

MATHEMATICS

COURSE DESCRIPTIONS

Three and one-half credits of math are required for graduation (Algebra 1, Geometry, Algebra 2, and a math experience their Senior year). Students are encouraged to take as many mathematics courses as their schedule will allow. Use the following legend to understand codes:

TP – teacher permission

PR – pre-requisite required

Year – year course worth one (1.0) credit

Semester - course is worth one-half ($\frac{1}{2}$) credit

F – recommended for Freshmen

SO – recommended for Sophomores

J – recommended for Juniors

Senior – must be a Senior to take the course

NCAA – fulfills NCAA requirements for athletic certification

GR – graduation requirement

411/412 Algebra I (A and B) **Two Semesters, NCAA, GR**

Algebra 1 is a two semester course that will build on the key algebraic topics that have been developed in middle school. This course will emphasize algebraic language, structure, concepts and skills. Major topics include algebraic properties of the real number system, solving equations and inequalities, linear functions and their graphs, linear regression and modeling, systems of linear equations, operations with polynomials, factoring, quadratic functions, and exponential functions. Students will also be exposed to real world applications of these algebraic concepts.

415/416 Geometry (A - B) **PR, Two Semesters, NCAA, GR**

Geometry A and B build on a number of key concepts taught in middle/junior high school and skills taught in Algebra 1 to solve problems. This course offers students the opportunity to develop reasoning skills. Topics covered in geometry include mathematical reasoning, logic and proof, advanced studies of figures and their properties, relationships between figures and transformations in the plane. To enroll in geometry students must have successfully passed Algebra 1. To move from Geometry A to Geometry B, students must successfully pass Geometry A.

421/422 Algebra 2 (A and B) **PR, Two Semesters, NCAA, GR**

Algebra 2 is a two semester course that will build on the concepts taught in Algebra I. This course will also cover operations with polynomials, radical expressions

and equations, polynomial functions, quadratic functions, rational expressions and equations,

exponential and logarithmic relations, and sequences and series. Students will develop an understanding that algebraic thinking is a powerful tool that can be used to model and solve real-world problems. To enroll in this course, students must successfully pass Algebra 1.

432/433 Pre-Calculus (A - B) **PR, Two Semesters, NCAA**

Pre-Calculus is designed to prepare the student for calculus. This course reviews and extends the study of basic and advanced functions and their graphs, trigonometry, sequences and series, and includes an introduction to calculus. New topics such as vectors, polar coordinates, and trigonometric identities are covered as well as mathematical modeling. Students will solve many real-world problems. Using a graphing calculator (TI-83 plus or TI-84 plus) is required. To enroll in this course, students must have achieved a 75% or higher in Algebra 2 and successfully passed Algebra 1, Geometry and Algebra 2.

461 AP Calculus AB (A and B) **PR, Two Semesters, NCAA**

Advanced Placement Calculus AB is designed to develop the students' understanding of calculus, its methods and applications. Topics include functions, graphs and limits, derivatives, and integrals in a single variable. The use of a graphing calculator (TI-83 plus or TI-84 plus is required) is a necessary part of the course. The culmination of the class is the Advanced

Each school year is divided into two semesters. Therefore a two semester course requires a commitment for a full school year.

Placement test. If successfully fulfilled, this test will substitute with full credit required first-year college classes. To enroll in this course, students must have successfully passed Algebra 1, Geometry, Algebra 2, and Pre-Calculus

466 Statistics
SO, JR, S, Semester

This elective course in which students will work with probability, data collection and descriptive statistics. Students will analyze existing data as well as data collected through a survey, observational study or experiment. They will then display the data in different ways, analyze it, and draw non-inferential conclusions based on the results. The main focus of the course will be exploring data, planning a study and producing models using probability theory. The course may lead into making statistical inferences. To enroll in this course, students must have passed Algebra 1.

449/450 Algebra I (A-B)
Two Semesters, GR

Algebra 1 is a two semester course that will build on the key algebraic topics that have been developed in middle school. This course will emphasize algebraic language, structure, concepts and skills. Major topics include algebraic properties of the real number system,

solving equations and inequalities, linear functions and their graphs, linear regression and modeling, systems of linear equations, operations with polynomials, factoring, quadratic functions, and exponential functions. Students will also be exposed to real world applications of these algebraic concepts. This course covers the same content as Algebra I, but at a more basic level with less rigor, and at a slower pace. This course does not meet NCAA requirements.

458/459 Algebra 2 (A-B)
Two Semesters, GR

Algebra 2 is a two semester course that will build on the concepts taught in Algebra I. This course will also cover operations with polynomials, radical expressions and equations, polynomial functions, quadratic functions, rational expressions and equations, and exponential functions. Students will develop an understanding that algebraic thinking is a powerful tool that can be used to model and solve real-world problems. This course covers the same content as Algebra 2 but with less rigor, and at a slower pace. A student must pass Fundamentals of Algebra 2A to move on to Fundamentals of Algebra 2B. To enroll in this course, students must successfully pass Algebra 1. This course does not meet NCAA requirements.