Integrated Algebra 2 and Precalculus Study   Tutor Owen Payton

Course Overview

This course provides a comprehensive study of the functions and concepts prerequisite to the study of calculus. We will begin by reinforcing foundational algebra skills before moving into a deep exploration of polynomial, rational, exponential, logarithmic, and trigonometric functions. The course will conclude with advanced topics including analytic geometry, sequences, series, and possibly an introduction to the concept of limits. Our study will be guided by topics from two primary texts.

Required Texts

1. Brown, Richard G., et al. ***Algebra and Trigonometry: Structure and Method, Book 2***. Houghton Mifflin, 2000.

2. Stewart, James, et al. ***Precalculus: Mathematics for Calculus, 7th Edition***. Cengage Learning, 2015.

Schedule of Topics

The following topics will be covered, organized by textbook and chapter.

Topics from *Algebra and Trigonometry: Structure and Method*

- Chapter 1: Basic Concepts of Algebra
- Chapter 2: Inequalities and Proof
- Chapter 3: Linear Equations and Functions
- Chapter 4: Products and Factor of Polynomials
- Chapter 5: Rational Expressions
- Chapter 6: Irrational and Complex Numbers
- Chapter 7: Quadratic Equations and Functions
- Chapter 8: Variation and Polynomial Equations
- Chapter 9: Analytic Geometry
- Chapter 10: Exponential and Logarithmic Functions
- Chapter 11: Sequences and Series
- Chapter 12: Triangle Trigonometry
- Chapter 13: Trigonometric Graphs and Identities

Topics from *Precalculus: Mathematics for Calculus*

- Chapter 1: Fundamentals
- Chapter 2: Functions
- Chapter 3: Polynomial and Rational Functions
- Chapter 4: Exponential and Logarithmic Functions
- Chapter 5: Trigonometric Functions: Unit Circle Approach
- Chapter 6: Trigonometric Functions: Right Triangle Approach
- Chapter 7: Analytic Trigonometry
- Chapter 8: Polar Coordinates
- Chapter 9: Vectors in Two and Three Dimensions
- Chapter 10: Systems of Equations and Inequalities
- Chapter 11: Conic Sections
- Chapter 12: Sequences and Series
- Chapter 13: Limits: A Preview of Calculus* (If time permits)

Grading Policy

Student assessment will be based on tests for each chapter and a final exam for each textbook. Two separate grades will be issued: one for the material from the *Algebra and Trigonometry* textbook and one for the material from the *Precalculus* textbook.

The weighting for each grade is as follows:

- **Chapter Tests:** 75% of the total grade. A test will be administered after the completion of each chapter.
- **Final Exam:** 25% of the total grade. A comprehensive final exam will be given for each book's material.

Grade Calculation Sheet

Algebra and Trigonometry: Structure and Method

Chapter Tests (75% of Grade)

Chapter Test	Score	Total Points
Chapter 1		
Chapter 2		
Chapter 3		
Chapter 4		
Chapter 5		
Chapter 6		
Chapter 7		
Chapter 8		
Chapter 9		
Chapter 10		
Chapter 11		
Chapter 12		
Chapter 13		
Test Average (%)		

Final Exam (25% of Grade)

Final Exam	Score	Total Points
Final Exam Score (%)		

Final Grade Calculation

(Chapter Test Average ‗‗‗‗‗‗‗ × 0.75) + (Final Exam Score ‗‗‗‗‗‗‗ × 0.25) =
Final Grade ‗‗‗‗‗‗‗

Precalculus: Mathematics for Calculus

Chapter Tests (75% of Grade)

Chapter Test	Score	Total Points
Chapter 1		
Chapter 2		
Chapter 3		
Chapter 4		
Chapter 5		
Chapter 6		
Chapter 7		
Chapter 8		
Chapter 9		
Chapter 10		
Chapter 11		
Chapter 12		
Chapter 13		
Test Average (%)		

Final Exam (25% of Grade)

Final Exam	Score	Total Points
Final Exam Score (%)		

Final Grade Calculation

(Chapter Test Average _____ × 0.75) + (Final Exam Score _____ × 0.25) = **Final Grade** _____