

MATHEMATICS 103 COLLEGE ALGEBRA

SPRING SEMESTER, 1999

INSTRUCTOR: Mrs. V. Kilty Office: H-18 Ph. 739-4681 Home: 395-8258

Office Hours: Tues. & Thurs. 12:30--1:30 & by appointment
SECTION 103-02 TIME : Tues. Thur. 2:00--3:20 Henry Hall Room 102

PREREQUISITES: Math 102 or equivalent with a grade of C or better, or Placement Test (12).

TEXTBOOK: Algebra for College Students, Fourth edition, by R. David Gustafson & Peter D. Frisk, 1995. Brooks/Cole Publishing Co., Pacific Grove, Calif.,

COURSE DESCRIPTION: Algebra knowledge and skills for college studies: Sets and real number system, exponents and polynomials, rational and radical expressions, equations and inequalities with applications, including equations containing rational and radical expressions, systems of equations, beginning analytic geometry and functions, exponential and logarithmic functions, and, as time allows, the Sigma notation, the Binomial theorem and progressions.

(3 CREDITS) Fulfills Track B general education requirement in Mathematics.

Not open to students with credits in Math 110, 210 or higher numbered math courses.

OBJECTIVES: 1. To give the student a firm foundation in the fundamentals of Algebra
2. To prepare the student for entry into MA110 Precalculus
3. Emphases are: Skills in manipulating algebraic expressions (polynomials, rational expressions, radical expressions), in solving equations and inequalities, basic concepts of functions, including exponential and logarithmic functions.

EVALUATION; Final grade for the course will be based on:

A Comprehensive FINAL EXAMINATION (30%)

Tests and Midterm Exam (30%)

Homework and Homework Quizzes (30%)

Class Participation (10%)

NOTE; Late class requirements will receive a grading penalty (20% off per day)

ATTENDANCE

Absence from any class session is especially detrimental to a student, and should not be taken lightly. Missed instruction is a recipe for lowering your grade. If excessive, it makes passing the course difficult, if not impossible. If a test is missed because of an unavoidable and verifiable reason, see the Instructor immediately (BEFOREHAND is preferable).

Makeup MAY be allowed, at the sole discretion of the Instructor. There is no makeup on quizzes. Of course, if you are absent, your Class Participation grade will suffer.

HOMEWORK

Collected homework will be graded and returned promptly. Students will be assigned examples from Exercise Sets covered in each lesson. as Practice Examples. Put these examples directly in your NOTEBOOK. This Notebook is to be separate from your class notes, and will be collected periodically as part of your Homework grade. Quizzes are taken from these and similar examples. The second part of homework consists of periodic HOMEWORK ASSIGNMENTS which are to be handed in at the next class session. Don't be late--20% penalty for each day it is late.

All handed in HOMEWORK is to be set up with an ANSWER COLUMN. Required
See "Homework Set-up" page of this Syllabus.

At the end of each Chapter is a page of "Key Ideas". Always review them.
Pay special attention to the blue and the gray boxes in your text.

PROCEDURE:

(1) Before starting the homework assignment, the student should study the teaching examples in the Exercise Set. Many students find that it helps to copy the examples in the teaching section, close their books, and then try to do the examples themselves. The advantage of this procedure is that if there is a problem with the solution, the student can reopen the book and get help with the next step and/or check the correct answer.

(2) Next do the Practice Examples. You are responsible for all this material.. Check your answers in the back of your book as you go along to be sure that you are doing them correctly.

MATERIALS NEEDED FOR CLASS

Scientific Calculator

Graph paper: It MUST be 1/4 " (one-quarter inch squares)

Colored pens or pencils

Highlighter

Ruler

CLASS PROCEDURE

If you do not understand a step in a Lecture, raise your hand at that critical point. When appropriate we will tackle homework at the end of the period. This does not mean class is over. If you leave early, you will receive a zero for that day's Participation regardless of any other contributions you have earned.

COURSE OUTLINE

The schedule may be adjusted by the instructor, as deemed appropriate in the best interests of the class.

If Chapters 1 through 4 are unfamiliar to you, you should be in Math 102 instead of in Math 103.

There will be a BRIEF REVIEW of the topics covered in Math 102, and some of those topics will be presented again in more depth. New topics will be covered thoroughly.

- I. The Real Number System (chapter 1) Review on your own with emphasis on sets (1.1), Intervals and absolute values (1.3)
Distributive property and order of operations.
2. Exponents and Polynomials (chapter 2)
Review : Rules of exponents (2.1) : Arithmetic of polynomials (2.3 - 2.5) with emphasis on division algorithm (2.5) :
NEW: Synthetic division and the Remainder Theorem (2.6)
3. Linear Equations and Inequalities (Chapter 3)
Review 3.1, 3.5, 3.6
4. Factoring (Chapter 4)
Review all sections with emphasis on Factoring by Grouping (4.2) and more complex factoring techniques (4.3); (4.4), Equations (4.5)
5. Rational Expressions (Chapter 5)
(5.1 - 5.3) Basically review, with emphasis on using LCD
(5.5) NEW & Review: Equations containing rational expressions
6. Rational Exponents, Radicals (Chapter 7)
(7.1) NEW: Rational exponents (7.2 - 7.4) NEW/Review: Radical expressions
(7.5) Radical equations (7.6) Applications: NEW: Distance Formula
7. Exponential and Logarithmic Functions (Chapter 12-1 - 12-5) NEW
8. Quadratic Equations and other nonlinear Inequalities (Chapter 8)
(8.1) NEW; Completing the square & Quadratic Formula
(8.3) NEW: the Discriminant

Graphs, Equations of Lines, and Functions (Chapter 6) Review as time allows
(6.2 - 6.3) NEW/Review: Slopes and equations of lines, graphing lines etc. with emphasis on "slope intercept" form
(6.) NEW : Functions

Systems of Equations and Inequalities (Chapter 10) Optional if time allows
(10.1 - 10.3) Review (10.4) NEW: 2 by 2 Case and Cramer's Rule

Optional Selected topics: ch. 14 Pascal Triangle, Sigma Notation

MIDTERM EXAM and FINAL COMPREHENSIVE EXAMINATION.

1-12 LESSON #1

Review Chapter 1 with emphasis on Sets 1.3 and 1.4
Pay special attention to interval notation and absolute value
Complete Chapter 1 Review Ditto

1-14 LESSON #2

Lecture: Set 2.1 Review of Exponents
Practice Examples: (Put them in your Notebook) Do 1,3,5,7, and alternate odds (13-89)
and complete Lecture **Ditto Set 2.1 Exponents**
Preview Sets 2.3, 2.4 and 2.5 Polynomials

1-19 LESSON #3

Ask any questions you have on the above assigned work--Don't be bashful!!!
Have papers ready for inspection (completeness, etc.)
You may be called on to present your solution to any of these problems
Lecture and Discussion: Sets 2.3, 2.4, 2.5 Polynomials
Practice Examples: Set 2.3 11, 25, 27, 29, 31, 32, 33, 37, 79, 107
Set 2.4 11, 27, 59, 61, 113, 115 and note pp. 78-80
Set 2.5 3, 13, 27, 29, 31 and note page 89
and complete **Lecture Ditto Handout**

1-21 LESSON #4

Questions answered, homework check and presentation of solutions
Lecture and Discussion for Set 2.6 with emphasis on Synthetic Division
Practice Examples: SET 2.6 DO 11, 13, and alternate odds of (21--47)
SET 2.2 DO 9, 11, 25, 27
Complete **Lecture Ditto Handout**
Also do **handout "Review for Chapters 1 and 2"**

1-26 LESSON #5

Lecture & Discussion: Sets 3.1 Linear Equations and 3.5 Absolute Value Equations
Practice Examples: Set 3.1 37, 41, 43, 45, 49, 51, 55
Set 3.5 Do odds of (35--51)
Finish Lecture Ditto

1-28 LESSON #6

Lecture: Set 3.6 Linear Inequalities
LEARN Table on page 151
Practice Examples: 1, 3, 5, 7, 11, 13, 21, 23, 25, 29
and **finish class ditto**

Lecture introducing SET 4.1 Homework to be assigned

2-2 **Hand in your Notebook for Chapters 1,2,and3 TEST on this work**
Remember, 20% penalty if late!! Please staple papers in order assigned
LESSON #7 TO BE ASSIGNED