MATHEMATICS

H = Honors Course

CC = College Credit

KR = Not included in the Qualified Admissions Approved Curriculum for KS Regents Universities. Remember the Kansas Scholars Curriculum requires four years of math.

Saint Thomas Aquinas High School requires three years of math to graduate but recommends that all students take four years of math. The Math Department offers an extensive list of classes to assist students in attaining their future goals. Freshmen classes include Algebra I, Honors Algebra I, Honors Geometry, Honors Algebra I/Honors Geometry, or Honors Algebra. An additional option for freshmen is to take both Honors Algebra 2 and Accelerated Honors Geometry. Courses higher than Honors Algebra 1 are by invitation only from the Math Department Chair.

Since Algebra 1 is a foundation for future math, an Algebra test-out test is given in March to students who feel they have completed Algebra I. Those students who have also completed a full high school level course in Geometry may take the Geometry test-out. The department uses the test-outs along with placement tests to determine if a 9th grader will be placed in a math class above Honors Algebra 1. Course selections will be adjusted following Spring test-outs, if necessary. The objective of placement is to challenge students while developing their math skills at an appropriate pace.

There are multiple opportunities for students to earn college credit:

Dual enrollment with Johnson County Community College:

College Algebra, AP Statistics, AP Calculus AB, AP Calculus BC.

Advanced Placement exam:

AP Precalculus, AP Statistics, AP Calculus AB, AP Calculus BC.

Calculator Requirement:

All students are required to have a Texas Instruments TI-84+ calculator.

Mathematics Honors & AP Classes

Prerequisite: Generally, students should have a minimum grade of 86% in a preceding honors class or a minimum grade of 95% in a regular class before enrolling in an honors class.

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Course Number	Course Name	Possible Grade Level 9	10	11	12	Credit	Dual-Enrollment	Weighted Grade
04003, 040122	Algebra 1 & Math Lab	■				1.0		
040121	Algebra 1	■				1.0		
040101	Honors Algebra 1	■				1.0		■
040211	Practical Geometry		■			1.0		
040221	Geometry		■			1.0		
040201	Honors Geometry	■	■			1.0		■
040203	Accelerated Honors Geometry (Sem 2)	■	■			0.5		■
040103	Honors Algebra 1/Honors Geometry	■				1.0		■
040311	Intermediate Algebra			■		1.0		
040321	Algebra 2		■	■	■	1.0		
040301	Honors Algebra 2	■	■	■		1.0		■
040431	Algebra 3 with Trigonometry			■	■	1.0		
040630	AP Statistics			■	■	1.0	■	■
040420	College Algebra with Trigonometry			■	■	1.0	■	
040600	AP Precalculus		■	■	■	1.0		■
040610	AP Calculus AB			■	■	1.0	■	■
040620	AP Calculus BC				■	1.0	■	■

ALGEBRA 1 AND MATH LAB

Credit: 1 Algebra + 1 Elective — Grade 9
Course #: 040003, 040122
Prerequisite: Recommendation by counselor only

Algebra 1 with Math Lab occupies 2 classes in a student's schedule. The course covers the same content as Algebra 1. Since it meets every day, students will receive extra practice, support, and instruction from their Algebra teacher. The course offers an introduction to higher mathematics, providing the language and basics for mathematics above the level of arithmetic. Topics covered are: 1) simplifying variable expressions; 2) solving and graphing linear equations and inequalities; 3) factoring, graphing, and solving quadratic equations; 4) operations with rational expressions and equations; 5) simplifying radical expressions and solving radical equations; 6) an introduction to functions. Placement in Algebra 1 with Math Lab will be re-evaluated at the end of the first semester.

ALGEBRA 1

Credit: 1 — Grade 9
Course #: 040121
Prerequisite: None

This course offers an introduction to higher mathematics, providing the language and basics for mathematics above the level of arithmetic. Topics covered are: 1) simplifying variable expressions; 2) solving and graphing linear equations and inequalities; 3) factoring, graphing, and solving quadratic equations; 4) operations with rational expressions and equations; 5) simplifying radical expressions and solving radical equations; 6) an introduction to functions.

HONORS ALGEBRA 1 H

Credit: 1 — Grade 9
Course #: 040101
Prerequisite: None

The accelerated Algebra 1 course covers the same topics as Algebra 1 but in greater depth and a faster pace. Students can take this course as their first mathematics course (grade 9).

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PRACTICAL GEOMETRY

Credit: 1 Grades 10

Course #: 040211

Prerequisite: Algebra I and teacher recommendation

This course includes a review of Algebra 1 concepts. Topics include: 1) congruencies of line segments, angles, and triangles; 2) applications of parallel and perpendicular lines; 3) measurements of polygons and circles; and 4) coordinate geometry. Formal proofs are not emphasized. Intermediate Algebra or Algebra 2 should be the next level of math after successfully completing Practical Geometry.

NOTE: THIS COURSE DOES NOT COUNT AS A CORE COURSE FOR THE NCAA CLEARINGHOUSE.

GEOMETRY

Credit: 1 Grades 10

Course #: 040221

Prerequisite: Successful completion of Algebra 1

This course is designed to: 1) increase spatial perception; 2) develop reasoning and logic skills; 3) classify figures in terms of congruence and similarity and apply these relationships; 4) deduce properties of, and relationships between figures from given assumptions through exploring and using a hands-on approach. Students are encouraged to make generalizations based on observations through the use of concrete material.

NOTE: Students who have completed the Practical Geometry course may not enroll in this class.

HONORS GEOMETRY H

Credit: 1 Grades 9-10

Course #: 040201

Prerequisite: For 9th graders: Algebra 1 test-out and Math Department Chair invitation. For 10th graders: Successful completion of Algebra 1 or Honors Algebra 1 with teacher recommendation.

Honors Geometry covers the same topics as the regular Geometry course, but in greater depth and faster pace. A greater emphasis will be placed on proofs. Testing out of Algebra I is required prior to freshmen enrollment.

ACCELERATED HONORS GEOMETRY H

Credit: ½ Grades 9-10

Course #: 040203 (Sem 2)

Prerequisite: By invitation of the Math Department Chair only

This is a fast-paced course that covers Honors Geometry in the spring semester. The course is designed for the very advanced math student who is also taking a full year course of Honors Algebra 2. Students who take this course are positioned to study AP Calculus AB and AP Calculus BC before graduation. Students must demonstrate advanced ability through standardized test scores, grades, and department head recommendation.

HONORS ALGEBRA 1/ HONORS GEOMETRY H

Credit: 1 Grade 9

Course # 040103

Prerequisite: By invitation of the Math Department Chair only

This is a fast paced course that combines Honors Algebra 1 and Honors Geometry with an emphasis on Geometry. It is designed for the very advanced student who has had exposure to Algebra 1 and wants to study calculus before graduation. Placement Test Scores and Algebra 1 test-out results will be used to determine eligibility. To ensure future success, students must maintain an 86% at the end of semester 1 or they will be moved to Honors Algebra 1 for semester 2.

INTERMEDIATE ALGEBRA

Credit: 1 Grades 11

Course #: 040311

Prerequisite: Algebra 1 and Geometry (practical or regular) and teacher recommendation.

The course is designed to review, strengthen, and further develop topics covered in Algebra I. It also introduces and develops topics in Algebra 2. This course is for students who are not yet ready for Algebra 2. Average or above-average math students should take Algebra 2. Intermediate Algebra is a good transition into Algebra 2.

NOTE: THIS COURSE DOES NOT COUNT AS A CORE COURSE FOR THE NCAA CLEARINGHOUSE.

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ALGEBRA 2

Credit: 1 Grades 10-12

Course #: 040321

Prerequisite: Algebra 1 and Geometry

This course is designed to deepen a student's understanding of Algebra. Topics covered are: 1) operations with rational, irrational, and complex expressions; 2) solving and graphing linear, quadratic, rational, exponential and logarithmic functions; 3) conic sections; 4) matrices.

HONORS ALGEBRA 2 H

Credit: 1 Grades 9-11

Course #: 040301

Prerequisite: Successful completion of Honors Algebra 1 and Honors Geometry or Teacher recommendation from Reg. Algebra and Geometry

The honors course covers the same topics as the regular course but in greater depth and at a faster pace.

ALGEBRA 3 WITH TRIGONOMETRY

Credit: 1 Grades 11-12

Course #: 040431

Prerequisite: Successful completion of Algebra 2

This course is designed to prepare students for college algebra, which is a requirement in most colleges and universities. It includes an expansion of Algebra 2 concepts and an introduction to trigonometry. Topics include: 1) right triangle trigonometry; 2) circular trigonometry; 3) trigonometry equations; 4) basic trigonometry graphing and identities; 5) polynomial functions; 6) rational functions; 7) logarithmic and exponential functions; 8) graphing functions; and 9) sequences and series.

AP STATISTICS H, CC

Credit: 1 (College credit available) Grade 11-12

Course #: 040630 JCCC MATH 181

Prerequisite: Successful completion of Honors Algebra 2 with an 86% or higher. Concurrent enrollment in College Algebra, AP Pre-Calculus, AP Calculus AB, and AP Calculus BC is allowed.

Course Fee: Current tuition at JCCC is assessed if college credit is desired.

AP Statistics is an introductory college-level statistics course that introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students cultivate their understanding of statistics using technology, investigations, problem solving, and writing as they explore concepts like variation and distribution; patterns and uncertainty; and data-based predictions, decisions, and conclusions. Course topics include: (1) Descriptive Statistics, (2) Sampling and Experimentation, (3) Probability, and (4) Statistical Inference.

Students enrolled in this course may also earn college credit through JCCC College Now, and JCCC tuition fees will apply. To enroll in JCCC for this class, students must meet placement requirements at JCCC. This year-long course is equivalent to a one-semester college course in statistics.

College credit may be earned for students who choose to take the AP test in May.

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COLLEGE ALGEBRA WITH TRIGONOMETRY — CC

Credit: 1 (College credit available) Grades 11-12

Course #: 040420 JCCC MATH 171

Prerequisite: Successful completion of Honors Algebra 2 or Algebra 2 with teacher recommendation.

Fees: Current tuition at JCCC is assessed if college credit is desired.

This course is the study of functions and their graphs, techniques of solving equations, and applications. Students will analyze and graph constant, linear, quadratic, piecewise-defined, polynomial, rational, exponential, and logarithmic functions; solve higher-degree equations and inequalities; and use matrices. The course includes an introduction to trigonometry including right triangle trigonometry, circular trigonometry, equations, and graphing. It is designed to give a thorough background for college-bound students.

Students enrolled in this course may earn 3 hours optional college credit through JCCC Quickstep, and JCCC tuition fees will apply. To enroll in JCCC for this class, students must meet placement requirements at JCCC. Students are encouraged to meet these required scores before the semester begins. JCCC enrollment occurs in the Fall.

AP PRECALCULUS — H

Credit: 1 Grades 10-12

Course #: 040600

Prerequisite: Completion of Honors Algebra 2 with 86% and teacher recommendation. Completion of Algebra 2 with 96% and teacher recommendation.

This course is designed to prepare students for college-level calculus. AP Precalculus fosters the development of a deep conceptual understanding of functions. Students acquire and apply mathematical tools in real-world modeling situations. Students study functions through graphical, numerical, analytical, and verbal representations. Students develop skills solving equations and manipulating expressions for the many function types throughout the course.

They study functions and their compositions, inverses, and transformations, and they use attributes to solve problems in applied contexts. The functions studied include polynomial, rational, exponential, logarithmic, trigonometric, and polar functions.

College credit may be earned for students who choose to take the AP test in May.

AP CALCULUS AB — H, CC

Credit: 1 (College credit available) Grade 11-12

Course #: 040610 JCCC MATH 241

Prerequisite: Successful completion of AP Precalculus with Trig with teacher recommendation.

Course Fee: Current tuition at JCCC is assessed if college credit is desired.

This course provides an understanding of differential and integral calculus from an algebraic and geometric perspective. Techniques and applications of differentiation and integration are developed. Students may earn credit through Advanced Placement examination in May. Students enrolled in this course may earn 5 hours optional college credit through JCCC College Now, and JCCC tuition fees will apply. To enroll in JCCC for this class, students must meet placement requirements at JCCC. Students must meet these requirements before the semester begins. JCCC enrollment occurs in the Fall.

College credit may be earned for students who choose to take the AP test in May.

AP CALCULUS BC — H, CC

Credit 1 (College credit available) Grade 12

Course #: 040620 JCCC MATH 242

Prerequisite: Successful completion of AP Calculus AB with an 80% or higher in the second semester

Course Fee: Current tuition at JCCC is assessed if college credit is desired. (To obtain credit at JCCC you must have received credit for Calc 1 at JCCC or have earned a 3 on the Calc AB AP exam).

This course is a continuation of the concepts introduced in Calculus 1. Additional applications of differentiation and integration are developed. Students may earn credit through Advanced Placement examination in May. Students enrolled in this course may earn 5 hours college credit through JCCC College Now, and JCCC tuition fees will apply. To enroll in JCCC for this class, students must have received credit for Calc 1 at JCCC or have earned a 3 on the Calc AB AP exam. College credit is also available for student who choose to take the AP test in May.

College credit may be earned for students who choose to take the AP test in May.