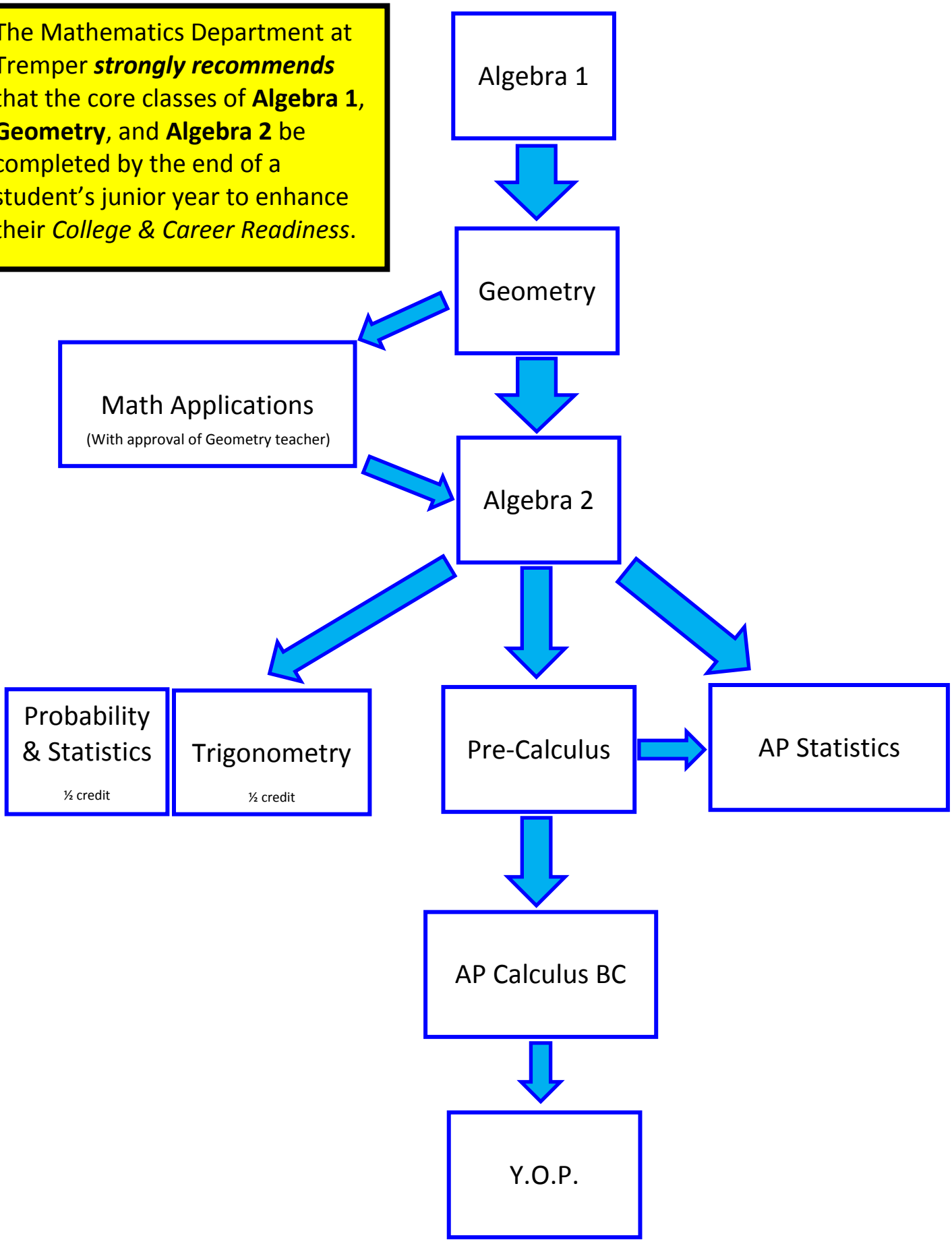
KUSD High School Mathematics Course Sequence

The Mathematics Department at Tremper ***strongly recommends*** that the core classes of **Algebra 1**, **Geometry**, and **Algebra 2** be completed by the end of a student's junior year to enhance their *College & Career Readiness*.



KUSD High School Math Course Offerings

Course	Description
Algebra 1 (1 credit)	Algebra 1 includes the study of rational number properties, variables, polynomials, and factoring. Students learn to write, solve, and graph linear, quadratic and exponential functions and to solve systems of equations. Students also learn to model real-world applications, including statistics and probability investigations.
Geometry (1 credit)	**REGULAR:** This course is a study of plane and solid geometry. It includes precise definitions, theorems, and postulates relating to plane and solid figures. Students develop deductive reasoning skills as they complete basic proofs relating to these figures. Algebra is integrated throughout the course. Students study topics such as congruence and similarity properties of lines, triangles, quadrilaterals, and circles; areas; volumes; coordinate geometry; and right triangle trigonometry. **HONORS:** This course is a rigorous study of plane and solid geometry. It includes precise definitions, theorems, and postulates relating to plane and solid figures. Students develop deductive reasoning skills as they complete proofs relating to these figures. Algebra is integrated throughout the course. Students study topics such as congruence and similarity properties of lines, triangles, quadrilaterals, and circles; areas; volumes; coordinate geometry; and right triangle trigonometry. While all Geometry students will be expected and encouraged to use higher-level thinking skills, Geometry Honors students will demonstrate these skills on a regular basis. When completing course work, Geometry Honors students may be given a DIFFERENT set of tasks to complete while studying the SAME topics as all other Geometry students.
Algebra 2 (1 credit)	**REGULAR:** This course is a study of algebraic functions including linear, quadratic, polynomial, exponential, logarithmic, radical, rational and trigonometric functions. Students analyze the characteristics of each family of functions and make connections between the algebraic and graphic representations. Students then apply their knowledge of these functions model real-life situations. **HONORS:** This course is an in-depth study of algebraic functions including linear, quadratic, polynomial, exponential, logarithmic, radical, rational and trigonometric functions. Students carefully analyze the characteristics of each family of functions and use them to model real-life situations. While all Algebra 2 students will be expected and encouraged to use higher-level thinking skills, Algebra 2 Honors students will demonstrate these skills on a regular basis. When completing course work, Algebra 2 Honors students may be given a DIFFERENT set of tasks to complete while studying the SAME topics as all other Algebra 2 students. This course prepares students for the rigor of Pre-Calculus Honors.
Math Applications (1 credit)	This course is designed to help struggling students build their algebra skills so as to be successful in an Algebra 2 class. This class will focus on high-level algebraic thinking through the use of financial algebra. This class is only open to students upon the recommendation of their Geometry teacher.
Pre-Calculus (1 credit)	**REGULAR:** Pre-Calculus includes the study of the following variety of functions and their graphs: linear, absolute value, square root, greatest integer, quadratic, cubic, higher order polynomial, rational, exponential, logarithmic, trigonometric, inverse trigonometric functions. Other topics included in this course are analytic trigonometry, inverses, polars, vectors, and graphing. Students who are successful in Pre-Calculus will be prepared to improve their ACT score and achieve success in college-level math courses. **HONORS:** This course is designed to prepare the student for the rigorous study of AP Calculus. Pre-Calculus includes the study of the following variety of functions and their graphs: linear, absolute value, square root, greatest integer, quadratic, cubic, higher order polynomial, rational, exponential, logarithmic, trigonometric, inverse trigonometric functions. Other topics included in this course are analytic trigonometry, inverses, polars, vectors, sequences, series, limits, derivatives, and graphing.

Probability & Statistics (1/2 credit)	This course introduces students to the basics of statistical testing. Students learn to organize, display, and analyze data and to explore the elements of probability. This course is a good foundation for AP Statistics and an effective preparation for students interested in the fields of social sciences, health sciences, business, engineering, and mathematics.
Trigonometry (1/2 credit)	This course prepares students for further studies in mathematics or for work in technical fields. Students learn the six trigonometric functions and demonstrate their use in the identities, inverse functions, radian measures, and special triangles. This course provides students with a background in both circular and periodic trigonometric functions. Its usefulness will be found in upper level math courses as well as several technical fields. Further, it will prepare students for items that will be encountered on college entrance exams and/or placement tests.
AP Statistics (1 credit)	This course will introduce students to the concepts and tools for collecting, analyzing and drawing conclusions from data. Students will be exposed to these main four content areas: Organizing and Displaying Data, Producing Data, Experimental Design, Probability, and Inference . In AP Statistics, students are expected to justify conclusions and develop the ability to verbalize the statistical process using precise statistical terminology. Students will be expected to write sentences in context to demonstrate mastery of statistical analysis A final project will be assigned after students have taken the AP Exam. The course project is designed to be a comprehensive application of concepts learned and applied throughout the academic year.
AP Calculus BC (2 credits)	This course is equivalent to a full-year college course in single variable calculus. It follows the College Board Advanced Placement Calculus BC course outline. It covers functions including parametric, polar, and vector representations, use of graphs, derivatives and their applications, differentials, limits, integrals and their applications, differential equations, and infinite series. The course emphasizes a multirepresentational approach to calculus, with concepts, results, and problems being expressed graphically, numerically, analytically, and verbally, with the connections among these representations highlighted. It is strongly recommended that students who successfully complete this class take the AP Calculus examination in the spring, which could result in earning college credit.