Math 112, Spring 2012 **Office Hours**: 2:00-3:00 Mon & Wed
Mrs. Karen Spike 11:00-noon Tues, Th (other times by appointment)
Office: Bear Hall, room 121 **Phone: 962-3823** **uncw email: spikek**
I teach MAT 112 at 9:00, 10:00 and 1:00 MWF.
(I also teach MAT 141 at 9:30- 10:45 on TR)

TEXT: Algebra & Trigonometry: Enhanced with Graphing Utilities, 5th edition by Sullivan and Sullivan, Prentice Hall Publishing Company.

Additional Resources:

1. MyMathLab computer software with PORTAL ACCESS CODE.
The Course Compass ID is different for each section and will be given to you in class and by email.

2. Class website: http://people.uncw.edu/spikek/mat112.htm

3. The Student Solutions Manual for the text is very helpful. It is available in printed form or online (free when purchased with MyMathLab).

4. REQUIRED CALCULATOR: A graphing calculator is required, as a learning tool and for reinforcing concepts, not as a replacement for your work**.** Instructor use of the TI-84 calculator will be integrated into the teaching of the course. Thus the TI-83 or TI-84 is highly recommended as the one for students to purchase. But if you own and know how to use another similar type of graphing calculator you may use it. However, work must be shown on tests and quizzes. Please bring your calculator to class every day.

COURSE OUTLINE:

MAT 112. Trigonometry (3) Prerequisite: MAT 111 or equivalent or satisfactory performance on the UNCW mathematics placement test. Topics from trigonometry and algebra include trigonometric functions, identities and equations; zeros of polynomials, sequences. (No credit granted after the completion, with a grade of "C-" or better, of MAT 115 or a mathematics course numbered 152 or higher.)
The sections listed below will be covered:

Chapter	Topic/Title	Sections
5	The zeros of Polynomial Functions	5.5 & 5.6
7	Trigonometric Functions	7.1 – 7.8
8	Analytic Trigonometry	8.1 – 8.5, 8.7, 8.8
9	Applications of Trigonometric Functions	9.1 – 9.5 (9.5 is optional)
10	The Complex Plane; De Moivre's Theorem	10.3
13	Sequences and the Binomial Theorem	13.1-13.5

GRADING:

It is your responsibility to read the text, review lecture notes, utilize features available on **Course Compass**, and do the **online homework problems**. I will give frequent **quizzes** to evaluate how well you understand the concepts covered. There will be **no makeup quizzes!** Each quiz missed is a zero, but this will not affect your grade until you miss more than two quizzes since I will drop your two lowest quiz scores. You will also have **3 tests** during the semester, and a **cumulative final exam**. There are **no makeup tests without prior permission. At anytime during the semester, to calculate your grade you just divide your total points by the number of points possible, convert this to a percent and use the following scale:**

93-100% **A,** 90-92% **A-**
87-89% **B+,** 83-86% **B**, 80-82% **B-**
77-79% **C+,** 73-76% **C**, 70-72% **C-**
67-69% **D+,** 63-66% **D**, 60-62% **D-**
below 60% **F**

Quizzes (in class) = 100 points
Homework = 100 points
3 tests at 100 points each = 300 points
cumulative final exam = 150 points
total points for the semester = 650 points

(If your semester % is on the border between grades, I consider such factors as attendance and improvement during the semester.)

MATH LAB (Learning Center):

The University Learning Center (Math Lab), located in DePaolo Hall, is available for students to receive free tutoring for this course. Information (location, hours of operation, etc.) can be found at the following link: http://www.uncw.edu/ulc/math/index.html . Math tutors help students make the transition to college mathematics as well as supporting students in math and statistics courses. Math Services is now offering one-on-one appointments for **MAT 112**, MAT 115, MAT 141-142, MAT 161-2, and STT 215. Students can set their own appointments through the website: http://www.uncw.edu/stuaff/uls/onlineappointment.html.

ATTENDANCE:

It is important that you attend class regularly! If you must miss class, please use the course website and Course Compass to keep up with your assignments. Feel free to talk with me if you have an attendance problem. **If you are absent 3 or fewer classes your lowest test score will be replaced with your percentage from your final exam.**

STUDENT DISABILITIES:

UNCW Disability Services supplies information about disability law, documentation procedures and accommodations that can be found at **http://www.uncw.edu/stuaff/disability/** . To obtain accommodations the student should first contact Disability Services and present their documentation to the coordinator for review and verification. (If you feel that you should qualify for disability testing or accommodations during this course, contact the Office of Disability Services in DePaolo Hall, first floor, or call 910-962-7555.

HONOR CODE:

"All students enrolled at UNCW are subject to the UNCW Student Academic Honor Code, which is intended to help every member of the UNCW community appreciate the high value placed on academic integrity and the means that will be employed to ensure its preservation**."** For the honor code please see this website http://www.uncw.edu/stuaff/odos/honorcode/

Religious Observance Policy:

In accordance with NC SL 2010-211, you are entitled to two excused absences for religious observances **per academic year**. You must inform me in writing the first week of class if you will be missing any classes due to a religious observance. In addition, you must inform the Registrar the first week of class who will then confirm your intentions to miss class with the impacted course instructors. Otherwise, any absence for religious purposes will be considered unexcused.

EMERGENCY HOTLINE:

If the university is officially closed, the hours of closing will be announced on the emergency hotline (910-962-3991 or toll-free 888-657-5751) and published on @UNCW.

"UNCW practices a zero-tolerance policy for violence and harassment of any kind. For emergencies contact UNCW CARE at 962-2273, Campus Police at 962-2222, or Wilmington Police at 911. For University or community resources visit ***http://www.uncw.edu/wsrc/crisis.html*** ***or*** ***http://www.uncw.edu/stuaff/care/***

IMPORTANT DATES: **http://www.uncw.edu/reg/calendars.htm**

Wednesday, January 18th – Last day to add a class, or drop without a grade

Tuesday, February 28th – Last day to withdraw with a **W**

Please bring your graphing calculator to class every day. The following syllabus is a schedule for the first part of the semester. Changes and additions will be discussed in class and posted on Course Compass.

Wed Jan 11	Discuss syllabus, Course Compass Info, Preview of Course
Fri Jan 13	5.5 The Real Zeros of a Polynomial; online homework due Thursday, Jan 19th
Mon Jan 16	*Martin Luther King, Jr. Holiday -- **no classes***
Wed Jan 18	5.6 Complex Zeros; the Fundamental Theorem of Algebra; HW due Th Jan 19
Fri Jan 20	Quiz on sections 5.5-5.6 & Discussion of section 7.1 Angles and Their Measure
Mon Jan 23	7.2 Right Triangle Trigonometry [Online HW for 7.1-7.2 due Thurs. Jan 26th.] A continuation of this syllabus will be posted on my website http://people.uncw.edu/spikek/mat112.htm and on the online homework website.

Second part of the syllabus for MAT 112 Spring 2012:
This schedule is subject to change but is my best estimate of when each section should be done.
You should read the section in the text and do the Course Compass Homework. To practice problems for a quiz, do odd numbered problems in the textbook. All the odd numbered problems are worked out completely in the Student Solutions Manual that is available in Course Compass. [Click on **Chapter Contents** in the menu on the left side of the screen. Then click on **Tools for Success** and the link for the **Student Solutions Manual**. Choose the chapter you want and scroll down to the problem for which you want to see the solution.] **Quizzes will usually be on Fridays.**

DATE	Section Discussed on this Date
Mon Jan 23	7.2 Right Triangle Trigonometry [Online HW for 7.1-7.2 due Thurs. Jan 26th.]
Wed Jan 25	7.3 Computing the Values of Trig Functions of Acute Angles
Fri Jan 27	In-class **Quiz** on sections 7.1-7.2. Discussion of sections 7.3 - 7.4.
Mon Jan 30	7.4 Trig Functions of General Angles (See online homework for dates due)
Wed Feb 1	7.5 Unit Circle Approach; Properties of Trig Functions
Fri Feb 3	**Quiz** on 7.3 - 7.5. Use worksheet for 7.6 Graphs of the Sine and Cosine
Mon Feb 6	Review 3.5, p. 262 Graphing with transformations; use for sine & cosine functions. **Quiz** on basic trig graphs. **Review for test 1**
Wed Feb 8	7.7 Graphs of the Tangent, Cotangent, Cosecant, and Secant Functions
Fri Feb 10	**Test 1 (on sections 5.5-5.6 and 7.1-7.5)**
Mon Feb 13	7.8 Phase Shift; Sinusoidal Curve Fitting with & without graphing calc. Review of transformations while graphing trig functions.
Wed Feb 15	section 6.2, One-to-one functions and Inverse Functions; begin 8.1
Fri Feb 17	**Quiz** on 7.6-7.8. Then sec 8.1 on Inverse of Sine, Cos & Tan functions
Mon Feb 20	8.2 Inverse Trig Functions continued. Finish worksheet on 8.1-8.2.
Wed Feb 22	8.3 Trig Identities; use of the fundamental identities.
Fri Feb 24	**Quiz** on 8.1-8.2. Continued discussion of 8.3, use of trig identities.
Mon Feb 27	Discussion of section 8.4 Sum and Difference Formulas *(Tuesday Feb 28th is the Last Day to Withdraw from a class with a W.)*
Wed Feb 29	8.3 & 8.4 Continued practice with trig identities – group work.
Fri March 2	**Quiz** on 8.3-8.4. Then section 8.5 Double-Angle and Half-Angle Formulas
Mon Mar 5	Continue 8.5 with more examples
Wed Mar 7	Review for test 2 & discuss section 8.7 Trig Equations, part I
Fri March 9	**Test 2 (on sections 7.6-7.8 and 8.1-8.5)**
March 12-16	***Spring Break**, No classes Monday thru Friday, March 12-16th.*
Mon Mar 19	8.8 Trig Equations, part II
Wed Mar 21	8.8 Trig Equations, part II (continued)
Fri Mar 23	**Quiz** on 8.7 & 8.8. Also 9.1 Applications Involving Right Triangles
Mon Mar 26	Read 9.2 Law of Sines and do homework.
Wed Mar 28	Finish 9.2 doing the SSA ambiguous case for Law of Sines
Fri Mar 30	**Quiz** on 9.1 - 9.2. Then discuss section 9.3 Law of Cosines
Mon April 2	9.4 Area of a Triangle; also finish section 9.3
Wed April 4	**Quiz** on 9.2 – 9.4. Discuss 9.5 Simple Harmonic Motion
Fri April 6	***NO classes**, state holiday (Good Friday)*
Mon April 9	Discuss section 13.1 on Sequences
Wed April 11	Finish section 13.1 & discuss section 13.2 Arithmetic Sequences
Fri April 13	**Quiz** on 13.1 - 13.2; then discuss 13.3 Geometric Sequences & Geometric Series

Mon April 16	Finish discussion of section 13.3
Wed April 18	Review for test 3 and discuss section 13.5 Binomial Theorem
Fri April 20	**Test 3 (on sections 8.7- 8.8, 9.1-9.5 and 13.1-13.3)**
Mon April 23	Finish section 13.5 The Binomial Theorem
Wed April 25	Discuss sections 10.1 & 10.2 Polar Equations and Graphs
Fri April 27	Quiz on 13.5 & 10.1& 10.2. Discuss section 10.3 The Complex Plane, De Moivre's Theorem
Mon April 30	Last Day of Classes, Review
Tues May 1	*"Reading Day" – preparation for final exams*
Fri May 4th	**9:00 class, section 001 -- Final Exam at 8:00 - 11:00 am**
Mon May 7	**10:00 class, section 002 -- Final Exam at 8:00 - 11:00 am**
Mon May 7	**1:00 class, section 003 – Final Exam at 11:30 - 2:30 pm**

Goal of the Course: MAT 112 is the university semester study of trigonometry that is prerequisite to an initial study of standard calculus. Its principal goal is to extend a student's knowledge of trigonometry from the minimum required for admission to a knowledge that is necessary for success in standard university calculus. Students in this course will develop the mathematical skills found in the core topics of trigonometric functions and their inverses. Students will investigate some of the wider applications of these skills in the natural and social sciences and communicate results using correct mathematical syntax.

Course Student Learning Objectives: Upon completing MAT 112, students should be able to:

- Find and use graphical, numerical, analytical and verbal representations of trigonometric functions and their inverses.
- Understand the meaning and use of trigonometric functions, verify trigonometric identities and solve trigonometric equations.
- Understand mathematical induction in the context of the binomial theorem and sequences.
- Understand the Fundamental Theorem of Algebra and analyze polynomials to find real and complex zeros.
- Use correct mathematical syntax to explain solutions in both written and graphic forms.
- Model a variety of applications using the concepts of trigonometry.
- Use technology to help solve problems, interpret results, and verify and communicate conclusions.
- Determine the reasonableness of solutions, including sign, size, relative accuracy, and units of measurement.

THE UNIVERSITY LEARNING CENTER DePaolo Hall, first floor, office #1056, 910.962.7857 http://www.uncw.edu/ulc/

The University Learning Center's (ULC) mission is to help students become successful, independent learners. Tutoring at the ULC is NOT remediation: the ULC offers a different type of learning opportunity for those students who want to increase the quality of their education. ULC services are free to all UNCW students and include the following: Learning Services, the Math Lab, Study Skills, Supplemental Instruction, and the Writing Center.

The Math Lab
http://www.uncw.edu/ulc/math/index.html
The Math Lab supports students by providing tutoring for all Math and Statistics courses (such as MAT 151 & STT 215), as well as any course with a math or statistics component. In addition, students who visit the Math Lab can get help with math study skills and math anxiety. Math tutors help students make the transition to college mathematics as well as supporting students in upper division math and statistics courses. Math Services is now offering one-on-one appointments for MAT 112, MAT 115, MAT 141-142, MAT 161-2, and STT 215. Students can set their own appointments through our website:
http://www.uncw.edu/ulc/appointmentinstructions.html

The Math Lab's hours are shorter at the beginning of the semester, during exams, and during the summer, but typically the lab is open:

Sunday	2pm – 9pm
Monday – Thursday	9am – 9pm
Friday	9am – 2pm