

Fayetteville State University
College of Arts and Sciences
Department of Mathematics and Computer Science
MATH 129 Precalculus Mathematics I
SPRING 2012

I. Locator Information:

Instructor:

MATHXL Course ID:

Course # and Name: **MATH 129 Precalculus Mathematics I**

Day and Time Class Meets:

Semester Credit Hours: **3**

Office Location:

Office Hours:

Office Phone:

Email Address:

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

FSU Policy on Electronic Mail: Fayetteville State University provides to each student, free of charge, an electronic mail account (studentid@broncos.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/policy/general/FSUE-mailFINAL.pdf>

II. Course Description: This course is the first of a two-semester sequence that provides a background for students who are preparing to take calculus. Topics include sets, the real number system, exponents, radicals, polynomials, equations, inequalities, functions, relations, graphing, conic sections, rational, exponential and logarithmic functions. A graphing calculator is required. *Prerequisites: High School Algebra I, II, and Plane Geometry or equivalent, and satisfactory profile examination score.*

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, please contact the Center for Personal Development in the Spaulding Building, Room 155 (1st Floor); 910-672-1203.

IV. Textbook:

1. Michael Sullivan & Michael Sullivan, III, *Algebra and Trigonometry Enhanced with Graphing Utilities*, 5th Edition, Prentice Hall, NJ 2009, ISBN 978-0-13-600492-9.
2. *MATHXL* (Student Access Kit), Addison Wesley 2006, ISBN 9780201726114.

V. Student Learning Outcomes:

Upon completion of this course, students will be able to:

- Use the properties of real numbers and complex numbers, and basic rules of algebra.
- Solve equations and inequalities encountered in elementary calculus.
- Find the equations and plot the graphs of lines and circles.
- Understand the basic concepts and properties of functions and their graphs.
- Understand and apply the properties of polynomial functions and rational functions.
- Understand and apply the properties of exponential functions and logarithmic functions.
- Graph polynomial, rational, exponential, and logarithmic functions by hand and with calculator.
- Use linear, quadratic, and exponential functions to model and solve applied problems.
- Demonstrate the ability to use graphing calculators and mathematical software such as MathXL to solve problems.

VI. Course Requirements and Evaluation Criteria:

1. It is the responsibility of the students to avail themselves of all class meetings, tutorial sessions, and individual help from their instructors. Additional tutorial services are provided by Student Services in the Helen T. Chick Building. There are Computer software tutorials available for your use in the Helen T. Chick Building, 2nd Floor.
2. Students are responsible for maintaining a notebook of problems selected by the instructor. Students are encouraged to include as many additional problems as possible.
3. Homework assignments will be assigned on-line via MATHXL, please check the assignments and due dates in your account on MATHXL at <http://www.mathxl.com>.
4. There are four chapter tests. The lowest chapter test grade will be dropped. All tests will be announced well in advance of their administration. A make-up test will be given only if the student has a documented and valid written justification for unavoidable absence from the test. There is no more than one make-up exam for each student during the semester. The final examination is cumulative, i.e., it covers the contents of all chapters.
5. Students are expected to enter the classroom on time and remain until the class ends. Three late arrivals and early departures will constitute an absence from the class. Each student is permitted four (4) hours of absences from the class. An interim grade of "EA," Excessive Absences, will be assigned for students whose class absences exceed 4 hours. See "Class Attendance" of the 2010-2011FSU Catalog for details.
6. Students must refrain from smoking, eating and drinking in the classroom. The rights of others must be respected at all times.
7. Students are encouraged to ask questions of the instructor in class and to respond to those posed by the instructor. They should not discourage others from raising or answering questions. Often, other students have the same questions which they wish to ask, but are hesitant to do so.

8. Students are expected to complete all class assignments and to spend adequate time on their class work to insure that the course outcomes are met. At least two hours of home study is expected for each class hour.
9. Talking in class between students is strictly unacceptable. Discussions should be directed to the instructor.
10. Extra recitation periods and/or computer lab attendance are mandatory for this course for students whose class averages fall below "C". These students must see their instructor to arrange for this help.
11. Dishonesty on graded assignments will not be tolerated! Students must neither give nor receive any assistance on any work to be graded. The University's cheating policy will be applied for any violations. The minimum penalty will be a grade of zero (0) on the assignment.

The grading scale and weights given to various activities for evaluation are given below.

Tests-50%	Homework (Using MATHXL)-25%	Instructor's Option-5%	Final Exam-20%	
A 90-100%	B 80-89%	C 70-79%	D 60-69%	F Below 60%

VII. Academic Support Resources:

1. 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).
2. Access to MATHXL might also be available in other computer labs such as Lyons Science Annex 125. Please check with the corresponding lab staff for more information.
3. Extra help or tutoring (provided by a graduate assistant) might also be available through the Department of Mathematics and Computer Science, please see Mr. Black at SBE 339 (Tel: 910-672-2265) for detailed information.

VIII. Course Outline and Assignment Schedule (SEE ATTACHED SCHEDULE)

*** SUBJECT TO CHANGE FOR THE OPTIMUM BENEFIT OF THE CLASS**

IX. Teaching Strategies:

The majority of the material of the course will be given in lecture format. There will be a comprehensive review after the completion of each chapter. Graphing calculators will be used in the class to help students develop a firm grasp of the underlying mathematical concepts.

X. Bibliography:

1. M. L. Lial, J. Hornsby, & D. I. Schneider, *College Algebra*, Addison Wesley, New York, 2001
2. R. A. Barnett, M. R. Ziegler, & K. E. Byleen, *College Algebra*, McGraw-Hill, Boston, 2001
3. Michael Sullivan, *College Algebra*, Prentice Hall, Upper Saddle River, New Jersey, 2005
4. Mark Dugopolski, *College Algebra*, Addison Wesley, Boston, MA, 2007
5. J. E. Kaufman, *Precalculus*, PWS Publishing Company, Boston, 1995

EX Grade **

An Extension Grade may be assigned in lieu of a final grade of D or F for undergraduate students taking any course in which the university provides a structured program of academic support. The Extension Grade may only be used the first time a student takes the course at Fayetteville State University.

The Extension Grade will be designated as "EX D" or as "EX F" and is not calculated into the student's Grade Point Average but will remain on the student's transcript. Any student requesting an Extension Grade must sign an Extension Grade Contract not later than the end of the fifth week of the semester, or not later than the end of the first week of each summer term. The Extension Grade Contract will specify the course and section, the nature and duration of the academic support, and the individual or office that will verify completion of the academic support. An Extension Grade Contract must require at least 10 hours of academic support.

To be eligible for the Extension Grade, a student must complete all requirements for the course and all requirements of academic support services. The instructor will certify completion of the course requirements, and a representative of the appropriate academic support unit will verify completion of academic support requirements. When a student receives an Extension Grade, the student must re-enroll for the course in the next semester that the student matriculates at the university. If the student does not re-enroll in the course, the Extension Grade will revert to the original grade of D or F, and will be calculated into the student's Grade Point Average.

VIII* COURSE OUTLINE:

SECTION TOPIC

- [1.1] Rectangular coordinate; 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 equation in the complex number system
- [1.5] Radical equations; Equations quadratic in form; Absolute value equations; Factorable equations
- [1.7] Solving inequalities
- Test #1, MATHXL homework of Chapter 1 Due**
- [2.1] Intercepts; Symmetry; Graphing key equations
- [2.2] Lines
- [2.3] Circles
- [3.1] Functions
- [3.2] The graph of a function
- [3.3] Properties of functions
- [3.4] Library of functions; Piecewise-defined functions
- Test #2, MATHXL homework of Chapter 2 and Chapter 3 Due**
- [4.1] Linear functions, their properties, and linear models
- [4.2] Building linear models from data

- [4.3] Quadratic functions and their properties
 - [4.4] Building quadratic models from verbal descriptions and from data
 - [4.5] Inequalities involving quadratic functions
 - [5.1] Polynomial functions and models
 - [5.2] Properties of rational functions
 - [5.3] The graph of a rational function
 - [5.4] Polynomial and rational inequalities
 - [5.5] The real zeros of a polynomial function
 - [5.6] Complex zeros; Fundamental theorem of algebra
 - Test #3, MATHXL homework of Chapter 4 and Chapter 5 Due**
 - [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
 - [6.7] Financial models
 - Test #4, MATHXL homework of Chapter 6 Due**
 - [11.1] Conics
 - [11.2] The Parabola
 - [11.3] The Ellipse
 - [11.4] The Hyperbola
 - MATHXL homework of Chapter 11 Due**
 - Final Exam**
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