

Lassen Community College Course Outline

MATH 166 Finite Mathematics Lab

0.0 Units

I. Catalog Description

This course is to assist students in their successful completion of Finite Mathematics. Students will study Linear equations and functions, systems of linear equations and inequalities, matrices, linear programming, mathematics of finance, sets and Venn diagrams, combinatorial techniques, an introduction to probability, and applications in business, economics, and social sciences. This course uses the text required in MATH 6 and additional materials supplied by the instructor. This course has been approved for online, hybrid delivery, and correspondence. Access to a computer with internet access may be required.

Prerequisite:

Co-requisite: MATH 6 Finite Mathematics

Does not transfer to UC/CSU

51 Hours Lab Scheduled:

Fall/Spring

II. Coding Information

Repeatability: Not repeatable, take 1 time Grading

Option: Pass/No Pass

Credit Type: Non-Credit - Not Degree Applicable

TOP Code: 170100

III. Course Objectives

A. Course Student Learning Outcomes

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

Use algebraic concepts, properties, and rules to solve finite mathematics problems involving matrices, linear programming, logic, sets, probability and statistics, and finance.

B. Course Objectives

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

1. Write and graph linear equations and functions.
2. Apply linear and exponential graphs and functions.
3. Develop a system of linear equations to solve applied problems.
4. Solve a system of linear equations using Gauss-Jordan elimination and interpret the results.
5. Perform the arithmetic operations on matrices.
6. Find the inverse of a square matrix and use the inverse to solve a system of linear equations.
7. Solve linear programming problems in at least three variables.
8. Find unions, intersections and complements of sets and use Venn diagrams to solve problems.
9. Apply basic combinatorial principles.
10. Determine the probability of a specified event.
11. Find the conditional probability of an event.
12. Solve applied problems in finance including simple and compound interest, future and present value, annuities, sinking funds, and amortization.

IV. Course Content

- 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.** Solving systems of linear equations.
- E.** Matrices including matrix algebra, Gauss-Jordan elimination and reduced-row echelon form, inverse matrices, and applications.
- F.** Graphical and Simplex methods of Linear programming.
- G.** Math of finance including simple and compound interest, future and present value, annuities, sinking funds, and amortization.
- H.** Logic and Set theory including DeMorgan's Laws and Venn diagrams.
- 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.

V. Assignments

A. Appropriate Readings

Students will be required to read and study the assigned MATH 6 textbook chapters. Supplemental readings may be assigned.

B. Writing Assignments

1. Complete class and homework assignments, including applications of representative symbol systems and application problems.
2. Understand and apply the theories and techniques taught in Math 6.
3. Additional coursework may be assigned

C. Expected Outside Assignments

Additional coursework may be assigned.

D. Specific Assignments that Demonstrate Critical Thinking

Students will be required to interpret mathematical principles and techniques to solve broader and more difficult problems than those presented in class. Students will solve a variety of problems, including those that demand the application of principles in a number of different contexts. Multiple measures of student performance including in-class assignments and out-of-class work.

VI. Methods of Evaluation

Traditional Classroom Instruction Evaluation

Traditional measures of student performance, including: in-class work, out of class work, and daily practice problems.

Hybrid Evaluation

Students will be expected to complete online assignments and activities equivalent to in-class assignments and activities for the online portion of the course. Electronic communication, both synchronous and asynchronous (chat/forum) will be evaluated for participation and to maintain effective communication between instructor and students.

Online Evaluation

A variety of methods will be used, such as asynchronous and synchronous (chat/forum)

discussions, online assignments and activities, posting to online website and email communications.

Correspondence Evaluation

Students will be expected to complete assignments and activities equivalent to in-class assignments and activities. Written correspondence and a minimum of six opportunities for feedback will be utilized to maintain effective communication between instructor and student.

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

Traditional Classroom Delivery Hybrid Delivery

Online Delivery Correspondence Delivery

Traditional Classroom Instruction Delivery

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

Lecture, laboratory, demonstrations, discussion, and computer assisted instruction.

Correspondence Delivery

Assigned readings, instructor-generated typed handouts, typed lecture materials, exercises and assignments equal to face to face instructional delivery. Written correspondence and a minimum of six opportunities for feedback will be utilized to maintain effective communication between instructor and student.

Hybrid Delivery

A combination of traditional classroom and online instruction will be utilized. Each semester a minimum of 17 hours will be taught face-to face by the instructor and the remaining hours will be instructed online through the technology platform adopted by the District. Traditional class instruction will consist of exercises/assignments, lectures, visual aids, and practice exercises. Online delivery will consist of exercises/assignments, lecture posts, discussions, adding extra resources and other media sources as appropriate.

Online Delivery

Participation in forum based discussions, online exercises/assignments contained on website, web based video vignettes and lectures, email communications, postings to forums, online lecture notes and web links will compromise the method of instruction.

VIII. Representative Texts and Supplies

All Delivery Modalities

Required:

Lial, Hungerford, Holcomb, and Mullins; *Finite Mathematics*, 12th Edition, 2022, Pearson Education.

This textbook may be rented in a cloth/paper bound version, ISBN: 978-0-135-882-627 or as an eText version, ISBN 978-0-137-423-804 both without MyLab Math

When a Math 166 section requires the use of MyLab Math, the eText and MyLab may be purchased separately, ISBN 978-0-137-423-804, or as a bundle with MyLab Math, ISBN 978-0-137-342-532 (18 week eText and MyLab access) or ISBN 978-0-135-882-702 (24 month eText and MyLab access).

Supplies: Scientific or Graphing Calculator.

IX. Discipline/s Assignment

Mathematics

X. Course Status Current Status: Active

Original Approval Date: 05/25/2021

Board Approval: 06/08/2021

Chancellor's Office Approval: 07/15/2021

Revised By: Robert Schofield

Curriculum/Academic Standards Committee Revision Date: 04/05/2022