

*Montgomery College - Department of Mathematics  
Takoma Park/Silver Spring Campus*

**MA115 – Mathematical Ideas  
3 Semester Hours**

**Description**

Intended primarily for students who need only one mathematics foundation course, this course includes topics selected from (but not limited to) graph theory, geometry, number theory, algebra, combinatorics, and statistics. Students address topical applications from management sciences, social sciences, environmental sciences, information technologies, and the arts, with an emphasis on quantitative reasoning.

MA115 meets 3 hours each week.

**Prerequisites**

A grade of C or better in MA 101 or MA 103, appropriate score on mathematics assessment test, or consent of department.

Assessment levels: EN 101/101A, RD 120.

**Topics**

The textbook is divided into 4 parts, each studying problems related to a common theme. Each instructor chooses which 3 of these 4 topics to cover.

- I. The Mathematics of Social Choice
  1. voting systems
  2. fair division of resources
- II. Management Sciences
  1. Networks
  2. Digraphs
  3. The traveling salesman problem
- III. Growth and Symmetry
  1. Linear and exponential growth models in nature
  2. Symmetry
  3. Fractals.
- IV. Statistics
  1. Descriptive statistics
  2. Probability
  3. Normal distribution.

Text

*Excursions in Modern Mathematics*, 6th ed. ,Peter Tannenbaum,  
Pearson/Prentice Hall Publishing