MA 103 College Algebra

Thomas Spring, SM
Chaminade University
Honolulu, Hawaii

Spring 1999, Day Session

e-mail: tspring@chaminade.edu Office: HH 22 Telephone 808/735-4895

Course Expectations

Bring the textbook to class: Algebra for College Students
BY: Gustafson and Frisk
Brooks/Cole 1995, 4th Edition

Attendance: Most of the learning in this course will be done in small groups. A daily grade is given for your participation in your group and that grade will be directly affected by your attendance. Be on time every class day.

Assignments: Assignments are given out the first day of each school week and are due the last day of each school week.

Tests: Three tests will be given during the semester. Their dates are given on the Course Calendar. They will be a small group effort.

Mathematical Conversations: Each of you will meet with me five times during the semester for fifteen minutes for a mathematical conversation. We will talk about what we have covered in class since the last conversation. Your grade for this conversation will depend on how well you can participate in the conversation.

Service Learning Option: You have the option of writing five papers on mathematical topics or tutoring mathematics in local elementary schools. See the pages in this syllabus that deal with the Service Learning Option.

Tardy Assignments, Tests, Etc.: Any of the above assignments or other activities that are late are subject to a ten percent penalty for each calendar day they are late.

Calculators: You may use a calculator at any time unless I specify otherwise. You will need a scientific calculator by 29 March. It need not be a graphing calculator.

Grade: Your grade is computed by weighing equally your averages in your Participation, the Assignments, the Tests, the Mathematical Conversations, the Service Learning Option and the Final Exam.

Assistance: I am eager to be of assistance to you outside of class. This heading on this sheet tells you where and how to find me.

The Learning Center on lower floor of Eiben Hall will provide you with a tutor free of charge. You must ask and you must keep their appointments.

The Math Lab offers tutoring on a drop in basis. It is located next to my office on the bottom floor of Henry Hall. It is generally open from 9:00 a.m. to 3:00 p.m.

Walter Paddington: His mission in life is to witness to such attitudes as: there is more to life than mathematics, success is more than high grades, each of us is unconditionally loved, each of us is a wonderful mystery. Walter is available for consultation at any time. Consultation generally takes the form of hugging and holding.

MA 103 College Algebra

Thomas Spring, SM
Chaminade University
Honolulu, Hawaii

Fall 1998, Day Session

e-mail: tspring@chaminade.edu Office: HH 22 Telephone
808/735-4895

The Service Learning Option

There is more than one way to learn math. You can do lots of problems and that is good. You can write about mathematical topics and that is good, too. A third way to learn math is to teach it to others. That is what this Service Learning Option is all about.

In this College Algebra course, you will have the option of writing five papers on mathematical topics (see the part of this syllabus that deals with the Writing Assignments) or doing service in the community. The service that is available for those who choose it consists in tutoring elementary school students in mathematics.

The service can be done at Aliiolani School at Seventh and Waialae or at Kuhio School at Old Waialae and King. At Aliiolani, tutoring is done during the school day. At Kuhio tutoring is done after school from 2:15 to 3:15.

The requirements:

1. You must tutor for one hour a week for ten weeks.

2. Each week, you will complete a one page journal that I will provide.

3. At the end of the semester, you will write a two page reflection paper on the experience of tutoring using these questions:

    a. How did this tutoring affect your study and doing of mathematics?

    b. What did you learn about yourself?

    c. What did you learn about the world "out there"?

    d. How do you feel about the entire experience?

MA 103 College Algebra

Thomas Spring, SM
Chaminade University
Honolulu, Hawaii

Spring 1999, Day Session

E-mail: tspring@chaminade.edu Office: HH 22 Telephone 808/735-4895

Syllabus

Real numbers, their properties and the four operations performed on them.

Order of operations; absolute value; integral exponents.

Polynomials and the four operations performed on them.
Synthetic division. The Remainder Theorem. The Factor Theorem.

Factoring polynomials. The Zero Factor Theorem and solving quadratic equations.

The four operations on rational expressions.

Equations: linear, quadratic, with rational expressions. Linear inequalities.

Systems of equations.

Radicals, their properties and the four operations performed on them.

Radical equations.

Rational exponents.

Functions: linear, quadratic; graphs; function concept; domain; range. Circles.

Exponential function: properties, graph, applications.

Logarithmic function: properties, graph, applications; properties of logarithms.

Binomial theorem.

Sequences, series. Sigma notation.

MA 103 College Algebra

Thomas Spring, SM
Chaminade University
Honolulu, Hawaii

Fall 1998, Day Session

e-mail: tspring@chaminade.edu Office: HH 22 Telephone 808/735-4895

Writing Assignments

These assignments are the other alternative in the Service Learning Option.

Formatting:

These assignments must

- be typed or word processed;
- use double spacing;
- be long enough to cover the topic;
- have mathematical expressions and equations written by hand unless you have access to an equation editor.

Original Examples: When I ask for *original* examples, I mean **original**. Make up your own. If I have seen your examples elsewhere, I will return the paper to you for original examples. Your paper will be penalized as late.

Grading Criteria:

- **Neatness**: the paper must have a professional appearance, easy to read. See the ***Formatting*** requirements above.
- **Completeness**: cover all pertinent aspects of the topic. I admit this is hard. But, note my suggestion below.
- **Clarity**: can someone who is as ignorant as you were on 11 January understand your presentation? Is it in **good English**?
- **Originality** of examples (see above)
- **Mathematical maturity of examples.** The greater the number of mathematical concepts that are incorporated into an example, the better! Be able to solve any problem you create.

A suggestion: You are welcome to prepare a rough draft of your paper and give it to me well before the due date. I can make suggestions and return your paper with them.

The Five Topics

1. Make up a test that

- has twenty problems

- covers the application of the four operations
  - addition
  - subtraction
  - multiplication
  - division
- to the following types of mathematical expressions alone or in combination:
  - integers
  - fractions
  - absolute values
  - natural number exponential expressions
- you provide the key for, showing complete solutions.

2. Give a definition of a linear equation in one variable.
Not all linear equations look so simple as your definition probably does. Create original examples of more complicated equations, that have

- parentheses
- fractions
- the variable on both sides of the equals sign
- combinations of the preceding three situations.

Show how to solve each of your examples.

3. There are at least five methods of factoring polynomials depending on the kind of polynomial you are trying to factor. Create original examples of each kind of polynomial that we covered in Chapter Four and show how to factor them. Some polynomials can be factored in more than one way; create examples of such polynomials and show how to factor them. Use complete sentences to describe how you know which method of factoring is appropriate for factoring each polynomial.

4. Give a definition of a quadratic equation.
There are at least three methods of solving quadratic equations. Create three original examples of quadratic equations. Solve each equation by one of the three methods. Be sure to use each method once in your paper. Use complete sentences in describing how you do each method.

5. This course covers solving various kinds of equations. In earlier papers, you have dealt with solving linear and quadratic equations. The other kinds of equations we covered are those with rational expressions, those with radicals, logarithmic equations, exponential equations and systems of linear equations.
Give a definition of each of these last five kinds of equations.
Create original examples of any three of these last five kinds of equations. Be sure to identify which kind of equation each of your three examples is. Solve each of your three examples.

MA 103 Calendar Spring Semester 1999 - Day Session

Date	Writing	HW's	Jounral	Tests	Final Exam
11J					
13J					
15J		#1			
20J					
22J		#2			
25J	#1				
27J					
29J		#3			
1F					
3F					
5F		#4			
8F	#2				
10F				#1	
12F		#5			
17F					
19F		#6			
22F					
24F					
26F		#7			
1M					
3M					
5M		#8			
8M	#3				
10M				#2	
12M		#9			
15M					
17M					
19M		#10			
29M					
31M		#11			
5A					
7A					
9A		#12			
12A					
14A					
16A		#13			
19A	#4				
21A				#3	
23A		#14			
26A					
28A					
30A		#15			
3 May	#5				10:30