

**SUFFOLK COUNTY COMMUNITY COLLEGE
COLLEGE-WIDE COURSE SYLLABUS
MAT116H**

I. COURSE TITLE:

Mathematical Problem Solving (Honors)

II. CATALOG DESCRIPTION:

This course is for motivated honors students who want to explore a problem solving approach to mathematics. Through individual and group collaboration, students will explore at least 15 different mathematical problem solving strategies over various mathematical content areas (including geometry, algebra, logic, number theory and discrete mathematics)

Prerequisite: MAT 111 B or higher, ENG 101 B+ or higher (or equivalent)

Credits: 4

III. COURSE GOALS:

IV. COURSE OBJECTIVES:

Upon successful completion of this course, students will be able to:

- A. Select, implement and explain an appropriate solution strategy to mathematical problems from disciplines including geometry, logic, algebra, number theory and discrete mathematics.
- B. Demonstrate multiple approaches to mathematical problems from disciplines including geometry, logic, algebra, number theory and discrete mathematics.
- C. Be conversant in at least twelve different solution strategies for mathematical problems
- D. Demonstrate above skills and oral communication skills through oral presentation.
- E. Demonstrate above skills and written communication skills through problem sets.
- F. Demonstrate above skills and collaborative skills through group projects

V. Topics Outline with Timeline

Topics	Approximate Time (Including Examinations)
A. Organizing Information Strategies <ol style="list-style-type: none"> a. Draw a Diagram b. Make a Systematic List c. Eliminate Possibilities d. Use Matrix Logic e. Look for a Pattern f. Organize Information in More Ways 	4 weeks

B. Changing the Focus Strategies a. Identify Sub-problems b. Solve an Easier Related Problem c. Work Backwards d. Change the Focus in More Ways	3 weeks
C. Spatial Organization Strategies a. Create a Physical Representation b. Venn Diagrams c. Visualize Spatial Relationships	3 weeks
D. Algebraic Based Strategies a. Guess and Check b. Analyze the Units c. Convert to Algebra d. Evaluate Finite Differences	3 weeks
E. Testing and Student Presentations	2 weeks

VI. Evaluation of Student Performance:

Students' achievement may be measured by

1. Graded individual problem sets
2. Graded examinations (midterm and final)
3. Graded group problem sets.
4. Graded oral presentations/ explanations of solutions.

VII. Programs that require this course:

None

VIII. Courses that require this course as a prerequisite:

None

IX. Supporting Information:

Mathematics tutoring services, as well as video and computer aids, are provided for all students through the Math Learning Center (Ammerman Campus, Riverhead 235), the Academic Skills Center Annex (Grant Campus, Health, Sports and Education Center 129), and the Academic Skills Center (Eastern Campus, Orient 213).