PROPOSED SYLLABUS FOR MATH 3
COLLEGE ALGEBRA

Fall 2006

Time and place:
Web page:
Units: 3

Instructor:
Office and office hours:
Phone:
Email:

Textbook: M. Sullivan, *College Algebra*

Catalog description

Prerequisite: students must meet the ELM requirement. Equations and inequalities; rectangular coordinates; systems of equations and inequalities; polynomial, rational, exponential, and logarithmic functions and their graphs; complex numbers.

Course objectives

Upon completion of this course, students should know:

- basic properties of real numbers
- properties of polynomial, rational, exponential, and logarithmic functions
- basic properties of complex numbers
- how to translate various applications into mathematical problems

Learning outcomes

Upon completion of this course, students will be able to:

- simplify rational expressions and expressions with radicals
- solve systems of equations and inequalities
- find the roots of a polynomial function
- sketch graphs of polynomial, rational, exponential, and logarithmic functions
- formulate the mathematical equation or system of equations that model an application and solve such problem

Attendance

It is important to attend every class because every lecture is based on previous material. Attendance will be taken, and occasionally, a quiz will be given.

If you miss a class, you should contact one of your classmates or the instructor to find out what was done in class and whether important announcements were made or homework was assigned, and read the appropriate sections of the book.

Homework

There will be weekly homework. No late homework will be accepted except in the case of an illness or a serious family emergency. Working with your classmates is allowed and encouraged, but every student must write his or her own papers. If you work with someone, please indicate that on your paper.

Tests

There will be 3 hour tests and a comprehensive final exam. Make-up exams will be given only in case of an illness or a serious family emergency. No notes, books, or calculators will be allowed.

Extra help

It is important not to fall behind. If you need extra help, you are encouraged to

- ask your instructor in class
- come to the instructor's office hours or make an appointment
- work with your classmates
- go to the Mathematics tutor lab in EE 167.

Grading procedures

Your grade will be based on your performance on quizzes, tests, and homework according to the following tables.

Quizzes	30 points
Test 1	50 points
Test 2	50 points
Test 3	50 points
Homework	100 points
Final Exam	100 points
Effort, attendance, participation	20 points
Total	400 points

Points earned	Letter grade
360-400 (90%-100%)	A
320-359 (80%-89%)	B
280-319 (70%-79%)	C
240-279 (60%-69%)	D
0-239 (0%-59%)	F

Classroom behavior

Any disruptive behavior in class that interferes with the learning environment will not be tolerated. University policies on disruptive behavior are followed and enforced in every instance.

Academic honesty

Cheating in this class will not be tolerated. University policies on plagiarism and cheating are followed and enforced in every instance.

Students with disabilities

University student disability policies are followed. Contact the Disabled Student Services office (located in the Madden Library) for specific arrangements and information.

Computers

At California State University, Fresno, computers and communications links to remote resources are recognized as being integral to the education and research experience. Every student is required to have his/her own computer or have other personal access to a workstation (including a modem and a printer) with all the recommended software. The minimum and recommended standards for the workstations and software, which may vary by academic major, are updated periodically and are available from Information Technology Services or the University Bookstore. In the curriculum and class assignments, students are presumed to have 24-hour access to a computer workstation and the necessary communication links to the University's information resources.

Syllabus is subject to change

This syllabus and schedule below are subject to change in the event of extenuating circumstances. If you are absent from class, it is your responsibility to check on announcements made while you were absent.

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Tentative schedule

Week	Sections and topics
1	R.1. Real numbers R.2. Algebra review R.3. Geometry review R.4. Polynomials

Week	Sections and topics
2	R.5. Factoring polynomials R.6. Polynomial division; synthetic division R.7. Rational expressions R.8. nth Roots; rational exponents
3	1.1. Linear equations 1.2. Quadratic equations 1.3. Quadratic equations in the complex number system 1.4. Radical equations; equations quadratic in form; factorable equations
4	1.5. Solving inequalities 1.6. Equations and inequalities involving absolute value 1.7. Applications: interest, mixture, uniform motion, constant rate jobs 2.1. Rectangular coordinates
5	2.2. Graphs of equations 2.3. Circles Test 1
6	2.4. Lines 2.5. Parallel and perpendicular lines 3.1. Functions 3.2. The graph of a function
7	3.3. Properties of functions 3.4. Library of functions; piecewise-defined functions 3.5. Graphing techniques: transformations 3.6. Mathematical models: constructing functions
8	4.1. Quadratic functions and models 4.2. Polynomial functions 4.3. Rational functions I 4.4. Rational functions II: analyzing graphs
9	4.5. Polynomials and rational inequalities 4.6. The real zeros of a polynomial function 4.7. Complex zeros; fundamental theorem of algebra 5.1. Composite functions
10	5.2. Inverse functions 5.3. Exponential functions Test 2
11	5.4. Logarithmic functions 5.5. Properties of logarithms 5.6. Logarithmic and exponential equations 5.7. Compound interest
12	5.8. Exponential growth and decay; Newton's law; logistic models 6.1. Conics 6.2. The parabola 6.3. The ellipse
13	6.4. The hyperbola 7.1. Systems of linear equations: substitution and elimination 7.2. Systems of linear equations: matrices 7.3. Systems of linear equations: determinants
14	7.4. Matrix algebra 7.5. Partial fraction decomposition 7.6. Systems of nonlinear equations 7.7. Systems of inequalities
15	Test 3 Review