

# Syllabus for Math 2412: Pre-Calculus

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**Text:** Blitzer, R. (2018). Precalculus: 6<sup>th</sup> Ed. Pearson, Hoboken, NJ. ISBN 978013446914

**Technology Requirement:** Students may use a TI-83, TI-84, or Inspire for the course. Much of the course content will be approached through a discovery and explore method using the graphing calculator. These methods of discovery and exploration will lay a foundation for concept development and theory building. Also, these same methods will be utilized in future AP Calculus courses.

**Pre-Requisite:** Successful completion of the Algebra I, Geometry, and Algebra II course sequence.

**Purpose:** The purpose of this course is to acquaint the student with data fields, patterns, theory, and solutions in general to different mathematical phenomena and ensuing problems. The course covers the study of algebra, trigonometry, and analytic geometry. Studying these areas of mathematics will prepare the student for the Calculus curriculum.

## Student Learning Outcomes/Competencies:

1. Trigonometry
  - 1.1. Radians and Degrees
  - 1.2. Unit circle
  - 1.3. Trigonometric functions of any angle
  - 1.4. Graphs of trigonometric functions
  - 1.5. To prove and verify trigonometric identities
  - 1.6. Solve trigonometric identities
  - 1.7. Law of sines and cosines
  
2. Analytical Geometry: Student will learn
  - 2.1. To analyze Parabolas
  - 2.2. To analyze Ellipses
  - 2.3. To analyze Hyperbolas
  - 2.4. Determinants of a square matrix
  - 2.5. Create and solve parametric equations
  - 2.6. Create, Graph, and Solve polar equations

3. Sequences, Induction, and Probability
  - 3.1 Arithmetic and Geometric Sequences
  - 3.2 Counting Principals, Permutations, Combinations
  - 3.3 Probability
  
4. Introduction to Calculus
  - 4.1 Limits and properties of limits
  - 4.2 Limits and Continuity
  - 4.3 Introduction to Derivatives

### Course Outline:

<b>1<sup>st</sup> Six Weeks:</b>	
Weeks 1 & 2	1.1 Radians and Degrees 1.2 Unit circle 1.3 Trigonometric functions of any angle
	Quiz
Weeks 3 & 4	1.4 Graphs of trigonometric functions 1.5 To prove and verify trigonometric identities
	Quiz
Weeks 5 & 6	1.6 Solve trigonometric identities 1.7 Law of sines and cosines
	Six Weeks Exam
<b>2<sup>nd</sup> Six Weeks</b>	
Weeks 1 & 2	2.1 To analyze Parabolas 2.2 To analyze Ellipses
	Quiz
Weeks 3 & 4	2.3 To analyze Hyperbolas 2.4 Determinants of a square matrix
	Quiz
Weeks 5 & 6	2.5 Create and solve parametric equations 2.6 Create, Graph, and Solve polar equations
	Six Weeks Exam
<b>3<sup>rd</sup> Six Weeks</b>	3.1 Arithmetic and Geometric Sequences

Weeks 1 & 2	3.2 Counting Principals, Permutations, Combinations
Quiz	
Weeks 3 & 4	3.3 Probability
Quiz	
Week 5 & 6	3.4 Finding Limits, Continuity, Intro to Derivatives
Six Weeks Exam	
Semester/Final	Exam (Chapters 4 – 11)

**Course Evaluations:** Grading and expectations for attendance will be consistent with the policies set forth in the Ropes ISD Handbook. Students will be expected to attend class, complete homework, and participate in group work. Quizzes and regular exams will be administered throughout the course. The six weeks grade will be a combination of class participation, homework, quizzes, and exams. Semester exams will be administered at the end of the Fall & Spring semesters.

Evaluations (Fall)	Grading Percentages
Homework	20% of the six weeks grade
Quizzes	40% of the six weeks grade
Exams	40% of each 6 weeks grade
Final Exam	25% of the 2 <sup>nd</sup> Semester Grade.

**College Credit:** Students will earn 4 semester hours of College Credit for the course through South Plains College if they register and fulfill entrance requirements for the university. Although the course will start in the Fall, registration will be in the Spring.