

MATHEMATICS

ADVANCED PLACEMENT CALCULUS AB

Grade Level: 10-12	Credits: 2	College Credit: Yes	Fine Arts Credit: No	Prerequisite: Precalculus and Trigonometry
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This is a college level course. Students may take an advanced placement test for possible college credit. Topics include differentiation, methods of integration, essential theory and important applications of calculus in such fields as physics, economics and biology. This course is roughly equivalent to college Calculus I.

ADVANCED PLACEMENT CALCULUS BC

Grade Level: 10-12	Credits: 3	College Credit: Yes	Fine Arts Credit: No	Prerequisite: Precalculus and Trigonometry
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This is a college level course. Students may take an advanced placement test for possible college credit. Topics include differentiation, methods of integration, essential theory, parametric equations, arc length, vectors, power, Taylor and Maclaurin series, and important applications of calculus in such fields as physics, economics, and biology. This course is roughly equivalent to college Calculus I and Calculus II.

ADVANCED PLACEMENT STATISTICS (A & B)

Grade Level: 10-12	Credits: 2	College Credit: Yes	Fine Arts Credit: No	Prerequisite: Algebra 2
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This is a college level course. Students may take an advanced placement test for possible college credit. Students will learn about exploring data, sampling and experimental design, anticipating patterns, and statistical inference. This course is an advanced level course that is the equivalent of a Statistics 1 course in college. The pace is that of a college course.

ALGEBRA 2 (A & B)

Grade Level: 9-12	Credits: 2	College Credit: No	Fine Arts Credit: No	Prerequisite: Geometry
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This course includes the study of linear functions and systems, absolute value functions, quadratic functions, polynomial functions, exponential functions, logarithmic functions, radical and rational functions, trigonometric functions, and transformations of functions.

CALCULUS (A & B)

Grade Level: 9-12	Credits: 2	College Credit: No	Fine Arts Credit: No	Prerequisite: Precalculus and Trigonometry
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Relationships of limits, rates, areas and volumes will be explored in Calculus. Derivatives and integrals will be the main tools used to explore these topics.

GEOMETRY (A & B)

Grade Level: 9-12	Credits: 2	College Credit: No	Fine Arts Credit: No	Prerequisite: Intermediate Algebra
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This course includes the study of parallel and perpendicular lines, triangles, quadrilaterals, polygons, circles, right triangle trigonometry, and transformations.

INTERMEDIATE ALGEBRA (A & B)

Grade Level: 9-12	Credits: 2	College Credit: No	Fine Arts Credit: No	Prerequisite: None
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This course is a study beyond linear topics in Algebra. Topics in this course will include systems of inequalities, linear programming, exponent laws, polynomial arithmetic and factoring. Quadratic, exponential, radical and rational functions will also be studied.

PRECALCULUS

Grade Level: 9-12	Credits: 1	College Credit: No	Fine Arts Credit: No	Prerequisite: Algebra 2
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This course is designed to provide the mathematical background that high school students need for calculus. Topics include polynomial, rational, exponential, and logarithmic functions and their graphs. Matrices and conic sections will also be studied. This is a high level, elective course and will be run as such. It is expected that students have mastered the concepts from all prerequisite courses, and it is recommended that students have earned at least a "C" average in those courses.

SMSU COLLEGE ALGEBRA

Grade Level: 10-12	Credits: 1	College Credit: Yes	Fine Arts Credit: No	Prerequisite: See description below
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Southwest Minnesota State University and Waconia High School have teamed to offer College Algebra. Successful completion of this course will award 3 college credits in the MNSCU transfer curriculum. This course is a study of the fundamental concepts of Algebra. Topics include: equations and inequalities, polynomial, rational, exponential, and logarithmic functions and their graphs and systems of linear equations.

Seniors - need to have a 3.0 GPA or above and be in the top half of their graduating class*

Juniors - need to have a 3.0 GPA or above and be in the top third of their graduating class*

Sophomores - need to be in the top 10% of their graduating class and have scored in the 90th percentile on a nationally standardized test. Transcripts and test scores must be sent to the College Now Office to verify sophomore eligibility.

*Note: Test scores from a nationally standardized test can be used to replace class rank if needed. Students will still be required to meet the 3.0 GPA to go along with their test scores. Seniors need to score in the 50th percentile and juniors need to score in the 70th percentile.

* If a student does not meet requirements, they may appeal to SMSU. With appeal approval, students may take the course.

STATISTICS

Grade Level: 9-12

Credits: 1

College Credit: No

Fine Arts Credit: No

Prerequisite: Intermediate Algebra

This course includes the study of data classification, experimental design, descriptive statistics, basic probability rules and probability distributions.

TRIGONOMETRY

Grade Level: 9-12

Credits: 1

College Credit: No

Fine Arts Credit: No

Prerequisite: Algebra 2

This course reviews right triangle trigonometry and studies sine, cosine, and tangent functions, as well as their reciprocal and inverse functions. Students will analyze periodic graphs, solve trigonometric equations, and prove and apply trigonometric identities. This is a high level, elective course and will be run as such. It is expected that students have mastered the concepts from all prerequisite courses, and it is recommended that students have earned at least a "C" average in those courses.