Cerro Coso College

Course Outline of Record Report

10/14/2021

MATHC130 : Finite Mathematics

General Information

Author:	• Vivian Baker
Course Code (CB01) :	MATHC130
Course Title (CB02) :	Finite Mathematics
Department:	Mathematics
Proposal Start:	Fall 2018
TOP Code (CB03) :	(1701.00) Mathematics, General
SAM Code (CB09) :	Non-occupational
Distance Education Approved:	Yes
Course Control Number (CB00) :	CCC000277983
Curriculum Committee Approval Date:	10/20/2017
Board of Trustees Approval Date:	12/14/2017
External Review Approval Date:	Pending
Course Description:	Finite Mathematics is designed for students majoring in Business/Economics, Computer Information Systems, and Social Sciences. Topics to be covered include matrices, linear programming, mathematics of finance, sets and Venn diagrams, descriptive statistics, probability and combinations.
Submission Type:	Change to Content Course is being updated to align program applicability with current programs, move current C-ID-defined SLO's to "Objectives," and add locally-determined SLO's.
Author:	No value

Faculty Minimum Qualifications

Master Discipline Preferred:	• Mathematics
Alternate Master Discipline Preferred:	• Mathematics
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

Allowed Number of Retakes

Course Prior To College Level (CB21)

Exam/Challenge	0	Not applicable.

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
Cyber Security Technology	A.S. Degree Major	Spring 2018
CC Liberal Arts: Mathematics & Science	A.A. Degree Major	Summer 2018 to Fall 2020
Cyber Security Technician	Certificate of Achievement	Spring 2018
CC Computer Information Systems-	Certificate of Achievement	Spring 2018 to Summer 2019
CC Computer Information Systems	A.S. Degree Major	Spring 2018 to Summer 2019
CSU General Education (CSU GE Breadth) (In Development)	Certificate of Achievement	Fall 2021
Intersegmental General Education Transfer Curriculum Certificate of Achievement (In Development)	Certificate of Achievement	Fall 2021
CC Information Technology	Certificate of Achievement	Summer 2019
CC Information Technology	A.S. Degree Major	Summer 2019
Economics Associate in Arts Degree for Transfer (AA-T)	A.A. Degree for Transfer	Spring 2020 to Spring 2020

CSU General Education (CSU GE Breadth)	Certificate of Achievement	Fall 2020
Intersegmental General Education Transfer Curriculum Certificate of Achievement	Certificate of Achievement	Fall 2020
Economics Associate in Arts Degree for Transfer	A.A. Degree for Transfer	Spring 2020
Liberal Arts: Mathematics & Science Associate in Arts Degree	A.A. Degree Major	Fall 2020
Business Administration Associate in Science Degree for Transfer 2.0 (In Development)	A.S. Degree for Transfer	Fall 2022

Transferability & Gen. Ed. Options

Course General Education Status (CB25)

No value

Transferability

Transferable to both UC and CSU

Transferability Status

Approved

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.

CSU General Education Certification	Categories	Status	Approval Date	Comparable Course
Area B.4	Scientific Inquiry & Quantitative Reasoning Mathematics / Quantitative Reasoning	Approved	No value	No Comparable Course defined.

Intersegmental General Education Transfer Curriculum	Categories	Status	Approval Date	Comparable Course
Area 2	Mathematical Concepts & Quantitative Reasoning	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.

☐ Variable Credit Course

Funding Agency Category (CB23)

Not Applicable.

☐ Cooperative Work Experience Education Status (CB10)

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	54
Course In-Class (Contact) Hours	
Lecture	72
Laboratory	0
Activity	0
Total	72
Course Out-of-Class Hours	
Lecture	144
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

MATHC055 - Intermediate Algebra

In Math C055 students are expected to consistently perform signed number operations correctly; demonstrate proficiency with operations of algebraic fractions; use the rules of exponents and radicals to simplify expressions and solve equations; recognize the difference between functions and non-functions; graph a line and write the equation of a line; recognize and graph at least one quadratic – parabola, circle, ellipse, or hyperbola; solve a linear system of equations by at least two of the following methods: graphing, substitution, addition elimination, Cramer's rule; solve quadratic equations by at least two of the following methods: factoring, completing the square, quadratic formula, graphing calculator; graph exponential and logarithmic functions; use the properties of exponential and logarithmic functions to solve equations; set up and solve word problems related to the skills above. Students successfully demonstrating these Math C055 skills will be prepared for Math C130.

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. Online course management system

Methods of Instruction	Discussion
Rationale	No value

Methods of Instruction	Lecture
Rationale	No value

Assignments

A. Daily homework assignments Example: Students work mathematics problems assigned from the text to reinforce concepts and skills discussed in lecture. Sample out-of- class problem, Find the future value of an annuity due. Assume that interest is compounded annually, there are 7 payments of $400 and the interest rate is 0.03. B. Online Course Management, System Example: Assignments on Publisher's website.

Methods of Evaluation	Rationale
Participation	A. Daily online assignments Students work mathematics problems assigned from the text to reinforce concepts and skills discussed in lecture. As an example, students use the Simplex Method of Linear Programming to determine how many sets each of two different types of plasma TVs should be produced to maximize profit.
Tests	B. Weekly Quizzes Weekly quizzes over the previous week's lecture material, homework, and online assignments assess the student's understanding. C. Chapter Exams Chapter exams over the previous chapter's lecture material, homework, and online assignments assess the student's understanding.

Equipment

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
Margaret Lial	Finite Mathematics, 11 Ed	Pearson	2016	

Other Instructional Materials

Description	Manuals Periodicals Software Other
Author	No value
Citation	No value

Materials Fee

No

Learning Outcomes and Objectives

Course Objectives

Apply linear and exponential graphs and functions.

Write a system of linear equations to solve applied problems.

Solve a system of linear equations using Gauss-Jordan elimination and interpret the result.

Find the inverse of a square matrix and use the inverse to solve a system of linear equations.

Solve linear programming problems in at least three variables.

Find unions, intersections and complements of sets and use Venn diagrams to solve problems.

Apply basic combinatorial principles to enumeration problems.

Determine the probability of a specified event and a conditional probability.

Find the conditional probability of an event.

Solve applied problems in finance including simple and compound interest, future and present value, annuities, sinking funds, and amortization.

CSLOs

Perform matrix calculations and utilize matrices for applied problem solving. Expected SLO Performance: 70.0

Define probability terms and exhibit proficiency in solving a variety of probability problems . Expected SLO Performance: 70.0

Analyze a financial problem and evaluate using formulas. 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 functions;

B. Exponential and logarithmic functions and their applications;

C. Applications of linear functions to economics such as cost, revenue and profit functions, supply and demand equations, break-even point, and free market equilibrium;

D. Systems of linear equations;

E. Matrices including matrix algebra, Gauss-Jordan elimination and reduced-row echelon form, inverse matrices, and applications;

F. Linear programming;

G. Math of finance including simple and compound interest, future and present value, annuities, sinking funds, and amortization;

H. Set theory including DeMorgan's Laws and Venn diagrams; and

I. Probability and combinatorics including permutations and combinations; finding the probability of an event given the probabilities of the simple events in a sample space; conditional probability.

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

iTV – Interactive video = Face to face course with significant required activities in a distance modality
Online with some required face-to-face meetings ("Hybrid")
Face to face
Online course with on ground testing;

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?

All assignments in distance education courses (online, hybrid and iTV) are the same as those in the on-ground course, except that students in purely online sections will submit all of their assignments virtually, and students in hybrid sections will submit some of their assignments virtually. Instructor evaluation of student work in distance education courses is the same as in the on-ground course, except that evaluation of student work in online and hybrid courses is presented virtually. Instead of onsite lectures, hybrid and online courses will use videos and written lecture notes.

As with any on-ground class, the instructor must provide substantive critiques of all submitted material and at least general responses to discussion posts. Instructor assigns the completion of math problems in a publisher site as an exercise including check figures and assistance when needed. The publisher's site will reinforce the course's SLO's.

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

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.

No Value