

Mathematics

STUDENT PLACEMENT IN MATHEMATIC COURSES IS BASED ON ASSESSMENT DATA AND PREVIOUS PERFORMANCE IN COURSE WORK.

Algebra Concepts I **2 Credits**
Intended for grades 9-10 **2 Semesters**

This course is an individualized, mastery based course. This course addresses the following Math Standard Clusters: Numbers and Operations, Operations and Algebraic Thinking, Measurement and Data, and Geometry.

Algebra Concepts II **2 Credits**
Intended for grades 9-10 **2 Semesters**

This course is an individualized mastery based course. The course will address the following Idaho Core Standards Progressions: Ratio and Proportions, Expressions and Equations, and Number Systems. Students showing mastery in all areas will advance to Algebra I.

Algebra 1 **2 Credits**
For Grades 9-11 **2 Semesters**

Prerequisite: Successful completion of Pre-Algebra.
Materials: Scientific Calculator is required.

The student will examine the complete real number system and its structure through the development of algebraic language and skills. Major skills covered are graphing, writing, and solving linear equations and solving quadratic equations.

In the first semester, students will be able to explore expressions, equations and functions and rational numbers, solve multi-step linear equations, apply proportions and percents, graph relations and functions and analyze / solve linear equations.

In the second semester, students will solve systems of linear equations and inequalities, explore polynomials using the rules of exponents, factor polynomials, explore rational and radical expressions and equations and solve quadratic equations using the quadratic formula, use scientific notation and use the Pythagorean Theorem to find the distance and the midpoint formulas.

Discovery Geometry **2 Credits**
For Grades 10-12 **2 Semesters**

In this course students will cover the topics covered in Geometry. It will be done in a more direct and basic approach. The emphasis will be placed on the Geometry concepts, with the Algebra remaining basic. In this way students that struggled in their Algebra class will still be able to cover/ understand the important Geometry concepts.

Geometry **2 Credits**
For Grades 9-12 **2 Semesters**

Prerequisite: Successful completion of Algebra I.
Materials: Scientific Calculator is required.

Some of the concepts studied in elementary Algebra will be helpful to the student's understanding of Geometry. Geometry is valuable because of its wide variety of applications to other subjects such as astronomy, art and chemistry. Through the use of logic and imagination, the student will examine and apply the postulated structure of Euclidean Geometry.

In Semester 1, students will be discovering points, lines, planes, angles, connecting reasoning and proof, using perpendicular and parallel lines, identifying congruent triangles, investigating special segments and inequalities in triangles and exploring quadrilaterals.

In the second semester, students will be able to connect proportion and similarity, apply right triangles and trigonometry, analyze circles, explore polygons and area, investigate surface area and volume and continue coordinate geometry.

ALP Geometry **2 Credits**
For Grades 9-10 **2 Semesters**

Prerequisite: Successful completion of Algebra I.
Materials: Scientific Calculator is required.

Accelerated Geometry is for the highly motivated student who knows he or she will take Advanced Algebra 2, Advanced Pre-Calculus and AP Calculus. Some of the concepts studied in elementary Algebra will be helpful to the student's understanding of Advanced Geometry.

Geometry is valuable because of its wide variety of applications to other subjects such as astronomy, art and chemistry. Through the use of logic and imagination, the student will examine and apply the postulated structure of Euclidean Geometry.

In Semester 1, students will be discovering points, lines, planes angles, connecting reasoning and proof, using perpendicular and parallel lines, identifying congruent triangles, investigating special segments and inequalities in triangles and exploring quadrilaterals. Students will also learn how to do constructions using a straight edge and compass and geometry software. Proof writing will be emphasized throughout the course.

In the second semester, students will be able to connect proportion and similarity, apply right triangles and trigonometry, apply the Law of Sines, derive formulas, analyze circles, explore polygons and area, investigate surface area and volume and continue coordinate geometry. Students will also explore vector geometry through transformations on the Cartesian plane.



Mathematics

Algebra 2 For Grades 9-12

2 Credits
2 Semesters

Prerequisite: Successful completion of Geometry.
Materials: Scientific Calculator is required.

Major skills covered are a study of higher degree polynomials, logarithms and exponents, conics, and sequences and series. Some concepts presented in Geometry will be most helpful to the student of Algebra 2.

First semester includes these topics: analyze equations and inequalities, graph linear relations and functions, solve systems of linear equations, solve inequalities and quadratic equations, investigate polynomial functions, perform arithmetic operations with complex and irrational numbers, solve radical equations and work with rational exponents.

Second semester, students will solve and graph exponential and logarithmic functions, graph and solve rational functions, analyze the four conic sections, investigate sequences and series and investigate probability.

ALP Algebra 2 For Grades 10-12

2 Credits
2 Semesters

Prerequisite: Successful completion of Geometry
Materials: Scientific Calculator is required

This course is designed for the highly motivated student who is looking to move on to Accelerated Pre-Calculus. Major skills covered are a study of higher degree polynomials, logarithms and exponents, conics, sequences and series, periodic functions, and trigonometry. Some concepts presented in Geometry will be most helpful to the students of Algebra 2.

First semester includes these topics: analyze equations and inequalities, graph linear relations and functions, solve systems of linear equations, solve inequalities and quadratic equations, investigate polynomial functions, perform arithmetic operations with complex and irrational numbers, solve radical equations, work with rational exponents, solve and graph exponential and logarithmic functions.

Second semester, students will graph rational functions, solve rational functions, investigate sequences and series, investigate probability, analyze periodic functions, graph and write equations for trigonometric functions, apply trigonometric laws to real world problems.

Personal Finance For Grade 12

2 Credits
2 Semesters

This course provides an opportunity for students to study and review mathematical ideas and concepts and how they can apply in their personal lives and in their future careers. Students will learn the financial planning process including setting financial goals, credit, investing, retirement, insurance, and creating a personal portfolio.

Introduction to Statistics / Contemporary Mathematics For Grades 11-12

2 Credits
2 Semesters

Prerequisite: Successful completion of Algebra 2

Introduction to Statistics is a semester course designed to introduce the methods used in the field of applied statistics. Emphasis is given to basic concepts and techniques for collecting and analyzing data, drawing conclusions, and making predictions. The major focus of this course is to provide students with experience in using technology to solve problems which can be set up and mathematical models.

Contemporary Mathematics uses mathematics to model and analyze problems from the natural and social sciences. In order to perform effectively as professionals and citizens, students must be able to use data to understand and solve real-life problems. This course will enhance the student's ability to understand and apply the language of mathematics. Topics to be covered include probability; linear and exponential modeling; financial management; discrete models in scheduling, and organization of ordering of tasks. Appropriate use of units and dimensions, estimates, mathematical notation and available technology will be emphasized throughout the course.

You Need to Know...

Students should have a scientific calculator for many of our mathematics courses. If students are unable to acquire one, the math department may be able to provide a loaned calculator. For students in financial need, check with the Counseling Center to use the Viking Vault, a store for the essentials necessary for a quality educational experience at our school.

Mathematics

Pre-Calculus For Grades 10-12

2 Credits
2 Semesters

Prerequisite Successful completion of Algebra 2
Materials: A Scientific Calculator is required.
A Graphing Calculator is recommended.

Sets, functions, complex numbers, graphing, exponential and logarithmic functions, are expanded from Algebra 2. New topics introduced will include trigonometry, analytic geometry, sequence and series. In semester 1, students will perfect their use of linear relations and functions, linear irregularities, graphs of polynomial and rational functions, derivative and critical points of graphs, quadratics and radical equations, remainder and factor theories, graphs of inverses, definition of trig functions, right-triangle trigonometry, and the law of sines and cosines. In semester 2, students will learn how to graph trigonometric functions and their inverses, use trigonometry identities and solve trig equations, graph using polar coordinates and complex numbers, sequences and series, and logarithmic and exponential functions.

ALP Pre-Calculus For Grades 10-12

2 Credits
2 Semesters

Prerequisite Successful completion of Algebra 2
Materials: A Scientific Calculator is required.
A Graphing Calculator is recommended.

Accelerated Pre-Calculus is for the highly motivated student who knows he or she will take AP Calculus. Sets, functions, complex numbers, graphing, exponential and logarithmic functions, are expanded from Algebra 2. New topics introduced will include trigonometry, analytic geometry, mathematical induction, sequence and series. In semester 1, students will perfect their use of linear relations and functions, linear irregularities, graphs of polynomial and rational functions, derivative and critical points of graphs, quadratics and radical equations, remainder and factor theories, graphs of inverses, definition of trig functions, law of sines and cosines, right-triangle trigonometry, and graphs of trigonometry functions and equations for inverses. In semester 2, students will use trigonometry identities and solve trig equations, polar coordinates and complex numbers, conics, sequences series, limits, statistics and data analyses.

AP Calculus For Grades 10-12

2 Credits
2 Semesters

Prerequisite: Successful completion of Pre-Calculus
Materials: A Scientific Calculator is Required.
A Graphing Calculator is Recommended.
AP Calculus AB Examination Required in May.

This course includes a study of functions, limits, differentiation, integration, transcendent functions and applications of each. It is equivalent to the first semester and about half of the second semester of Calculus at the college level. The first semester contains the following core topics: the Cartesian plane and functions, limits and their properties, differentiation, and applications of differentiation. In the 2nd semester, students will practice integration, logarithmic, exponential and other transcendental functions, applications of integration, integration techniques, L'Hopital's Rule and improper integrals. This course may be offered online through the Idaho Digital Learning Academy if unable to be offered on campus. Please note that students will need to purchase their own textbooks and materials for this course.

AP Statistics For Grades 10-12

2 Credits
2 Semesters

Prerequisite: Successful completion of Algebra 2
Materials: Graphing Calculator is required

The purpose of this course is to introduce students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students are exposed to four broad conceptual themes: exploring data, sampling and experimentation, anticipating patterns and statistical inference. This course is equivalent to many introductory college statistics courses. With successful completion of the AP Statistics exam, students may receive college credit and/or advanced placement at the college level. Majors that require an introductory statistics course include business, psychology, sociology, and economics. This course will also help students prepare for the SAT. Approximately 20% of the math portion of the SAT is probability and statistics. Additionally, AP Statistics can be taken simultaneously with another math course such as pre-calculus or AP Calculus.

