

MATH 104: FINITE MATHEMATICS

Objective: The purpose of this syllabus is to guide the participant in the requirements, demands, logistics and expectations of this course.

Getting Help:

To receive technical assistance on issues related to WebCT contact:

Academic Instructional Technology Help Desk

ES 102

Spring and Fall Semesters: Monday-Thursday 8:00 a.m. - 9:00 p.m. Friday 8:00 a.m. -

5:00 p.m. MDT/MST

Summer Semester: Monday-Friday 7:30 a.m.-4:30 p.m. MDT (719) 587-7371

ascwebct@adams.edu

Instructor: Dr. Smith

E-mail: Use the Mail tab in this course

Address: 3578 East Hartsel Drive #124

Colorado Springs, CO 80920

Welcome from your instructor

Welcome to Finite Mathematics!

This is a first college mathematics class designed for all majors and all disciplines. It is applicable in a broad range of subjects and occupations. In this class, you will need graph paper, lined paper, a calculator, and an open mind. Mathematics can be great fun so don't be apprehensive, regardless of your past experiences with it. I happen to love math so much and I love to teach so I will help you succeed in this class. You will find contact information for me on the syllabus. Whenever you have any questions, please let me know and I will help you work through them.

Please send your assignments to me as you complete them through the Assignments tab or the Assessments tab. Know that you receive full credit on the homework as long as you attempt every problem. I look forward to working with you.

Sincerely,

Dr. Smith

Course Description:

Topics covered include functions and their graphs, matrices, linear programming, probability, and descriptive statistics. Applications are studied from the areas of business, behavioral sciences, economics, and the social sciences.

The goal of this course is to improve and enhance the basic math skills of the student, specifically in the areas of graphs, matrices, probability, and statistics.

The purpose of the course is to provide a wider perspective of applied mathematics, how it works, and why and how it is utilized in the real world. This is imperative to the student no matter what the field of study and completes the mathematics requirement for several degree programs.

Credit hours: Three semester hours

Course Prerequisites:

MATH 099 minimum grade: P

OR Math Placement Test minimum score: 23

OR ACT Math minimum score: 19

OR SAT Math minimum score: 440

OR ACCUPLACER Elementary Algebra minimum score: 85

Textbook

To order textbooks or obtain information about book titles you may go to www.exstudies.adams.edu and click on the “ASC Bookstore” icon.

Use **Section Number: 1067** to order books from Bookstore site.

Lial, Margaret L., Greenwell, Raymond N., Ritchey, Nathan P. Finite Mathematics, 9th Edition. Addison-Wesley, 2008. ISBN-10: 0321428293, ISBN-13: 9780321428295

Student Learning Outcomes:

The student will:

1. Solve a variety of mathematical problems using techniques presented in the content outline.
2. Use mathematical methods in making everyday decisions.
3. Use mathematics to interpret and analyze data.
4. Demonstrate critical thinking skills appropriate to a college-level mathematics class.

Course Requirements:

There are seven lessons, each requiring assigned exercises to be submitted to the instructor. The student will complete exams within the two-hour time limit and one final exam within two-hour time limit.

Course Instructions:

After completing each assignment, please submit them through the Assignment tab on the left-side navigation bar. When you send your work to me, please continue to follow our syllabus. I will return all your work as soon as possible.

All exams must be proctored and are timed. All exam questions are similar to homework questions. You will not have multiple choice or true/false questions. Partial credit can be earned if you show your work. You will have two hours to complete each exam. You may use one (1) 8/5x11 sheet of paper with notes for each exam as well as a calculator, which does not calculate payments, interest, etc. Please refer to the Guidelines for Proctored Exams and submit your Exam Request Form three weeks BEFORE you plan to take the exam. [Guideline for Proctored Exams.pdf](#) and [Request Exam.pdf](#) will be used to assist you in completing the proctored exam.

Course Time Limits:

You have one year from your date of registration to complete this course. If you are receiving federal or private financial aid, requirements may differ. However, the minimum requirement for course completion, regardless of the number of credit hours, is six weeks. No student may complete course requirements in less than six weeks.

It is important to schedule your course study to fit into your academic plan. If you have important deadlines to meet such as graduation, be sure to complete and submit all of your assignments and take the final examination at least five weeks before the credit is needed. It is your responsibility to ensure the credits for this course will apply toward graduation or certification deadlines.

Course Schedule

Lesson 1 – Linear Functions

Objectives:

1. Understand the layout of a graph, what a line is, what the equation for a line is and how it is determined, what slope denotes for line, how it is calculated, what the x intercept for a line is and where this is located on the graph
2. Identify the components of an equation for a line given its equation
3. Graph a line given its equation

Assignment:

1. Read Chapter R. Ensure familiarity and understanding with all review materials
2. Read Chapter 1. Ensure understanding of each section of this chapter.
3. Complete the following problem sets: 1.1 Exercises 1-7, 16-22, 36-38, 54-59
1.2 Exercises 2-5, 7, 8
1.3 Exercises 1-2, and your choice of four exercises in 5-21
Chapter 1 Review questions 3, 7, 8, 14, 20, 25, 27

Lesson 2 – Linear Equations and Matrices

Objectives:

1. Learn and understand what Linear Equations are, how they work, their applications, and why they are important
2. Solve a system of linear equations using several different methods
3. Compute mathematic operations on matrices including addition, subtraction, multiplication, and inverse

Assignments:

1. Read Chapter 2. Ensure understanding of each section of this chapter.
2. Complete the following problem sets: 2.1 Exercises 1, 3, 4, 9, 10, 12, 19, 22-24, 28, 31
2.2 Exercises 3-5, 7, 8, 12, 13, 17, 20, 29, 32, 34, and your choice of three exercises in 43-67
2.3 Exercises 1-4, 7-12, 15-18, 21, 25, 26, 32, and your choice of three exercises in 39-48
2.4 Exercises 1, 5-8, 15, 17, 18, 20, 21, 27, 30, 37, and your choice of three exercises in 43-52
2.5 Exercises 1-6, 11, 12, 21, 25, 27, 28, 33, 34, 36, 37, 41, 52, 53, and your choice of three exercises in 59-65
2.6 Exercises 3, 4, 7, and your choice of five exercises in 11-29
Chapter review exercises 3, 5-7, 13, 17, 35, 41, 44, 47, and your choice of three exercises in 49-6

Examination I

Your first exam covers Lessons 1 and 2. You will have two hours to complete the exam. You may use one 8.5 x 11-sheet with notes for the exam as well as a calculator, which does not calculate payments, interest, etc.

Lesson 3 – Linear Programming using the Graphical Method

Objectives:

1. Learn and understand what linear inequalities are and when they utilized
2. Graph linear inequalities
3. Solve linear problems using graphing

Assignments:

1. Read Chapter 3. Ensure understanding of each section of this chapter.

2. Complete the following problem sets: 3.1 Exercises 1-3, 5, 6, 11, 12, 16, 29-32, and your choice of two exercises in 38-44
3.2 Exercises 1, 4, 7, 10, 13
3.3 Exercises your choice of four exercises in 6-27
Chapter 3 review exercises 4, 5, 9, 11, 14, 17, 18

Please note that all graphs must be generated by hand on graph paper, not by computer.

Lesson 4 – Finance

Objectives:

1. Understand the concepts of simple and compound interest and how they differ
2. Ability to determine simple and compound interest
3. Understand the concept of an annuity, its future value and present value
4. Ability to calculate the present value and future value and when each is necessary
5. Apply these concepts to real-world situations

Assignments:

1. Read Chapter 5. Ensure understanding of each section of this chapter
2. Complete the following problem sets: 5.1 Exercises 6-9, 14-16, 20, 22, 25, 29, 30, and your choice of three exercises in 32-48
5.2 Exercises 1, 7, 8, 15, 18, 21, 24, 25, 28, 32, 33, 36-39, 42, 44, 45, and your choice of three exercises in 48-68
5.3 Exercises 1, 2, 9-11, 15, 17-19, 29, 30, and your choice of three exercises in 33-51
Chapter review exercises 1, 2, 6, 7, 10, 12, 15-18, 28-30, 35-37, 39-41, 44, 45, and your choice of two exercises in 54-67

Examination II

Your exam covers Lessons 3 and 4. You will have two hours to complete the exam. You may use one 8.5 x 11-sheet with notes for the exam as well as a calculator, which does not calculate payments, interest, etc.

Lesson 5 – Set and Probabilities

Objectives:

1. Understand and apply the concepts of sets and subsets
2. Understand and apply the concepts of Venn Diagrams
3. Understand and apply the concepts of set operations
4. Understand and apply the basic probability principles
5. Understand and apply the concepts and formulas for conditional probability

Assignments:

1. Read Chapter 7.1 - 7.5. Ensure understanding of each section of this chapter.
2. Complete the following problem sets: 7.1 Exercises 1-6, 11, 12, 21, 22, 25, 30, 33, 39, 40, 44, 45, 49, 52, 54
7.2 Exercises 1, 2, 5, 11, 19, 24, 29, 31, and your choice of three exercises in 36-57
7.3 Exercises 3, 13, 19-24, 26, 30, 31, 35, 40, and your choice of two exercises in 42-53
7.4 Exercises 8, 9, 13, 17, 18, 20, 35
7.5 Exercises 1, 2, 4, 7, 8, 13

Lesson 6 – Counting Principles and Additional Probability**Objectives:**

1. Define and compute permutations
2. Define and compute combinations
3. Understand and apply when to use permutations combinations
4. Understand and apply counting principles
5. Understand and calculate binomial probabilities

Assignments:

1. Read Chapter 8.1-8.4. Ensure understanding of each section of this chapter.
2. Complete the following problem sets: 8.1 Exercises 1, 4, 5, 13, 14, 22
8.2 Exercises 2, 4, 9, 11
8.3 Exercises 1, 4, 5, 13, 19, 20, 24
8.4 Exercises 1, 3, 5, 8, 15, 43, 49
Chapter Review exercises 1, 2, 6, 12, 19, 22, 28

Lesson 7 – Statistics**Objectives:**

1. Understand and apply the concept of Frequency distributions
2. Understand and apply all they types of central frequencies
3. Understand the concept and application for Normal distributions

Assignments:

1. Read Chapter 9. Ensure understanding of each section of this chapter.
2. Complete the following problem sets: 9.1 Exercises 7, 12, 13, 14, 16, your choice of five exercises in 34-49
9.2 Exercises 3, 7-10, and your choice of three exercises in 21-32
9.3 Exercises 1, 2

Explain in detail what a normal distribution is and how it used.

Examination III

This exam covers Lessons 5, 6 and 7. You will have two hours to complete each exam. You may use one 8.5 x 11-sheet with notes for each exam as well as a calculator, which does not calculate payments, interest, etc.

Final Examination

This is a comprehensive final exam. You will have two hours to complete each exam. You may use one 8.5 x 11-sheet with notes for each exam as well as a calculator, which does not calculate payments, interest, etc.

GRADE DISTRIBUTION AND SCALE:

In alignment with ASC academic policies, no D may apply to a major or minor field.

Grade Distribution:

Written Homework	200 points
Exam I (Lessons 1-2)	200 points
Exam II (Lessons 3-4)	200 points
Exam III (Lessons 5-7)	200 points
Comprehensive Final Exam	<u>200 points</u>
Total Points	1,000 points

Scale:

90-100%	A
80-89%	B
70-79%	C
60-69%	D
59% and below	F