MATH 104 – FINITE MATHEMATICS

SYLLABUS
1 SEMESTER COURSE

PROGRAM:

INSTRUCTOR: Natasza Krajcovic

COURSE TITLE: Finite Mathematics
(CDLS course: Probability and Statistics)

COURSE PREFIX: Math 104

CREDIT HOURS: 3

PREREQUISITES: MATH 097 minimum grade: S-C
OR MATH 099 minimum grade: S
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

COURSE MATERIALS:

Required Textbook:

All content materials for this course are included online in the course. Materials included videos, worksheets, quizzes/tests, and activities.

CATALOG DESCRIPTION:

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

CURRICULAR RELATIONSHIPS:

This course satisfies the ASC General Education Quantitative Thinking requirement. The course is of interest to students in business and the social sciences, as well as to those students wanting to take a college mathematics course other than the science oriented pre-calculus course. It will be of interest to secondary education majors who may wish to sharpen their quantitative reasoning skills, or to learn how mathematics is applied in a variety of fields.

STUDENT LEARNING OUTCOMES (OR COURSE OBJECTIVES):

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

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1. Solve a variety of mathematical problems using techniques 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 course.

COURSE REQUIREMENTS:

In order to receive a passing grade, the student must:
1. Engage in the online course content and activities a minimum of 8-10 hours per week throughout one semester (16-17 weeks each semester).
2. Actively participate in discussions and activities related to course objectives.
3. Complete all graded assignments – including unit assignments, module/lesson quizzes, discussions, unit post-tests/exams, and end-of-semester assessments.

Students will be expected to read the syllabus and understand all course requirements and expectations. Syllabus review is conducted in the orientation of the course.

The table below summarizes all assignments, assessments, discussions and exams. Assignments are downloaded from the course and submitted to the instructor within the course. Lessons, quizzes, unit activities, unit discussions and unit exams are included in each lesson and listed in order below. The timing of all assignments and quizzes/exams is included in the Course Schedule section.

Lesson / Activity
Orientation to course (including syllabus review)
Unit 1: Representing and Interpreting Data
1.01 Data Plots
1.01 Quiz: Data Plots
1.02 Showing Data Center and Spread
1.02 Quiz: Showing Data Center and Spread
1.03 Interpreting the Shape of Data Distributions
1.03 Quiz: Interpreting the Shape of Data Distributions
1.04 Normal Distributions
1.04 Quiz: Normal Distributions
Unit 1 Activity; Representing and Interpreting Data
Unit 1 Discussion: Representing and Interpreting Data
Unit 1 Test
Lesson / Activity
Unit 2 Relating Data Sets
2.01 Relating Categorical Data
2.01 Quiz; Relating Categorical Data
2.02 Interpreting Data as a Line
2.02 Quiz: Interpreting Data as a Line
2.03 Relating Quantitative Data
2.03 Quiz: Relating Quantitative Data
2.04 Making and Interpreting Correlations
2.04 Quiz Making and Interpreting Correlations
2.05 Correlation Versus Causation

2.05 Quiz: Correlation Versus Causation
Unit 2 Activity: Relating Data Sets
Unit 2 Test
Unit 2 Discussion: Relating Data Sets
Lesson / Activity
Unit 3: Independent and Conditional Probability
3.01 Sample Space
3.01 Quiz: Sample Space
3.02 Applying the Addition Rule for Probability
3.02 Quiz: Applying the Addition Rule for Probability
3.03 Applying the Multiplication Rule for Probability
3.03 Quiz: Applying the Multiplication Rule for Probability
3.04 Independent Events
3.04 Quiz: Independent Events
3.05 Using Counting Techniques to Determine Probabilities
3.05 Quiz: Using Counting Techniques to Determine Probabilities
3.06 Conditional Probability
3.06 Quiz: Conditional Probability
Unit 3 Activity: Independent and Conditional Probability
Unit 3 Discussion: Independent and Conditional Probability
Unit 3 Test
Lesson / Activity
Unit 4: Applying Probability
4.01 Interpreting Two-Way Frequency Tables
4.01 Quiz: Interpreting Two-Way Frequency Tables
4.02 Using Probability to Make Fair Decisions
4.02 Quiz: Using Probability to Make Fair Decisions
4.03 Using Probability to Analyze Decisions and Strategies
4.03 Quiz: Using Probability to Analyze Decisions and Strategies
4.04 Applying Conditional Probability and Independence
4.04 Quiz: Applying Conditional Probability and Independence
4.05 Interpreting Conditional Probability
4.05 Quiz: Interpreting Conditional Probability
Unit 4 Activity: Applying Probability
Unit 4 Discussion: Applying Probability
Unit 4 Test
Lesson / Activity
Unit 5: Making Inferences and Conclusions
5.01 Making Inferences Based on Statistics
5.01 Quiz: Making Inferences Based on Statistics
5.02 Evaluating the Validity of a Statistical Model
5.02 Quiz: Evaluating the Validity of a Statistical Model
5.03 Using Statistics in Surveys, Experiments, and Studies
5.03 Quiz: Using Statistics in Surveys, Experiments, and Studies
5.04 Analyzing a Survey
5.04 Quiz: Analyzing a Survey
5.05 Statistically Comparing Two Treatments
5.05 Quiz: Statistically Comparing Two Treatments
5.06 Evaluating Reports Based on Data
5.06 Quiz: Evaluating Reports Based on Data

Unit 5 Activity: Making Inferences and Conclusions
Unit 5 Discussion: Making Inferences and Conclusions
Unit 5 Test
Lesson / Activity
Unit 6: Using Probability to Make Decisions
6.01 Random Variables
6.01 Quiz: Random Variables
6.02 Expected Value of a Random Variable
6.02 Quiz: Expected Value of a Random Variable
6.03 Making Predictions Based on Probabilities
6.03 Quiz: Making Predictions Based on Probabilities
6.04 Making Predictions Based on Empirical Data
6.04 Quiz: Making Predictions Based on Empirical Data
6.05 Ins and Outs of Expected Value
6.05 Quiz: Ins and Outs of Expected Value
6.06 Fair Decisions with Random Variables
6.06 Quiz: Fair Decisions with Random Variables
6.07 Complex Decisions Using Probability
6.07 Quiz: Complex Decisions Using Probability
Unit 6 Activity: Using Probability to Make Decisions
Unit 6 Discussion: Using Probability to Make Decisions
Unit 6 Test
End of Semester Test: Probability and Statistics

Quizzes: Quizzes are used at the end of a lesson to provide an interim assessment of student understanding. Quizzes are weighted at 30% of the course grade

Unit Tests: At the end of each unit, a diagnostic/end of unit exam is given. Tests consist of multiple choice and free-response questions. Unit Tests are weighted at 30% of the course grade.

Unit Activity: This course focuses on application through graded assignments. Unit Activities are weighted at 15% of the course grade.

Unit Discussion: Each unit has a culminating discussion focused on the concepts presented in the unit. Unit Tests are weighted at 10% of the course grade.

GRADE DISTRIBUTION AND SCALE:

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

Grade Distribution (Weights):

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Discussions	10%
Assignments	15%
Quizzes	30%
End of Unit Exams	30%
End-of-Semester Exam	15%
Total	100%

Grade Scale:

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

ADA STATEMENT:

Adams State University complies with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Adams State University is committed to achieving equal educational opportunities, providing students with documented disabilities access to university programs. In order for a course to be equally accessible to all students, different accommodations or adjustments may need to be implemented. The Office of Disability Services (ODS) is located in Richardson Hall, Suite 3-100, by mail at 208 Edgemont Blvd., Suite 3-100, Alamosa, CO 81101, by email at odsd@adams.edu, or by calling 719-587-7746. They are your primary resource on campus to discuss the qualifying disability, help you develop an accessibility plan, and achieve success in your courses. Please communicate with them as early as possible; this can be in person, via email, or by phone. The Disability Services Coordinator shall either provide you letters to give to your professors for accommodations or email these letters out to you and your professors.

ACADEMIC INTEGRITY:

In accordance with Academic Policy 100-03-01, Adams State University, to preserve academic integrity, does not tolerate academic dishonesty (misconduct). Every student is required to practice and adhere to the principle of ACADEMIC INTEGRITY while undertaking studies at Adams State University. Students and faculty at Adams State University value academic honesty as a virtue essential to the academic process. Cheating, plagiarism, unauthorized possession or disposition of academic materials, or the falsification or fabrication of one's academic work will not be tolerated.

Any offense will result in a zero for the exam, lesson, or exercise in question and will result in failure of the course. Please refer to the ASU Extended Studies Academic Integrity website for more information including the student handbook: Academic Integrity at Adams State University.

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All written work is subject to plagiarism detection software review.

STUDENT IDENTITY VERIFICATION:

Adams State University utilizes a variety of methods to verify the identity of students enrolled in courses, including but not limited to: secure logins and pass codes, proctored exams, security questions, and other technologies and practices that are effective in verifying student identity. Some of these methods may incur an extra cost to students; associated costs will be outlined in the course syllabus, other University documents, and on the University website. Adams State University reserves the right to request additional government-issued documentation of identity from students for the purpose of ensuring that the person enrolled in the course is the person completing assignments, exams, and all other course requirements. Any student engaged in incidents of student identity fraud may face reprimand, disciplinary warning, a lowered or failing grade(s), and/or probation, or suspension from the course, academic program or University, or expulsion from the University.

COURSE SCHEDULE:

Students will engage in the online course content and activities a minimum of Monday through Friday each week of the semester, which will run 16 - 17 weeks. The minimum time spent actively working online and on course assignments will be 1.5-2 hours per day.

In working with their school district, students will complete course content in structured time periods during the school day along with unstructured time periods decided by the student.

All course activities (along with the accompanying content) in a lesson are to be completed in the course week identified below.

Lesson / Activity / Point Value	Week to be completed
Orientation to course (including syllabus review)	
Unit 1: Representing and Interpreting Data	
1.01 Data Plots	
1.01 Quiz: Data Plots (10)	
1.02 Showing Data Center and Spread	
1.02 Quiz: Showing Data Center and Spread (10)	
1.03 Interpreting the Shape of Data Distributions	Weeks 1 and 2
1.03 Quiz: Interpreting the Shape of Data Distributions (10)	
1.04 Normal Distributions	
1.04 Quiz: Normal Distributions (10)	
Unit 1 Activity; Representing and Interpreting Data	
Unit 1 Discussion: Representing and Interpreting Data (100)	
Unit 1 Test	
	Week to be completed
Lesson / Activity / Point Value	
Unit 2 Relating Data Sets	
2.01 Relating Categorical Data	
2.01 Quiz; Relating Categorical Data (10)	*Week 3*
2.02 Interpreting Data as a Line	
2.02 Quiz: Interpreting Data as a Line (10)	

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Lesson / Activity / Point Value	Week to be completed
2.03 Relating Quantitative Data	
2.03 Quiz: Relating Quantitative Data (10)	
2.04 Making and Interpreting Correlations	
2.04 Quiz Making and Interpreting Correlations (10)	
2.05 Correlation Versus Causation	Weeks 4 and 5
2.05 Quiz: Correlation Versus Causation (10)	
Unit 2 Activity: Relating Data Sets	
Unit 2 Test	
Unit 2 Discussion: Relating Data Sets (100)	
Lesson / Activity / Point Value	*Week to be completed*
Unit 3: Independent and Conditional Probability	
3.01 Sample Space	
3.01 Quiz: Sample Space (10)	
3.02 Applying the Addition Rule for Probability	Week 5
3.02 Quiz: Applying the Addition Rule for Probability (10)	
3.03 Applying the Multiplication Rule for Probability	
3.03 Quiz: Applying the Multiplication Rule for Probability (10)	
3.04 Independent Events	
3.04 Quiz: Independent Events (10)	
3.05 Using Counting Techniques to Determine Probabilities	
3.05 Quiz: Using Counting Techniques to Determine Probabilities (10)	Weeks 6 and 7
3.06 Conditional Probability	
3.06 Quiz: Conditional Probability (10)	
Unit 3 Activity: Independent and Conditional Probability	
Unit 3 Discussion: Independent and Conditional Probability (100)	
Unit 3 Test	
	Week to be completed
Lesson / Activity / Point Value	
Unit 4: Applying Probability	
4.01 Interpreting Two-Way Frequency Tables	
4.01 Quiz: Interpreting Two-Way Frequency Tables (10)	Week 8
4.02 Using Probability to Make Fair Decisions	
4.02 Quiz: Using Probability to Make Fair Decisions (10)	
4.03 Using Probability to Analyze Decisions and Strategies	
4.03 Quiz: Using Probability to Analyze Decisions and Strategies (10)	
4.04 Applying Conditional Probability and Independence	
4.04 Quiz: Applying Conditional Probability and Independence (10)	
4.05 Interpreting Conditional Probability	Weeks 9 and 10
4.05 Quiz: Interpreting Conditional Probability (10)	
Unit 4 Activity: Applying Probability	
Unit 4 Discussion: Applying Probability (100)	
Unit 4 Test	
Lesson / Activity / Point Value	*Week to be completed*
Unit 5: Making Inferences and Conclusions	
5.01 Making Inferences Based on Statistics	
5.01 Quiz: Making Inferences Based on Statistics (10)	
5.02 Evaluating the Validity of a Statistical Model	Week 11
5.02 Quiz: Evaluating the Validity of a Statistical Model (10)	
5.03 Using Statistics in Surveys, Experiments, and Studies	

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5.03 Quiz: Using Statistics in Surveys, Experiments, and Studies (10)	Weeks 12 and 13
5.04 Analyzing a Survey	
5.04 Quiz: Analyzing a Survey (10)	
5.05 Statistically Comparing Two Treatments	
5.05 Quiz: Statistically Comparing Two Treatments (10)	
5.06 Evaluating Reports Based on Data	
5.06 Quiz: Evaluating Reports Based on Data (10)	
Unit 5 Activity: Making Inferences and Conclusions	
Unit 5 Discussion: Making Inferences and Conclusions (100)	
Unit 5 Test	
	Week to be completed
Lesson / Activity / Point Value	*Week 14*
Unit 6: Using Probability to Make Decisions	
6.01 Random Variables	
6.01 Quiz: Random Variables (10)	
6.02 Expected Value of a Random Variable	
6.02 Quiz: Expected Value of a Random Variable (10)	
6.03 Making Predictions Based on Probabilities	
6.03 Quiz: Making Predictions Based on Probabilities (10)	
6.04 Making Predictions Based on Empirical Data	Weeks 15 and 16
6.04 Quiz: Making Predictions Based on Empirical Data (10)	
6.05 Ins and Outs of Expected Value	
6.05 Quiz: Ins and Outs of Expected Value (10)	
6.06 Fair Decisions with Random Variables	
6.06 Quiz: Fair Decisions with Random Variables (10)	
6.07 Complex Decisions Using Probability	
6.07 Quiz: Complex Decisions Using Probability (10)	
Unit 6 Activity: Using Probability to Make Decisions	
Unit 6 Discussion: Using Probability to Make Decisions (100)	
Unit 6 Test	Week 17
End of Semester Test: Probability and Statistics	