

WEBSTER UNIVERSITY

Course Syllabus

MTHC 5180.01

Instructor: Andrea Rothbart

Problem Solving Strategies

Spring, 2002

Site 50

1. **Course Description: (Student focus, rationale, scope, prerequisites)**

The purpose of this course is to help teachers identify, develop, and learn to apply general problem solving strategies that are effective in analyzing a wide variety of mathematical problems. Specific problems in elementary mathematics and logic are used as a vehicle for this study. Teaching strategies that assist students in problem solving will also be discussed.

2. **Learning Outcomes: (Goals, objectives, course outcomes, etc.)**

Students will experience a variety of strategies that are powerful tools in problem solving. Students will develop increased sensitivity to problem solving and thus be in a better position to help their students do mathematics.

3. **Schedule:**

Most class meetings, we will work (alone, in small groups, or as a class) on mathematical problems. We will discuss how we approached the problems and which strategies were useful and possibly applicable to other problems. In addition, students will be given problems to work on as homework..

The first class or two, students will learn specific techniques for generalizing to polynomial functions from specific instances of the function.

Course Requirements: In addition to class attendance and participation, and completing homework assignments, students will maintain a journal. In this journal:

- a) the student will list problem solving strategies. Each strategy is to be followed by a collection of problems that are conducive to the strategy.
- b) the student will develop a list of mathematical problems that would be useful with his/her own students. Each problem is to be followed by a list of applicable strategies.
- c) the student will develop a list of mathematical problems that would challenge fellow teachers.

- d) the student will write a detailed description of teaching strategies that he/she might use in helping his own students become better problem solvers.

There will also be problem assignments that students submit for evaluation.

4. **RESOURCES:**

Text Used: There is no textbook. Students will be given a bibliography of resources that are available in our library.

5. EVALUATION:

Journal
Class Attendance and Participation
Homework Assignments
Take-Home Problem Quizzes

**This syllabus is subject to change at the discretion of the instructor.
Therefore, regular attendance is required.**