Math 112, Summer 2012   **Office Hours**: 9:00 - 10:00 Mon thru Fri
Mrs. Karen Spike   (other times by appointment)
Office: Bear Hall, room 121   **Phone: 962-3823**   **uncw email: spikek**
MAT 112-001 meets 10:15 - 11:55 MTWRF.

TEXT: <u>Algebra & Trigonometry: Enhanced with Graphing Utilities</u>, 5th edition by Sullivan and
Sullivan, Prentice Hall Publishing Company.
Additional Resources:
> **1.** MyMathLab computer software with PORTAL ACCESS CODE.
>   The Course Compass ID for this class is: spike35647.
> **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.
> **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-** | **Quizzes (in class) = 100 points** |
> | 87-89% **B+,** 83-86% **B**, 80-82% **B-** | **Homework = 100 points** |
> | 77-79% **C+,** 73-76% **C**, 70-72% **C-** | **3 tests at 100 points each = 300 points** |
> | 67-69% **D+,** 63-66% **D**, 60-62% **D-** | **cumulative final exam = 150 points** |
> | below 60% **F** | **total points for the semester = 650 points** |
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> (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 2 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**
Tuesday, May 22nd – Last day to add a class, or drop without a grade
Thursday, June 7th – Last day to withdraw with a **W**
Tuesday, June 19th – Final exam, 11:00-2:00 pm

Please bring your graphing calculator to class every day. The following syllabus is a schedule for the semester. Changes and additions will be discussed in class and posted on Course Compass and http://people.uncw.edu/spikek/mat112.htm .

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.]

DATE	Section Discussed on this Date
Th May 17	Discuss syllabus and Course Compass Information; Discuss section 5.5, Real Zeros of a Polynomial; begin online homework today; due by Sunday, May 20th Also section 5.6 Complex Zeros of polynomials; begin HW today, due May 20th
Fri May 18	Finish 5.5-5.6. Discussion of sections 7.1 Angles & 7.2 Right Triangle Trigonometry. Begin online HW today, due by Monday May 21st.
Mon May 21	**Quiz** on sections 5.5-5.6. 7.3-7.4 Computing the Values of Trig Functions of Acute and General Angles. Begin HW for 7.3 & 7.4 today, due by Tuesday May 22nd.
Tues May 22	**Quiz** on sections 7.1-7.2. Do 7.5 Unit Circle Approach; Properties of Trig Functions. Online HW due tonight for section 7.5.
Wed May 23	**Quiz** on 7.3 - 7.5. **Review for test 1** Review Section 3.5, p. 262 Graphing with transformations for polynomial functions. Do worksheet for 7.6 Graphs of the Sine and Cosine. Begin HW, due Th, May 24th.
Th May 24	Section 7.7 Graphs of the Tangent, Cotangent, Cosecant, and Secant Functions. **Test 1 (on sections 5.5-5.6 and 7.1-7.5)**
Fri May 25	**Quiz** on basic trig graphs. Begin HW 7.8, due by Monday May 28th. Section 7.8 Phase Shift; Sinusoidal Curve Fitting with & without graphing calc.
Mon May 28	*Memorial Day Holiday -- **no classes***
Tues May 29	**Quiz** on 7.6-7.8. Review one-to-one functions & inverse functions, Section 6.2; discuss sections 8.1-8.2. Do worksheet on 8.1-8.2, inverse of Sine, Cos & Tan functions in groups today. HW for 8.1 & 8.2 due tonight.
Wed May 30	Finish 8.2 Inverse Trig Functions. **Quiz** on 8.1-8.2. Discuss section 8.3 Trig Identities; use of the fundamental identities. HW due tonight.
Th May 31	Discussion of section 8.4 Sum and Difference Formulas. Practice with trig identities – group work.
Fri June 1	Discuss section 8.5 Double-Angle and Half-Angle Formulas. HW due Sunday night. Review for test 2. **Quiz** on 8.3-8.4.
Mon June 4	Discuss section 8.7 Trig Equations, part I. Begin HW today, due Tuesday night. **Test 2 (on sections 7.6-7.8 and 8.1-8.5)**
Tues June 5	Discuss 8.8 Trig Equations, part II. Practice solving trig equations; group work.
Wed June 6	**Quiz** on 8.7 & 8.8. Do 9.1 Applications Involving Right Triangles & review 7.3. Begin section 9.2 Law of Sines. HW for 9.1(&7.3) due tonight. Begin 9.2 due by Th.
Th June 7	Finish 9.2 Law of Sines & Begin 9.3 Law of Cosines. *(Thursday June 7th is the Last Day to Withdraw from a class with a W.)*
Fri June 8	**Quiz** on 9.1 - 9.2. Finish section 9.3 Law of Cosines & do 9.4 Area of triangles
Mon June 11	**Quiz** on 9.3 – 9.4. Discuss 9.5 Simple Harmonic Motion Discuss section 13.1 & 13.2 on Sequences in general and Arithmetic Sequences.
Tues June 12	Discuss 13.3 Geometric Sequences & Geometric Series
Wed June 13	**Quiz** on 13.1 - 13.2. Review for test 3 and discuss section 13.5 Binomial Theorem
Th June 14	Discuss sections 10.1 & 10.2 Polar Equations and Graphs **Test 3 (on sections 8.7- 8.8, 9.1-9.5 and 13.1-13.3)**
Fri June 15	Finish discussion of sections 10.1 & 10.2 Polar Equations and Graphs Discuss section 10.3 The Complex Plane, De Moivre's Theorem
Mon June 18	**Quiz** on 13.5 & 10.1& 10.2. Finish section 10.3 The Complex Plane, De Moivre's Theorem Last Day of Classes, Review
Tues June 19	**Final Exam at 11:00 - 2:00 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

Summer Session Hours: Monday-Thursday 9:00 a.m. – 4:00 p.m.