Fayetteville State University
College of Arts and Sciences
Department of Mathematics and Computer Science
MATH 131-01 Algebra and Trigonometry
Spring Semester 2012

I. Locator Information.

Instructor: _Dr. Chekad Sarami
Course # and Name: Math 131 Algebra and Trigonometry Office Location: SBE 334
Semester Credit Hours: 3 Office hours: TR:8:30AM-9:30AM &12:15-3:45PM
Day/Time Class Meets: TR 9:30 p.m -10:45 pm Classroom: SBE 116
Total Contact Hours for Class: 42 Office Phone:672-1129
Email address: _csarami@uncfsu.edu

FSU Policy on Electronic Mail: Fayetteville State University provides to each student, free of charge, an electronic mail account (username@uncfsu.edu) that is easily accessible via the Internet. The university has established FSU email as the primary mode of correspondence between university officials and enrolled students. Inquiries and requests from students pertaining to academic records, grades, bills, financial aid, and other matters of a confidential nature must be submitted via FSU email. Inquiries or requests from personal email accounts are not assured a response. The university maintains open-use computer laboratories throughout the campus that can be used to access electronic mail. Rules and regulations governing the use of FSU email may be found at http://www.uncfsu.edu/PDFs/EmailPolicyFinal.pdf

II. Course Description. An in-depth study of the topics covered in Math 129 and Math 130. A graphing calculator is required.

- TI-83, TI-83Plus, or TI-84 Graphing Calculator is required. Students cannot use other graphing calculator models.
- The access code for MyMathLab (MML) is required. *http://www.mymathlab.com*

III. Disabled Student Services. In accordance with Section 504 of the 1973 Rehabilitation Act and the Americans with Disabilities Act (ACA) of 1990, if you have a disability or think you have a disability to please contact the Center for Personal Development in the Spaulding Building, Room 155 (1st Floor); 910-672-1203.

IV. Textbook. Michael Sullivan & Michael Sullivan III, *Algebra and Trigonometry, Enhanced with Graphing Utilities*, 5th Edition, Prentice Hall, NJ 2009

V. Student Learning Outcomes. Upon completion of this course, students will be able to:

- apply the distance formula and midpoint formula
- graph equations by hand by plotting points and using a graphing utility
- locate intercepts from a graph and use a graphing utility to approximate intercepts
- solve linear, quadratic, and rational equations algebraically
- solve quadratic equations in the complex number system, solve problems that can be modeled by linear and quadratic equations
- solve problems involving lines and circles, graph functions and find their intercepts
- interpret the graph of a function, recognize and graph the elementary functions
- solve quadratic and polynomial models graph rational functions
- locate the real zeros of a polynomial function
- determine the inverse function and recognize one-to-one functions
- graph the exponential and logarithmic functions
- solve exponential and logarithmic equations
- solve problems involving compound interest
- graph trigonometric functions
- graph inverse trigonometric functions

- apply trigonometric identities and formulas, such as sum and difference formulas, double-angle and half-angle formulas, and product-to-sum and sum-to product formulas
- solve trigonometric equations
- solve applications involving right angles
- use the law of sines and cosines
- understand the concept of system of polar coordinates
- graph polar equations
- understand the concepts of arithmetic and geometric sequences
- determine the sum of a geometric sequence
- prove mathematical statements using mathematical induction

VI. Course Requirements and Evaluation Criteria. Evaluation in the course shall be by continuous assessment. It includes *homework assignments, quizzes, tests, class attendance and participation, and final examination*. The grading scale for determining the course grade and weights given to various activities are given below.

A	93-100%	
B	83-92%	Homework (MathXL)……...25%
C	73-82%	Tests (3)...……...…….…50%
D	64-72%	Class attendance and participation……..5%
F	63% or less	Final Exam…….....20%

a. ***Homework*: 20 points**. Homework will be assigned only on MathXL after each class period. It is expected that students will complete all assigned problems in a timely manner.

The course ID is

b. ***Tests*. 50 points.** There will be 3 tests. **NO makeup test will be given**. The lowest test score will not be dropped.

c. ***Class attendance and participation*. 5points**. Students are expected to attend all lectures, except in cases of illness and other unforeseen emergencies. Students are only allowed to miss no more than 5 classes for acceptable reasons. Attendance will be taken at the beginning and end of each class.

d. ***Final Exam*. 20 points**. The problems for the final exam will be similar to those discussed in class or assigned for homework. The final examination is comprehensive and covers the entire semesters' work.

Cheating is not tolerated under any circumstances, and any student caught cheating may result in an "F" in the course.

In case FSU must close for an emergency during the semester, instruction will continue using Blackboard.

General Requirements

- Students are expected to *pre-study* each lesson in advance, complete all assignments, and spend adequate time on class work to insure success in the course. **At least two hours of study is expected for each class hour.**
- It is the responsibility of the student to avail himself/herself at all class meetings, and obtain additional help as needed. Consult the University Catalogue on Class Attendance Policy.
- **Students are expected to enter the classroom on time and remain until the class ends. Late arrivals and early departures without appropriate excuses will not be tolerated.**
- Each student is encouraged to participate in class discussion for a clearer understanding and meet with the instructor when additional assistance is needed.
- All class discussions should be done in a soberly, orderly, and respectful manner.

VII. Academic Support Resources.

- Additional information (handouts, syllabus, tests, guidebooks for graphing calculators, and any announcement) will be posted on the *FSU Blackboard*.

- *The University College Learning Center* (Helen T. Chick Building 216C) is available to assist students with mathematics *http://www.uncfsu.edu/learningcenter/*
  The Mathematics Laboratory (located at H.T. Chick 216 C) provides computer-assisted instruction and peer tutoring for students who wish to strengthen their mathematics skills. Please visit http://www.uncfsu.edu/learningcenter/math/ for lab schedules. Information on how to access and use Smarthinking and Criterion can be obtained through University College Learning Center (H. T. Chick 216 C).
- *Smarthinking* is an online tutoring and homework help for core courses in higher education. Smarthinking is free to all FSU students. *http://www.smarthinking.com/*
- *Center for Promoting STEM Education and Research (CPSER) - Lyons Science Annex 329*

VIII. **Tentative Course Outline**

Chapter 1 Equations and Inequalities
1.1 Rectangular Coordinates; Graphing Utilities; Introduction to Graphing Equations
1.2 Solving Equations Using a Graphing Utility; Linear and Rational Equations
1.3 Quadratic Equations
1.4 Complex Numbers; Quadratic Equations in the Complex Number System
1.5 Radical Equations; Equations Quadratic in Form; Absolute Value Equations; Factorable Equations
1.6 Problem Solving: Interest, Mixture, Constant Rate Jobs
1.7 Solving Inequalities

Chapter 2 Graphs
2.1 Symmetry; Graphing Key Equations
2.2 Lines
2.3 Circles

TEST 1

Chapter 3 Functions and Their Graphs
3.1 Functions
3.2 The Graph of a Function
3.3 Properties of Functions
3.4 Library of Functions; Piecewise-defined Functions
3.5 Graphing Techniques: Transformations

Chapter 6 Exponential and Logarithmic Functions
6.1 Composite Functions
6.2 One-to-One Functions; Inverse Functions
6.3 Exponential Functions
6.4 Logarithmic Functions
6.5 Properties of Logarithms
6.6 Logarithmic and Exponential Equations

TEST 2

Chapter 7 Trigonometric Functions
7.1 Angles and Their Measure
7.2 Right Triangle Trigonometry
7.3 Evaluating Trigonometric Functions of Acute Angles
7.4 Evaluating Trigonometric Functions of General Angle

7.5 Unit Circle Approach; Properties of the Trigonometric Functions
7.6 Graphs of the Sine and Cosine Functions
7.7 Graphs of the *Tangent*, *Cotangent*, Cosecant, and Secant Functions

Chapter 8 Analytic Trigonometry
8.1 The Inverse Sine, Cosine, and Tangent Functions
8.3 Trigonometric Identities
8.4 Sum and Difference Formulas
8.5 Double-angle and Half-angle Formulas
8.7 Trigonometric Equations (I)

TEST 3

Chapter 9 Applications of Trigonometric Functions
9.1 Applications Involving Right Triangles
9.2 The Law of Sines
9.3 The Law of Cosines
9.5 Simple Harmonic Motion; Damped Motion; Combining Waves

Chapter 10 Polar Coordinates; Vectors
10.1 Polar Coordinates
10.2 Polar Equations and Graphs
10.3 The Complex Plane; De Moivre's Theorem
10.4 Vectors
10.5 The Dot Product

Chapter 13 Sequences; Induction; the Binomial Theorem*
13.1 Sequences
13.2 Arithmetic Sequences
13.3 Geometric Sequences; Geometric Series
13.4 Mathematical Induction

FINAL EXAM – http://www.uncfsu.edu/registrar/pdf/FinalExamSpring.pdf

IX. Teaching Strategies. The majority of the material of the course will be given in lecture format. Graphing calculators will be used in the class to help students develop a firm grasp of the underlying mathematical concepts. Student discussions and cooperative learning groups will be strongly encouraged.

X. Bibliography.

- M. Sullivan, *College Algebra*, 8th Edition, Prentice Hall, 2007.
- M. L. Lial, J. Hornsby, D. I. Schneider, *College Algebra and Trigonometry*, 4th Edition, Addison-Willey, 2008.

REVISION OF GRADES – STUDENT RESPONSIBILITIES

The following revisions become effective on August 16, 2007.

WN GRADE DISCONTINUED:

- **WN - Withdrawal due to non-attendance - discontinued, effective August 16, 2007.**

  STUDENTS: Do not expect faculty to withdraw you for non-attendance. Drop or withdraw* from classes according to the deadlines published in the catalog. *See warning below about class withdrawals.

NEW TYPE OF GRADE: INTERIM GRADES – (New name for "midterm grade," with additional purposes). Interim grades will be assigned from the first week of the semester until the deadline for class withdrawals. Interim grades are used for informational and warning purposes only; they are not part of your permanent transcript and have no effect on your GPA. Instructors may assign interim grade of F to warn students of poor academic performance or they may assign "X" or "EA" grades. (See below for explanations) After midterm, faculty will assign all students an interim grade of A – F to inform students of their academic status as of midterm.

- **INTERIM GRADE X = NO SHOW – Assigned to students who are on a class roster, but never attend class. For warning purposes only; NOT a final grade.**

  STUDENTS: Check interim grades early in the semester. If you have an X grade, either begin attending the class or withdraw* from it. *See warning below about class withdrawals. If you do not take action in response to an X grade, you will receive a final grade of FN. (See "FN" below)

- **INTERIM GRADE EA = EXCESSIVE ABSENCES - Assigned to students whose class absences exceed 10% of the total contact hours. For warning purposes only, NOT a final grade.**

  STUDENTS: Check your interim grades often. If you have an "EA" grade for a class, you are in jeopardy of failure if you do not take immediate actions. Either resume attending the class or withdraw from it. *See warning below about class withdrawals.

NEW FINAL GRADE:

- **FN = FAILURE DUE TO NON-ATTENDANCE – Assigned to students who are on class roster, but never attend the class. An FN grades is equivalent to an F grade in the calculation of the GPA.**

  STUDENTS: You must attend (or withdraw* from) all the classes for which you are enrolled. *See warning below about class withdrawals.

WARNING ABOUT CLASS WITHDRAWALS:

- **When you withdraw from a class, you are wasting your money and time. You receive no refund for withdrawing from individual classes and you slow your progress toward degree completion.**
- **If you withdraw from or fail more than one-third of your classes, you will no longer be eligible for financial aid.**
- **STRIVE TO EARN CREDIT FOR ALL THE CLASSES IN WHICH YOU ENROLL; WITHDRAW FROM CLASSES ONLY WHEN IT IS ABSOLUTELY NECESSARY!**