MA130 – PreCalculus
Fall 2003

Instructor: Dr. Stefan Ehrlich
Office Hours: Monday 5:15 – 7:45PM
Tuesday 3:00 – 4:00, 5:15 – 6:30PM
Thursday 3:00 – 4:00, 5:15 – 6:30PM
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Syllabus
Brief Course Description:
This course covers functional concepts of algebra and trigonometry presented in an application
oriented setting. Many interesting, relevant, and modern applications are drawn from such diverse
fields as business and economics, life sciences, physical sciences and engineering. These
applications are found throughout your text and are liberally employed in class discussions.

This course is often used as a stepping-stone to calculus. Special emphasis will be given to help
in making a comfortable transition from elementary mathematics to differential and integral
calculus.

Course Objectives:
To provide a basic working knowledge of the tools and thought processes underlying the theory
of functions as related to college algebra and trigonometry.

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: 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. Functions
   Definition and Terminology
   Linear and Quadratic Functions
   Graphing Techniques, Completing the Square and Finding Roots
   Composition of Functions
   Inverse Functions

3. Exponential and Logarithmic Functions
   Radicals – Review
   Roots and Rational Exponents – Review
   Exponential Functions and the Natural Exponential Function
   Logarithmic Functions and Properties of Logarithms
   Problem Solving with Logarithms (optional)
   Maple (optional, outside class)

4. Polynomials and Rational Functions
   Synthetic Division and the Factor Theorem
   Polynomial Equations
   Graphing polynomials and Rational Functions
   Partial Fractions

5. Sequences and Mathematical Induction (optional)
   Arithmetic Sequences
   Geometric Sequences

6. Trigonometric Functions
   Terminology and Geometric Basis for Trigonometry
   Trigonometric Functions of any Angle
   Circular Functions- Sine and Cosine
   Graphing the Six Basic Trigonometric Functions
   Inverse Trigonometric Functions
   Identities and Trigonometric Equations