

Syllabus for Math 2412: Pre-Calculus

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Text:

Hungerford, T. W., Jovell, I., & Mayberry, B. (2007). *Precalculus: A graphing approach*. Austin: Holt, Rinehart and Winston.

Technology Requirement: Students may use a TI-83, TI-84, or TI-89 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. Algebra: Student will learn
 - 1.1. The Binomial Theorem
 - 1.2. Lines in Planes
 - 1.3. Solving Equations and Inequalities Algebraically and Graphically
 - 1.4. Functions and Combinations of Functions
 - 1.5. Quadratics and Higher Degree Functions
 - 1.6. Real Zeros of Polynomial Functions
 - 1.7. Complex Numbers
 - 1.8. Properties of Logarithms
 - 1.9. Rational Functions
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. Trigonometry: Student will learn

- 3.1. Radians and Degrees
- 3.2. Unit circle
- 3.3. Trigonometric functions of any angle
- 3.4. Graphs of trigonometric functions
- 3.5. To prove and verify trigonometric identities
- 3.6. Solve trigonometric identities
- 3.7. Law of sines and cosines

Course Outline:

1st Six Weeks	
Weeks 1 & 2	Polynomial and Rational Functions
Quiz	#1
Weeks 3 & 4	Exponential and Logarithmic Functions
Quiz	#2
Weeks 5 & 6	Trigonometry
Six Weeks	Exam
2nd Six Weeks	
Weeks 1 & 2	Trigonometric Graphs
Quiz	# 1
Weeks 3 & 4	Solving Trigonometric Equations
Quiz	#2
Week 5 & 6	Trigonometric Identities and Proof
Six Weeks	& Semester Exam
3rd Six Weeks	
Weeks 1 & 2	Trigonometric Applications
Quiz	# 1
Weeks 3 & 4	Analytic Geometry
Quiz	# 2
Weeks 5 & 6	Systems and Matrices
Six Weeks	Exam
Semester/Final	Exam (Chapters 1 – 14)

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 or Spring semesters.

Evaluations (Fall)	Grading Percentages
Classwork	40% of the six weeks grade
Quizzes	40% of the six weeks grade
Six Weeks Exam	20% of each 6 weeks grade
Final Exam	25% of the Final 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.

Course Outline: The Holt text has 14 chapters (see the text for further information and clarification). We will attempt to cover chapters 4 - 12 and have a semester exam that is comprehensive to the materials covered. Students will be allowed to use calculators on all quizzes and exams unless otherwise specified.