properties of the real numbers to evaluate, simplify, and factor algebraic expressions, including expressions with fractions and radicals. MATH 43 – Perform operations with and simplify rational and radical expressions.
Solve quadratic equations and systems of linear equations. MATH 43 – Solve systems of two linear equations with two variables symbolically, graphically and numerically. MATH 43 – Solve quadratic equations symbolically, using a variety of algebraic methods, as well as graphically. MATH 40 – Solve linear equations and inequalities, systems of two linear equations with two variables, and quadratic equations.

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification
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D. Recommended Skills

Recommended Skills

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact
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Course created by Lars Kjeseth on 04/21/2008. **(DO NOT CHANGE)**

BOARD APPROVAL DATE: 06/16/2008 **(DO NOT CHANGE)**

LAST BOARD APPROVAL DATE: **(DO NOT CHANGE)**

Last Reviewed and/or Revised by:

Date:

17224

