Cerro Coso College

Course Outline of Record Report

10/14/2021

MATHC055 : Intermediate Algebra

General Information

Author:	• Sarah King
Course Code (CB01) :	MATHC055
Course Title (CB02) :	Intermediate 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) :	CCC000206467
Curriculum Committee Approval Date:	02/24/2012
Board of Trustees Approval Date:	05/03/2012
External Review Approval Date:	05/03/2012
Course Description:	Intermediate Algebra expands on the skills learned in Elementary Algebra and prepares the student for more advanced work in mathematics and science. The course focuses on exponents, factoring, solving linear and quadratic equations, systems of equations, algebraic fractions, graphs of linear and quadratic equations and inequalities, radicals determinants, function notation, and the exponential and logarithmic functions.
Submission Type:	Mandatory Revision
Author:	No value

Faculty Minimum Qualifications

Master Discipline Preferred:	• Mathematics
Alternate Master Discipline Preferred:	• Chemistry • Engineering • Physics/Astronomy
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.

Course Special Class Status (CB13)

Course is not a special class.

Grade Options

- Letter Grade Methods
- Pass/No Pass

☐ Allow Students to Gain Credit by Exam/Challenge

Allowed Number of Retakes

0

Course Prior To College Level (CB21)

One level 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	Award Type	Active
No value	No value	

Transferability & Gen. Ed. Options

Course General Education Status (CB25)

No value

Transferability

Not transferable

Transferability Status

Not transferable

Cerro Coso General Education Requirements	Categories	Status	Approval Date	Comparable Course
Area 4.2	Language & Rationality Analytical Thinking	Approved	No value	No Comparable Course defined.

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

MATHC050 - Elementary 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 D. Discussions

Methods of Instruction	Lecture
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 CourseCompass.

Methods of Evaluation	Rationale
Participation	A. Daily in-class assignments Example: Students work mathematics problems assigned from the text and from hand-outs to reinforce concepts and skills discussed in lecture.
Tests	B. Weekly Quizzes Weekly quizzes over the previous week's lecture material, homework, and in-class assignments assess the student's understanding. C. Chapter Exams Chapter exams over the previous chapter's lecture material, homework, and in-class assignments assess the student's understanding.

Equipment

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
	Lial, Hornsby, & McGinnis. (2012) Intermediate Algebra , 11th, Addison-Wesley Publishing Company			

Other Instructional Materials

No Value

Materials Fee

No

Learning Outcomes and Objectives

Course Objectives

No value

CSLOs

Consistently perform signed number operations correctly.	Expected SLO Performance: 70.0
Demonstrate proficiency with operations of algebraic fractions.	Expected SLO Performance: 70.0
Use the rules of exponents and radicals to simplify expressions and solve equations.	Expected SLO Performance: 70.0
Recognize the difference between functions and non-functions.	Expected SLO Performance: 70.0
Graph a line and write the equation of a line.	Expected SLO Performance: 70.0

Recognize and graph at least one quadratic - parabola, circle, ellipse, or hyperbola. Expected SLO Performance: 70.0

Solve a linear system of equations by at least two of the following methods: graphing, substitution, addition elimination, Cramer's rule. Expected SLO Performance: 70.0

Solve quadratic equations by at least two of the following methods: factoring, completing the square, quadratic formula, graphing calculator. Expected SLO Performance: 70.0

Graph exponential and logarithmic functions. Expected SLO Performance: 70.0

Use the properties of exponential and logarithmic functions to solve equations. Expected SLO Performance: 70.0

Set up and solve word problems related to the skills above. Expected SLO Performance: 70.0

Outline

Course Outline

The Mathematics Department has adopted the following best practices for teaching this course: offering or awarding extra-credit is forbidden; the allowance of multiple attempts at exams is forbidden; and an approved on-site proctor for online course exams is required.

A.Linear Equations and Inequalities
- 1.Linear equations in one variable.
- 2.Formulas.
- 3.Applications-word problems.
- 4. Linear inequalities in one variable.
- 5. Absolute value equations.
- 6. Compound inequalities.
- 7. Absolute value inequalities.

B.Exponents and Polynomials
- 1.Integer Exponents-zero exponent; product rule; quotient rule; power rule.
- 2.Polynomials - addition and subtraction.
- 3.Multiplication of polynomials.
- 4. Greatest common factors: factoring by grouping.
- 5. Factoring trinomials.
- 6. Special factoring - difference of squares; sum of cubes; difference of cubes.
- 7. General methods of factoring.
- 8. Solving equations by factoring.

C.Rational Expressions
- 1.Basics of rational expressions.
- 2.Multiplication and division of rational expressions.
- 3.Addition and subtraction of rational expressions.
- 4. Complex fractions.
- 5. Dividing polynomials by monomials and by polynomials.
- 6. Synthetic division.
- 7. Equations and rational expressions.
- 8. Applications-work problems and motion problems.

D. Rational Exponents and Radicals
- 1. Rational exponents.
- 2. Radicals
- 3. Simplifying radicals.
- 4. Adding and subtracting radical expressions.
- 5. Equations with numbers.
- 6. Complex numbers.

E.Quadratic Equations and Inequalities
- 1.Solving quadratic equations by completing the square.
- 2. The quadratic formula.
- 3.The discriminant and the sum and product of solutions.

4.Equations and quadratic in form.
5.Formulas and applications.
6.Nonlinear inequalities.

F.The Straight Line
1.The rectangular coordinate system.
2.The slope of a line.
3.Linear equations.
4.Linear inequalities.
5.Variation.

G.Systems of Linear Equations
1.Linear systems of equations in two variables.
2. Applications of linear systems of equations.
3.Linear systems of equations in three variables.
4.Determinants.
5.Solution of linear systems of equations by determinants - Cramer's Rule.
6.Solution of linear systems of equations by Matrix Methods (optional).

H.Exponential and Logarithmic Functions
1.Graphs of the exponential and logarithmic functions.
2.Properties of logarithms.
3.Solving equations involving exponents and logarithms.
4.Application problems.

I.Introduction to Conic Sections
1.The parabola.
2.The circle and the ellipse.
3.The hyperbola.
4.Nonlinear systems of equations.
5.Second-degree inequalities.

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 Sciences: 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?

Approved on-site proctors are required for online course exams.

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
email

face2face
proctored
itv

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?

No Value

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