

MA 120 — Finite Mathematics

Dr. Stefan Ehrlich

Graduate Computer Science / Mathematics Department

Fall Semester, 2004

Office Hours:

Contact Info: Text:

Phone: 603-888-1311 x8531 Finite Mathematics Monday 1:30 — 2:30, 5:30 — 6:30,

Office: Sylvia Trottier - 313 Howard L. Roif

Tuesday 4:00 — 6:30, 9:00 — 9:30

Email: sehrlich@brookscole.com Brooks! Cole, 2002, Fifth Edition Wednesday 1:30 — 2:30,
5:15- 5:45

Brief Course Description

Mathematics, has in recent years, been widely applied to the fields of economics and business. The growth and development of such mathematically oriented subjects as operations research, linear programming, and quantitative methods have necessitated the development of a sophisticated non-calculus based course for business students. Such a course is Finite Mathematics.

The basic core material that will be covered includes, but is not limited to:

linear equations, systems of linear equations for both equality and inequality, linear programming by graphing and the simplex method, matrix operations, and the mathematics of finance.

Every effort will be made to illustrate each 'tool' with numerous business applications.

Course Objectives

To introduce the student to several of the more important mathematical approaches used in the analysis of basic business problems requiring quantitative decisions. The aim is to develop an understanding of problem solving techniques based upon a careful analysis of problem formulation, mathematical analysis, and solution procedures. Graphical techniques will frequently be employed to clarify mathematical concepts and to simplify problem solving.

Think of these three challenges:

Learn to think-Carefully Critically Creatively

Classroom Policies

Students are expected to attend and participate in all classes. Attendance is taken at the beginning of each class. Please notify the instructor in advance of any anticipated absence whenever possible. It is your responsibility to make up any material missed whenever you are absent from class. Assignments are taken from exercises in the text. The homework problems are always covered in class and you are expected to read the section of text corresponding to the homework assignment. Questions about the problems should

be raised at the next class meeting. The study of mathematics!computer science requires regular work and plenty of practice. Postponed homework usually results in poor comprehension and performance.

TeachinR Strategies

Lecture format, built around the textbook readings with numerous examples chosen to illustrate theoretical concepts. Lots of drill with emphasis on practice, practice, and more practice. Questions are encouraged and discussion of material stressed.

Course Requirements and Grading Policies

Students will be evaluated based on two midterms and a final exam as follows:

Midterm 1- 25% Midterm 2- 25% Final - 50%

All tests are closed book and the final is comprehensive. The results will be converted to a letter grade in

keeping with grading policies of the college.

Prerequisites: College Algebra or permission of the instructor.

Material Covered

1 - Introduction to Course

Review of Basic Material on a Limited and as Needed Basis

2 — Linear Systems

Definition and Terminology

Matrix Operations- Addition, Subtraction, Multiplication

Inverse of a Matrix

Solving Two Equations in Two Unknowns and Three Equations in Three Unknowns

Graphing Techniques

Gaussian Reduction and Backwards Substitution

Gauss-Jordan Variation

Inverse Method Applications

Leontief Input-Output Model in Economics (optional)

Linear Regression

Markov Chains 3 — Linear Programming

Graphical Solution of Linear Inequalities in Two Variables

Geometric Approach to Linear Programming Problems in Two Variables

Formulating Linear Programming Problems

Business Applications

Simplex Method (Optional)

Maple (Optional, Outside Class)

4 — Mathematics of Finance

Simple and Compound Interest

Single and Continuous Deposits

Annuities, Sinking Funds, and Amortization