
ASHEVILLE-BUNCOMBE TECHNICAL COMMUNITY COLLEGE
MATHEMATICS DEPARTMENT
COMMON SYLLABUS DIRECTORY

PREFIX: MAT **NUMBER:** 115 **TITLE:** Mathematical Models

CONTACT HOURS: 4 **CREDIT HOURS:** 3

CCL DESCRIPTION: This course develops the ability to utilize mathematical skills and technology to solve problems at a level found in non-mathematics-intensive programs. Topics include applications to percent, ratio and proportion, formulas, statistics, functional notation, linear functions and their groups, probability, sampling techniques, scatter plots, and modeling. Upon completion, students should be able to solve practical problems, reason and communicate with mathematics, and work confidently, collaboratively, and independently.

PREREQUISITE(S): MAT 070

COREQUISITE(S): None

TEXTBOOK: Timmons, Johnson & McCook, Fundamentals of Algebraic Modeling, Brooks/Cole, 5th Edition.

DELIVERY METHOD: Traditional

GRADING POLICY: Laboratory Assignments (25%), Chapter Tests (45%), Quizzes (10%), Midterm Examination I (10%), Midterm Examination II (10%)

CONTENT OUTLINE:

- 2.1 Rectangular Coordinate System
- 2.2 Graphing Linear Equations
- 2.3 Slope
- 2.4 Writing Equations of Lines
- 2.5 Applications and Uses of Graphs
- 3.1 Functions

- 3.2 Using Function Notation
- 3.3 Linear Functions as Models
- 3.4 Direct and Inverse Variation
- 3.5 Quadratic Functions and Power Functions as Models
- 4.1 Mathematical Models in the Business World
- 4.2 Mathematical Models in Banking
- 4.3 Mathematical Models in Consumer Credit
- 4.4 Mathematical Models in Purchasing an Automobile
- 4.5 Mathematical Models in Purchasing a Home
- 4.8 Mathematical Models in Personal Income
- 6.1 Solving Systems by Graphing
- 6.2 Solving Systems Algebraically
- 6.3 Applications of Linear Systems
- 6.4 Systems of Nonlinear Functions
- 7.1 Sets and Set Theory
- 7.2 What is Probability?
- 7.3 Theoretical Probability and Odds
- 7.4 Tree Diagrams
- 7.5 *Or* and *And* Problems
- 7.6 The Counting Principle, Permutations, and Combinations
- 8.1 Introduction to Statistics
- 8.2 Descriptive Statistics
- 8.3 Organizing and Displaying Data
- 8.4 Variation
- 8.5 The Normal Curve
- 8.6 Scatter Diagrams and Linear Regressions

COMMENTS: Any policy concerning the possible acceptance of a late assignment or the possibility of a special arrangement that might be made with the student who missed a scheduled examination due to circumstances beyond his/her control is left to the discretion of the instructor.
