

MA 112 – College Algebra

Dr. Stefan Ehrlich

Graduate Computer Science / Mathematics Department
Fall Semester, 2006

Contact Info:

Phone: 603-888-1311x8531

Office: Sylvia Trottier - 313

Email: sehrlich@rivier.edu

Text:

Algebra for College Students

Jerome E. Kaufman

PWS Pub, Co., Seventh Edition

Office Hours:

Monday 2:00- 3:30

Tuesday 1:30- 2:30, 4:00- 6:00

Thursday 1:30-2:30, 4:00-5:30

Brief Course Description:

This course covers concepts ranging from elementary algebra up to, but not including, precalculus. It is designed for use as either a single introductory algebra course or a stepping-stone to more advanced mathematical courses, such as precalculus/calculus. A solid understanding of the topics covered in college algebra is essential for study in computer sciences, physical and life sciences, business and economics, and engineering.

Course Objectives:

To provide a basic working knowledge of the tools and thought processes underlying elementary and college algebra. These include:

Basic concepts- exponents, radicals, factoring, absolute value, inequalities

First and Second Degree Equations with Applications

Polynomials

Rational Expressions

Graphing Techniques

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.

Teaching 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: Math 100 or permission of the instructor.

Material Covered:

1 - Introduction to Course

Review of Basic Material on a Limited and as Needed Basis

2 – Equations and Inequalities

First Degree Equations

Equalities and Inequalities

Absolute Value

3- Linear Equations and Inequalities in Two Variables

Rectangular Coordinate System

Distance between Points

Linear Equations and Inequalities in Two Variables

Slope

Determining the Equation of a Line

4- Quadratic Equations and Inequalities

Quadratic Formula

Quadratic Inequalities (optional)

5 – Polynomials

Sum , Difference, Product, and Quotient

Factoring

Simplifying Complex Fractions (optional)

6 – Rational Expressions

Simplification

Addition, Subtraction and Multiplication

Long Division

7 – Exponents and Radicals

Laws of Exponents

Roots and Radicals

Writing Radicals in Exponential Form and Vice-Versa

Scientific Notation

8- Functions (as time permits)

Relations and Functions, Composition and Inverse

9- Exponential and Logarithmic Functions (as time permits)

Exponential Functions

Logarithms and Logarithmic Functions

10- Systems of Equations (as time Permits)

Gaussian Elimination in 2×2 and 3×3 Cases

11- Matrices and Determinants (as time permits)

Matrix Form of Gaussian Elimination

Determinants and Cramer's Rule

12– Sequences and Series (as time permits)

Arithmetic Sequences and Series

Geometric Sequences and Series