

A Planned Course of Study

for

Finite Mathematics

ASHS Course # 0354

Abington School District

Abington, Pennsylvania

September, 2016

I. Objectives

Students will demonstrate the appropriate level of proficiency in each of the following areas of mathematics:

- A. Algebraic Concepts
 - 1. Linear functions
 - 2. Matrices
 - 3. Linear Inequalities
 - 4. Exponential functions
- B. Data and Probability
 - 1. Sets
 - 2. Permutations
 - 3. Combinations
 - 4. Simple probability
 - 5. Conditional probability
 - 6. Measures of center and spread

II. Major Concepts

Students will demonstrate the appropriate level of proficiency in each of the following areas of mathematics:

- A. Algebraic Concepts
 - 1. Linear functions
 - a. Graphing and interpreting on the Cartesian Plane
 - b. Modeling cost, profit, revenue, break-even point, and depreciation
 - c. Modeling supply and demand
 - 2. Matrices
 - a. Matrix operations
 - b. Using Row-Reduction techniques to solve systems of linear equations
 - c. Inverse matrices
 - d. Use matrices to model practical applications
 - 3. Linear Inequalities
 - a. Graphing linear inequalities
 - b. Graphing systems of linear inequalities
 - c. Writing linear inequalities to model practical applications
 - d. Interpret solutions
 - 4. Mathematics of finance
 - a. Continuous and compound interest
 - b. Present and future values of annuities
 - c. Amortizing debt
 - d. Sinking funds
 - e. Using exponential functions to model practical applications

B. Data and Probability

- 1. Sets
 - a. Set notations and operations
 - b. Create and interpret Venn diagrams
 - c. Multiplication counting principle
- 2. Permutations
 - a. Principles of permutations
 - b. Applications of permutations
- 3. Combinations
 - a. Principles of combinations
 - b. Applications of combinations
- 4. Simple probability
 - a. Sample spaces and events
 - b. Addition rule of probability
 - c. Rule of complements
 - d. Counting techniques
- 5. Conditional probability
 - a. Independent events
 - b. Rules of conditional probability
 - c. Bayes' Theorem
- 6. Measures of center and spread
 - a. Random variables
 - b. Expected value
 - c. Variance
 - d. Standard deviation
 - e. Binomial distributions
 - f. Normal distributions

III. Instruction

- A. Course Schedule
 - 1. 5 days a week
 - 2. 47 minute classes
- B. Pacing
 - 1. Marking Period 1
 - a. Linear Functions (Chapter 1)
 - b. Systems of Linear Equations and Matrices (Chapter 2)
 - 2. Marking Period 2
 - a. Linear Inequalities (Chapter 3)
 - b. Mathematics of Finance (Chapter 5)
 - 3. Marking Period 3
 - a. Sets and Counting (Chapter 6)
 - b. Simple Probability (Chapter 7)
 - 4. Marking Period 4
 - a. Conditional Probability (Chapter 7)
 - b. Measures of Center and Spread (Chapter 8)
- C. Methods
 - 1. Lecture
 - 2. Cooperative learning
 - 3. Mathematics software and internet resources will be incorporated into the course using computers and Chromebooks
 - 4. Exploration and discovery lessons with and without technology
 - 5. Homework
 - 6. Pre-class assignments
 - 7. Graphing calculator activities
 - 8. Formative assessments and differentiation

- 9. Summative assessments
- 10. Data analysis of student results
- 11. Open retesting

D. Resources

- 1. Tan, S.T. *Finite Mathematics: For the Managerial, Life, and Social Sciences.* 9th ed. Belmont: Brooks/Cole, Cengage Learning, 2009.
- 2. Ancillary materials from the text
- 3. Teacher made presentations, handouts, activities, practice, quizzes
- 4. Departmental chapter tests, midterm, and final exam
- 5. Reference materials available in the mathematics office and the school library
- 6. Computer labs
- 7. Chromebooks
- 8. Websites such as Wolfram Alpha, Desmos, Quizziz, Kahoot, etc.
- 9. Spreadsheets
- 10. Google Classroom and Skyward
- 11. Graphing calculator class sets
- 12. Scientific calculators
- 13. Apperson scan sheets and software for test analysis

IV. Assessment

- A. Procedures for Evaluation
 - 1. Summative assessments
 - a. A departmental common assessment will be administered at the end of chapter.
 - b. A departmental common assessment will be administered at the end of each semester.
 - 2. Formative assessments will be administered in a variety of formats.

3. Accommodations aligned with those permitted for the Keystone and included in IEP's will be provided for Special Education students who are enrolled in this course.

B. Expected Levels of Achievement

Students are expected to achieve at least a minimum level of proficiency. Proficiency and related grades are defined as follows:

Α	90	- '	100%
В	80	-	89%
C	70	-	79%
D	60	-	69%
E-Failing – eligible for Summer School	40	-	59%
F-Failing – ineligible for Summer School	0	-	39%

The final grade will be calculated as follows:

Marking Period I	20%
Marking Period II	20%
Midterm Exam	10%
Marking Period III	20%
Marking Period IV	
Final Exam	