

# Prairie View A&M University

Spring 2013

**Course Title:** Algebra and Trigonometry

**Course Prefix:** Math

**Course No.:** 1115

**Section No.:** XXX

**CRN:** XXXXX

**Department of Mathematics**

**College of Arts and Science**

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**Office Hours:**

**Virtual Office Hours:**

**Course Location:**

**Class Meeting Days and Times:**

**Catalog** College Algebra and Trigonometry. (5-0)

**Description:** Credit 5 semester hours. A basic course in mathematics for students needing additional Precalculus skills, including algebra and trigonometry. Topics included are linear, quadratic, and higher degree polynomial functions and identities. Combinational formulas, probability, determinants and systems of linear equations, inverse trigonometric functions, and trigonometric equations.

**Prerequisites:** THEA Math 230 and THEA Exwa 301.

**Co-requisites:** NA

**Required Text:** Three items are required: 1. The text –either a paper copy or an electronic version,  
2. ALEKS – an online homework package  
[www.aleks.com](http://www.aleks.com)  
Your Course Code is: YXWEV-EUJHP  
Your Financial Aid Access Code is: E0470-9775D-53E1B-15E  
3. A scientific or graphing calculator.

College Algebra with Trigonometry by R. Barnett, M. Ziegler, and K. Byleen, 9<sup>th</sup> edition, McGrawHill, Higher Education, 2010, ISBN 978-0-07-351950-0  
Calculator

A scientific calculator is required. A graphing calculator is recommended: e.g. TI 83 or TI 84 series. Calculators capable of symbolic manipulation will not be allowed on tests. Examples include, but are not limited to, TI 89, TI 92, and Nspire CAS models and HP 48 models. Neither cell phones nor PDA's can be used as calculators. Calculators may be cleared before tests.

**Recommended Text/Readings:** | NA

**Access to Learning Resources:**

PVAMU Library:

phone: 936 261-1500

web: <http://www.tamu.edu/pvamu/library>

University Bookstore:

phone: 936 261-1990

web: <https://www.bkstr.com/Home/10001-10734-1?demoKey=d>**Course Goals:**

The goals of this course are to enable the student to:

	Goal	Alignment with Core Curriculum
1.	Write definitions, express, recognize and use basic mathematical concepts.	CT and CS
2.	Simplify polynomial, radical, rational, and transcendental algebraic expressions.	EQ
3.	Solve linear, quadratic, rational, radical, absolute, and transcendental equations with one variable.	EQ
4.	Graph polynomial, rational, and transcendental functions.	CT
5.	Give an elementary function evaluation of polynomial, rational, radical, absolute, and transcendental functions. To include finding the domain and range, interval of increase and decrease composition, even, odd or neither, one-to-one, and inverse of functions.	CT and EQ
6.	Use basic graphs of trigonometric functions to graph functions of the form: $y = A \sin(Bx + C)$ , $y = A \cos(Bx + C)$ , $y = \tan(Bx + C)$ , $y = \cot(Bx + C)$ , $y = A \sec Bx$ , and $y = A \csc Bx$ .	CT
7.	Develop and solve logical reasoning abilities via proving trigonometric identities and solving trigonometric equations. Present and deliver evaluated calculations	CT and CS
8.	Solving triangles when given certain parts. Present and deliver example via board work.	CS and EQ
9.	Recognize or classify trigonometric functions as even or odd, or neither; having symmetry relative to a specified point or line, periodic, increasing or decreasing.	CT
10	Evaluate trigonometric expressions of functions for special angles as well as those requiring use of technology or trigonometric tables.	CT and EQ
11	Develop problem-solving skills as it relates to scientific applications.	CT

**Course Outcomes/Objectives**

At the end of this course, the student will:

1. Be able to demonstrate mastery of the course goals listed above.

## Course Requirements and Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

**Examinations** – Three to four multiple choice tests of 50 questions covering course material designed to measure knowledge of presented course material

**Quizzes** —quizzes will be given from time to time to measure knowledge of presented course material announced ahead of time.

**Exercises** –assignments designed to supplement and reinforce course material

**Projects** – web development assignments designed to measure ability to apply presented course material

**Class Participation** – daily attendance and participation in class discussions

### Grading Matrix

Instrument	Unit Value	Total
Homework	MathZone	15%
Quizzes	MathZone	20%
Tests	3-4 Tests and Midterm	40%
Final Examination	Comprehensive	25%
<b>Total:</b>		<b>100%</b>

### Grade Determination:

A = 90 – 100%;

B = 80 – 89%;

C = 70 – 79%;

D = 60 – 69%;

F = 0 – 59%

## Course Procedures

**Submission of Assignments:** Current homework assignments and computer lab projects will be collected. No late homework or project will be accepted

### Study Hints:

1. *Attend class regularly.*
2. *You should read the material from the textbook before coming to class. The accompanying assignment sheet shows the class schedule and the corresponding text material for each class meeting. If you miss a class, you are expected to find out which material was covered and to familiarize yourself with it. Please ask questions if you have any.*
3. *Form study groups with classmates.*
4. *Make use of office hours.*
5. *Make use of the Math Tutorial Lab in WR Banks, Room 303.*
6. *Study regularly instead of cramming for test.*

### Formatting Documents:

Microsoft Word is the standard word processing tool used at PVAMU. If you are using other word processors, be

sure to use the “save as” tool and save the document in either the Microsoft Word, Rich-Text, or plain text format.

### Examination Policy

Examinations should be taken as scheduled. No makeup examinations will be allowed except under documented emergencies (See Student Handbook).

### Professional Organizations and Journals

NA

### References

NA

## Math 1115, Algebra and Trigonometry

Week	Topic	Note
<b>1-2</b>	<b>Chapter 1: Equations and Inequalities</b>  1-1 Linear Equations and Applications 1-2 Linear Inequalities 1-3 Absolute Value 1-4 Complex Numbers 1-5 Quadratic Equations and Applications 1-6 Equations Involving Radicals Student Presentations express and deliver explanation of linear application.	<i>Quiz 1</i> <i>Quiz 2</i>
<b>2-3</b>	<b>Chapter 2: Graphs</b>  2-1 Cartesian Coordinate system 2-2 Distance in the Plane 2-3 Equations of a line 2-4 Linear Equations and Models Cartesian Coordinate systems are evaluated by class in student presentations.	<b>Test 1</b>
<b>4-5</b>	<b>Chapter 3: Functions</b>  3-1 Functions 3-2 Graphing Functions 3-3 Transformations of Functions 3-4 Quadratic Functions 3-5 Combining Functions; Composition 3-6 Inverse Functions Group Student “Function” Projects are presented to class.	<i>Quiz 3</i> <i>Quiz 4</i>

<b>5-6</b>	<b>Chapter 4: Polynomials and Rational Functions</b>  4-1 Polynomial Functions and Models 4-2 Real Zeros and Polynomial Inequalities 4-3 Complex Zeros and Rational Zeros of Polynomials 4-4 Rational Functions and Inequalities Student presentations express and solve inequalities.	<b>Test 2</b>
<b>6-7</b>	<b>Chapter 5: Exponential and Logarithmic Functions</b>  5-1 Exponential Functions 5-2 Exponential Models 5-3 Logarithmic Functions 5-4 Logarithmic Models 5-5 Exponential and Logarithmic Equations Group student “function” projects are revisited and models and presented to class using logarithmic.	
<b>8</b>	<b>Review and Student Presentations</b> <b>(Student will deliver and organize covered models in presentation while interpreting end results.)</b>	<b>Mid-term Exam</b>
<b>9-10</b>	<b>Chapter 6: Trigonometric Functions</b>  6-1 Angles and Their Measure 6-2 Right-Triangle Trigonometry 6-3 Trigonometric Functions: A Unit Circle Approach 6-4 Trigonometric Functions: Properties and Graphs 6-5 More General Trigonometric Functions 6-6 Inverse Trigonometric Functions Student presentations demonstrate trigonometric knowledge.	<i>Quiz 5</i> <i>Quiz 6</i>
<b>11-12</b>	<b>Chapter 7: Trigonometric Identities and Conditional Equations</b>  7-1 Basic Identities and Their Use 7-2 Sum, Difference, and Cofunction Identities 7-3 Double-Angle and Half-Angle Identities 7-4 Product-Sum and Sum-Product Identities 7-5 Trigonometric Equations Student presentations express mathematical identities reviewed in this chapter.	<b>Test 3</b>
<b>13-14</b>	<b>Chapter 8: Additional Topics in Trigonometry</b>	

	8-1 Law of Sines 8-2 Law of Cosines 8-3 Vectors in the Plane 8-4 Polar Coordinates and Graphs 8-5 Complex Numbers and De Moivre's Theorem Students express Trigonometry importance by evaluating graphs and interpreting outcomes.	<i>Quiz 7</i> <b>Test 4</b>
<b>14</b>	<b>Chapter 10: Systems of Equations and Inequalities; Matrices</b> 10-1 Systems of Linear Equations: Graphing and Substitution 10-2 Systems of Linear Equations: Elimination	
<b>15</b>	<b>Review</b> <b>(Student will deliver and organize covered models in presentation while interpreting end results.)</b>	<b>Final Exam</b>

## OPTIONAL CHAPTER:

### Chapter 11: Sequences and Series

- 11-1 Sequences and Series
- 11-2 Mathematical Induction
- 11-3 Arithmetic and Geometric Sequences
- 11-4 Counting Techniques: Multiplication Principle, Permutations, and Combinations
- 11-5 Sample Spaces and Probability
- 11-6 Binomial Formula

This schedule may be updated if necessary as the semester progresses.

## University Rules and Procedures

### Disability statement (See Student Handbook):

Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

### Academic misconduct (See Student Handbook):

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

**Forms of academic dishonesty:**

1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.
2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.
3. Fabrication: use of invented information or falsified research.
4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

**Nonacademic misconduct (See Student Handbook)**

The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

**Sexual misconduct (See Student Handbook):**

Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

**Attendance Policy:**

Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class.

**Student Academic Appeals Process**

Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

## **Technical Considerations for Online and Web-Assist Courses**

**Minimum Hardware and Software Requirements:**

- Pentium with Windows XP or PowerMac with OS 9
- 56K modem or network access
- Internet provider with SLIP or PPP
- 8X or greater CD-ROM
- 64MB RAM
- Hard drive with 40MB available space
- 15" monitor, 800x600, color or 16 bit
- Sound card w/speakers
- Microphone and recording software
- Keyboard & mouse
- Netscape Communicator ver. 4.61 or Microsoft Internet Explorer ver. 5.0 /plug-ins

Participants should have a basic proficiency of the following computer skills:

- Sending and receiving email
- A working knowledge of the Internet
- Proficiency in Microsoft Word
- Proficiency in the Acrobat PDF Reader
- Basic knowledge of Windows or Mac O.S.

**Netiquette (online etiquette):** Students are expected to participate in all discussions and virtual classroom chats when directed to do so. Students are to be respectful and courteous to others in the discussions. Foul or abusive language will not be tolerated. When referring to information from books, websites or articles, please use APA standards to reference sources.

**Technical Support:** Students should call the Prairie View A&M University Helpdesk at 936-261-2525 for technical issues with accessing your online course. The helpdesk is available 24 hours a day/7 days a week. For other technical questions regarding your online course, call the Office of Distance Learning at 936-261-3290 or 936-261-3282

#### **Communication Expectations and Standards:**

All emails or discussion postings will receive a response from the instructor within 48 hours.

You can send email anytime that is convenient to you, but I check my email messages continuously during the day throughout the work-week (Monday through Friday). I will respond to email messages during the work-week by the close of business (5:00 pm) on the day following **my receipt** of them. Emails that I receive on Friday will be responded to by the close of business on the following Monday.

#### **Submission of Assignments:**

Assignments, Papers, Exercises, and Projects will distributed and submitted through your online course. Directions for accessing your online course will be provided. Additional assistance can be obtained from the Office of Distance Learning.

#### **Discussion Requirement:**

Because this is an online course, there will be no required face to face meetings on campus. However, we will participate in conversations about the readings, lectures, materials, and other aspects of the course in a true seminar fashion. We will accomplish this by use of the discussion board.

Students are required to log-on to the course website often to participate in discussion. It is strongly advised that you check the discussion area daily to keep abreast of discussions. When a topic is posted, everyone is required to participate. The exact use of discussion will be determined by the instructor.

**It is strongly suggested** that students type their discussion postings in a word processing application and save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, it should be copied and pasted to the discussion board.

#### **CAS student expectations:**

- You are expected to come to class prepared and on time.
- Higher education is an investment in your future, to that end; you must endeavor to be properly equipped for class. (i.e. School supplies, text, and other supporting materials).
- Resolution of any classroom issues (i.e. Grades, course materials, etc) should begin with the instructor.



- If you must leave early, notify the instructor before the class begins, sit by the door, and exit quietly
- Be considerate of your fellow classmates; please turn off all phones, pagers and other electronic devices.
- Do not talk to other students during lecture. If you have a question or a comment on the subject being discussed, address it to the instructor directly.
- Walk quietly through the hallways, classes in other rooms may still be in session.
- Please refrain from eating, drinking, sleeping in class, using profanity, and engaging in any form of horseplay in the classroom it is disruptive to your fellow classmates.
- Be respectful, civil, polite and considerate when dealing with your professors as well as your fellow classmates.
- Student attire is based on personal preference and taste. The rule of thumb is simple, if it projects a statement which is offensive to others, then maturity should dictate that it is probably not a good idea to wear to class.
- Enthusiasm is infectious, a smile and positive attitude will go far to motivate and charge your professors and fellow classmates