

Pre-Calculus

Course Syllabus



Supervising Teacher

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Course Description:

Pre-Calculus **2 semesters** **2 credits** Grades 11-12

Pre-requisite: *C or better in Algebra 2*. This course deals in modern analysis of mathematical systems. It is intended to provide preparation for college courses in analytical geometry, calculus, abstract algebra, and trigonometry. Course content comprises the algebra of real numbers, vectors, complex numbers, and polynomial, exponential and logarithmic functions; trigonometric; fundamental ideas of calculus (limit continuity and derivative). Students taking this course need to have a scientific calculator.

Recommended Textbook Options:

McDougal Littell: Pre Calculus

Required:

MCDUGAL LITTELL Pre-Calculus with Discrete Mathematics and Data Analysis SE 2003 Edition I-DEA TOP PICK
MCDUGAL LITTELL Pre-Calculus with Discrete Mathematics and Data Analysis TE 2003 Edition I-DEA TOP PICK *OR*
MCDUGAL LITTELL Pre-Calculus with Discrete Mathematics and Data Analysis Solutions Manual 2003 Edition I-DEA TOP PICK

Recommended:

Practice workbook (requires TE)
MCDUGAL LITTELL Pre-Calculus with Discrete Mathematics and Data Analysis Student Resource Guide for Study and Review 2003 Edition I-DEA TOP PICK

Glencoe: Advanced Math Concepts – Pre Calculus

Required:

MCGRAW-HILL - GLENCOE Advanced Mathematical Concepts: Pre-Calculus with Applications SE 2006 Edition I-DEA TOP PICK
MCGRAW-HILL - GLENCOE Advanced Mathematical Concepts: Pre-Calculus with Applications TE 2006 Edition I-DEA TOP PICK

Harcourt Holt: Pre Calculus – A Graphical Approach

Required:

HARCOURT - HOLT Pre-Calculus: A Graphing Approach Calculus SE 2006 Edition I-DEA TOP PICK
HARCOURT - HOLT Pre-Calculus: A Graphing Approach Calculus TE 2006 Edition I-DEA TOP PICK *OR*
HARCOURT - HOLT Pre-Calculus: A Graphing Approach to Calculus Solutions Key 2006 Edition I-DEA TOP PICK

Teaching Textbooks – Pre Calculus

Required:

TEACHING TEXTBOOKS Pre-Calculus Complete Set I-DEA TOP PICK
Supplements for Data, Probability and Graphing

Recommended Supplemental Materials or Software:

ALEKS subscription

Supplies or Equipment:

Graphing Calculator

End of Course Assessment Options:

Since this course is required for high school graduation in the state of Idaho, an assessment piece is required. For this course there are two options

Option 1: End of Course Final Exam

A comprehensive semester examination will be given during exam week each semester. Semester examinations will be given by a supervising instructor at a previously agreed upon location, most often a resource center. 70% or better is considered a passing grade.

Option 2: Monthly Anchor Assignment

Monthly Anchor Assignments will be submitted via Moodle, and be graded by the supervising instructor. Information on the Anchor Assignments will be provided at the beginning of the course, along with the rubrics that will be used to evaluate each assignment and the conference. Grades on anchor assignments will be posted in Moodle for the student to gain feedback. Anchor assignments will be due each month as follows:

Semester A:

October	Quadratics, Quadratics, Everywhere!
November	Imaginary Numbers
December	Complex Conjugates
January	Population Curves

Semester B

February	Transformations
March	Trig Ratios
April	Laws of Sine and Cosines
May	Voice Patterns

Course Evaluation:

A. End of course Assessment: 40% of semester grade
See above

B. Home Participation: 60% of grade
Home participation is to be determined by the home teacher. The participation may include, but is not limited to, textbook activities, quizzes, unit tests, projects, oral reports, or research papers. Grades for home participation will be submitted to the contact teacher who will then forward a copy to the supervising instructor for semester grade tabulation.

C. Grading Scale:

90-100%	A
80-89%	B
70-79%	C
60-69%	D
0-59%	F

Standards Based Portfolio

A Portfolio containing graded examples of student work from the selected curriculum will be required as per school policy, and should be shared with the assigned Contact Teacher once per semester.

Pacing Guide

The topics and standards for this course have been divided between the two semesters.

Semester 1(Fall)	Semester 2 (Spring)
Polynomial Functions	Non-linear function graphs
Rational Functions	Transformations of functions
Systems	Trigonometric Ratios
Non-linear functions	Trigonometric Functions
Quadratics	Trigonometric Graphs
Imaginary Numbers	

In order to fulfill this pacing requirement, the recommended texts have been broken down by chapter. Covering the chapters in the order listed will insure that all topics on the final exam will be covered during the appropriate semester.

Note: Chapters marked with an asterisk (*) are likely all review, and should be completed very quickly

McDougal Littell: Pre Calculus

Semester 1(Fall)	Semester 2 (Spring)
Chapter 1	Chapter 6
Chapter 2	Chapter 7
Chapter 3	Chapter 8
Chapter 4	Chapter 9
Chapter 5	Chapter 10
Chapter 12	Chapter 11
Chapter 14	

Data and Probability is integrated into the chapters, and can either be completed within the chapters, or “saved” and done as a custom unit during Semester 2.

Glencoe: Advanced Math Concepts – Pre Calculus

Semester 1(Fall)	Semester 2 (Spring)
Chapter 1	Chapter 5
Chapter 2	Chapter 6
Chapter 3	Chapter 7
Chapter 4	Chapter 8
Chapter 9	Chapter 12
Chapter 10	Chapter 13
Chapter 11	Chapter 14

Harcourt Holt: Pre Calculus – A Graphical Approach

Semester 1(Fall)	Semester 2 (Spring)
Chapter 1	Chapter 6
Chapter 2	Chapter 7
Chapter 3	Chapter 8
Chapter 4	Chapter 9
Chapter 5	Chapter 10
Chapter 12	Chapter 11
Chapter 13	

Data and Probability is integrated into the chapters, and can either be completed within the chapters, or “saved” and done as a custom unit during Semester 2.

Teaching Textbooks – Pre Calculus

Semester 1(Fall)	Semester 2 (Spring)
Lessons 1-36, 64-76	Lessons 37-63, 77-84, 89-95 Graphing Supplement

I-DEA Student Honor Code:

With any form of valid proof of dishonesty with regard to student work or testing, the instructor may elect from a range of actions. Academic dishonesty could lead to a zero grade for the assignment or even failure for the entire course following consultation between the instructor, Secondary Supervisor, and Director.

All students must adhere to the **Honor Code:**

“On my honor, I will maintain the highest possible standards of honesty, integrity and personal responsibility. This means I will not lie, cheat or steal, and as a member of this academic community, I am committed to creating an environment of respect and mutual trust.”

Standards

Standard 1: Concepts and Language of Algebra

Students in Pre-Calculus will master the fundamentals of algebra by solving polynomial, radical, rational, quadratic, cubic equations, including those that have imaginary or complex solutions.

- Goal 1.1: Solve all nature of algebraic equations.
 - 1.1.1 Solve polynomial, radical and rational equations.
 - 1.1.2 Solve absolute value quadratic, and cubic inequalities.
 - 1.1.3 Understand the properties of imaginary numbers, and how use imaginary numbers to solve equations.
 - 1.1.4 Solve systems of equations and inequalities (not necessarily linear).

Standard 2: Concepts of Functions

Students in Pre-Calculus gain understanding of properties of functions and their applications, including logarithmic, exponential and inverse functions. This encompass will include functional transformations, extrema, and end behavior.

- Goal 2.1: Understand functions, how to manipulate them and use them in models.
 - 2.1.1 Identify functions and find inverse functions.
 - 2.1.2 Describe the end behavior of functions, find local extrema.
 - 2.1.3 Graph polynomial, exponential and logarithmic functions and use them in models.
 - 2.1.4 Graph and find equations of non-linear and functions and use them in models.
 - 2.1.5 Describe of transformations functions (translation, dialation, reflection) and it changed the equations for the function.

Standard 3: Fundamentals of Trigonometry

Students in Pre-Calculus learn the basic properties of trigonometry, including trigometric functions and identities and their graphs, inverse trigometric function, and solving trigometric equations.

- Goal 3.1: Understand six tigometric functions and their uses.
 - 3.1.1 Defining and finding the exact values of the six trigonometric functions.
 - 3.1.2 Applying the six trigonometric functions.
 - 3.1.3 Solving trigonometric equations.
 - 3.1.4 Defining, using, and applying inverse trigonometric functions.
 - 3.1.5 Sketch the graphs of basic functions and transformations of them.