Cerro Coso College

Course Outline of Record Report

10/14/2021

MATHC050 : Elementary Algebra

General Information

Author:	• Sarah King
Course Code (CB01) :	MATHC050
Course Title (CB02) :	Elementary Algebra
Department:	Mathematics
Proposal Start:	Fall 2013
TOP Code (CB03) :	(1701.00) Mathematics, General
SAM Code (CB09) :	Non-occupational
Distance Education Approved:	Yes
Course Control Number (CB00) :	CCC000354095
Curriculum Committee Approval Date:	10/04/2013
Board of Trustees Approval Date:	11/14/2013
External Review Approval Date:	02/26/2014
Course Description:	This course covers the fundamental algebraic concepts and mathematical processes: first degree equations, special products and factoring, ratios, proportions, radicals, exponents, simultaneous linear equations, quadratic equations, and graphing linear and quadratic functions.
Submission Type:	Mandatory Revision
Author:	No value

Faculty Minimum Qualifications

Master Discipline Preferred:	• Mathematics
Alternate Master Discipline Preferred:	• Business • Computer Science • Engineering
Bachelors or Associates Discipline Preferred:	No value
Additional Bachelors or Associates Discipline Preferred:	No value

Course Development Options

Basic Skills Status (CB08)

Course is not a basic skills course.

☐ Allow Students to Gain Credit by Exam/Challenge

Course Special Class Status (CB13)

Course is not a special class.

Allowed Number of Retakes

0

Grade Options

- Letter Grade Methods
- Pass/No Pass

Course Prior To College Level (CB21)

Two levels below transfer,

Rationale For Credit By Exam/Challenge

No value

Retake Policy Description

Type:|Non-Repeatable Credit

☑ Allow Students To Audit Course

Course Support Course Status (CB26)

No value

Associated Programs

☐ Course is part of a program (CB24)

Associated Program

No value

Award Type

No value

Active

Transferability & Gen. Ed. Options

Course General Education Status (CB25)

No value

Transferability

Not transferable

Transferability Status

Not transferable

Units and Hours

Summary

Minimum Credit Units (CB07)	4
Maximum Credit Units (CB06)	4
Total Course In-Class (Contact) Hours	72
Total Course Out-of-Class Hours	144
Total Student Learning Hours	216
Faculty Load	0

Credit / Non-Credit Options

Course Credit Status (CB04)

Credit - Degree Applicable

Course Non Credit Category (CB22)

Credit Course.

Non-Credit Characteristic

No Value

Course Classification Status (CB11)

Credit Course.

Funding Agency Category (CB23)

Not Applicable.

☐ Cooperative Work Experience Education Status (CB10)

☐ Variable Credit Course

Weekly Student Hours

	In Class	Out of Classs
Lecture Hours	4	8
Laboratory Hours	0	0
Activity Hours	0	0

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	0
Course In-Class (Contact) Hours	
Lecture	0
Laboratory	0
Activity	0
Total	72
Course Out-of-Class Hours	
Lecture	0
Laboratory	0
Activity	0
Total	144

Time Commitment Notes for Students

No value

Faculty Load

Extra Duties: 0

Faculty Load: 0

Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

Pre-requisites, Co-requisites, Anti-requisites and Advisories

Prerequisite

MATHC040 - Pre-Algebra

Entrance Skills

Entrance Skills	Description
No value	No value

Limitations on Enrollment

Limitations on Enrollment	Description
No value	No value

Specifications

Methods of Instruction

Methods of Instruction	Other
Rationale	Other Methods: A. Textbook readings B. Lectures C. Online course management system
Methods of Instruction	Lecture
Rationale	No value
Methods of Instruction	Group Work
Rationale	No value
Methods of Instruction	Discussion
Rationale	No value

Assignments

A. Daily homework assignments Example: Students work mathematics problems assigned from the text and from hand-outs to reinforce concepts and skills discussed in lecture. B. Online Course Management System Example: Assignments on MyMathLab (CourseCompass)

Methods of Evaluation	Rationale
Homework	D. Homework assignments Homework assignments that reflect the lecture are assigned each class meeting in order to allow students additional practice of skills. The homework may be in the form of exercises on the MyMathLab website, written exercises from the text, or problems to solve on a handout.

Tests	B. Quizzes Quizzes cover skills presented in lecture, homework, and in-class assignments. They are used to assess the student's understanding. C. Chapter Exams Chapter or multiple chapter exams designed to assess student mastery of SLO's are administered. In many cases, practice exams are given prior to the exam in order to prepare students.
Participation	A. Daily in-class assignments Example: Students work collaboratively on solving equations assigned from the text and/or hand-out to reinforce the procedure discussed in lecture. This assignment is assessed by the instructor and used as a guide in lesson planning and in implementing remediation.

Equipment

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
	Bittinger, M.. (2011) Introductory Algebra, 11th, Pearson Education, Inc.			

Other Instructional Materials

No Value

Materials Fee

No

Learning Outcomes and Objectives

Course Objectives

No value

CSLOs

Apply the fundamental concepts of signed arithmetic to algebraic computations and formulas.	Expected SLO Performance: 70.0
Perform operations with polynomials, including factoring.	Expected SLO Performance: 70.0
Graph equations and inequalities in one and two dimensions, including applying the concept of slope.	Expected SLO Performance: 70.0
Work effectively with exponents and with square root operations.	Expected SLO Performance: 70.0
Solve linear, quadratic, and systems of equations by multiple methods.	Expected SLO Performance: 70.0

Translate between English phrases and sentences and mathematical expressions and equations to solve applications. Expected SLO Performance: 70.0

Outline

Course Outline

A.Integers and Rational Numbers
1. Integers and the number line
2. Addition; subtraction; multiplication; and division of integers and rational numbers
3. Distributive Law and applications in removing parenthesis and factoring polynomials
4. Exponents and their applications

B. Solving Equations and Inequalities with one variable
1.The addition and multiplication principles of equality and their applications in solving first degree equations in one unknown
2. Solving equations of the form (x-a)(x-b) = 0
3. Solving word problems by solving a first degree equation in one unknown
4. Solving formulas

C.Operations Involving Polynomials
1. Algebra terminology: term; factor; constant; coefficient; monomial; binomial; polynomial
2. Evaluating polynomials
3. Identifying terms; types of polynomials; and degree of polynomials
4. Addition and subtraction of polynomials
5 . Multiplication of polynomials
6. Products of two binomials; square of a binomial; difference of squares of the form (ax+b)(ax-b)

D. Factoring Polynomials
1. Factoring monomials
2. Factoring by grouping
3. Factoring trinomials of the type x2 + px + q
4. Factoring trinomials of the type ax2 + bx+ c
5. Factoring a perfect square trinomial
6. Factoring a difference of two squares
7.Solving equations of the 2nd degree by factoring; using the principle of zero products
8. Word problems whose solution required solving a 2nd degree equation

E.Graphing Linear Equations and Inequalities in Two Variables
1. Fundamental Concepts:Cartesian Coordinate System; graphing ordered pairs;finding the coordinates of a point on a graph
2. Graphing equations of the type y = mx + b
3.Graphing equations using intercepts
4. Graphing equations of the type x = a and y = b
5. Graphing the inequalities y <: mx + b; x >:a; y
6. Slope and finding the equations of lines:
a.Given the coordinates of two points; find the slope of the line.
b.Given a point on the line and the slope; or given two points; find the equation of the line.
7. Use slope to determine if lines are parallel; perpendicular; or neither.

F. Systems of Equations
1.Fundamental Concepts - the meaning of a solution set through graphing
2.Translating work problems into a system of equations
3.Solving a system of equations by the method of graphing
4.Solving a system of equations by the substitution method
5.Solving a system of equations by the addition method
6.Solving word problems: motion; mixture; coins

G. Rational Expressions and Equations
1.Multiplying and dividing fractional expressions
2.Least common multiples
3.Addition and subtraction of fractional expressions
4.Solving fractional equations: solving proportions
5.Solving formulas
6.Simplifying complex fractions
7.Division of a polynomial by both a monomial and a polynomial

H. Radical Expressions

1.Square roots; principle square roots
2.Irrational numbers
3.Multiplication property for radicals
4.Simplifying radical expressions
5.Division property for radicals; rationalizing denominators

I. Quadratics
1. Review of solving quadratic equations by zero-factor method
2. Introduction to solving using the Quadratic Formula
3.Graphing quadratic functions

J. Selected Algebraic Applications to be Chosen from
1.Mathematics: other branches.
2.Biological Sciences: e.g.; general biology; anatomy; physiology; microbiology.
3.Physical Sciences: e.g.; chemistry; physics; geology; astronomy; oceanography.
4. Computer Science: e.g.; computer graphics; computer animation.

Delivery Methods and Distance Education

Delivery Method: Please list all that apply -Face to face -Online (purely online no face-to-face contact) -Online with some required face-to-face meetings ("Hybrid") -Online course with on ground testing -iTV – Interactive video = Face to face course with significant required activities in a distance modality -Other

Face 2 Face
Online with proctoring
Hybrid
Interactive

Rigor Statement: Assignments and evaluations should be of the same rigor as those used in the on-ground course. If they are not the same as those noted in the COR on the Methods of Evaluation and out-of-class assignments pages, indicate what the differences are and why they are being used. For instance, if labs, field trips, or site visits are required in the face to face section of this course, how will these requirements be met with the same rigor in the Distance Education section?

Online classes contain the same homework and testing requirements as on ground classes. Approved exam proctors for all exams in all online sections.

Effective Student-Instructor Contact: Good practice requires both asynchronous and synchronous contact for effective contact. List the methods expected of all instructors teaching the course. -Learning Management System -Discussion Forums -Moodle Message -Other Contact -Chat/Instant Messaging -E-mail -Face-to-face meeting(s) -Newsgroup/Discussion Board -Proctored Exam -Telephone -iTV - Interactive Video -Other (specify)

forums
message
chat
email
proctored
phone

Software and Equipment: What additional software or hardware, if any, is required for this course purely because of its delivery mode? How is technical support to be provided?

software Student needs to have access to high speed internet. Technical support is available through a student technical support phone line which is a toll free number.

Accessibility: Section 508 of the Rehabilitation Act requires access to the Federal government's electronic and information technology. The law covers all types of electronic and information technology in the Federal sector and is not limited to assistive technologies used by people with disabilities. It applies to all Federal agencies when they develop, procure, maintain, or use such technology. Federal agencies must ensure that this technology is accessible to employees and the public to the extent it does not pose an "undue burden". I am using -iTV—Interactive Video only -Learning management system -Publisher course with learning management system interface.

itv
LMS
publisher

Class Size: Good practice is that section size should be no greater in distance ed modes than in regular face-to-face versions of the course. Will the recommended section size be lower than in on-ground sections? If so, explain why.

class_size Hybrid