

HIGH SCHOOL MATHEMATICS COURSE CODES GRADES 7-12

High school (grades 9-12) courses in Mathematics require 120 contact hours per credit.

Course Code	Course Name	Grade Levels	Description	Accreditation Time/ Credit Options*	License/credential Required**
11005	Mathematics	7-8	Expansion of the topics studied in grades 1-6.	NDAC 67-19-01-34 (1)(b) ◆ 200 minutes per week	License Code: 11010-Mathematics ◆ 7-12 or 9-12 OR 50317-Middle School Math Major Equivalency ◆ 5-8
11006	Remedial Mathematics	7-8	A supplemental course for students experiencing difficulty in regular classroom instruction in Mathematics	Supplemental instruction – provided as needed	License Code: 11010-Mathematics ◆ 7-12 or 9-12 AND 7-12 Math Credential
11008	Prealgebra	7-8	Students should understand the concepts of variable, expression and equations; represent situations and number patterns with tables, graphs, verbal rules, and equations and explore the interrelationships of these representations. Students should be able to apply algebra methods to solve a variety of real world and mathematical problems.	NDAC 67-19-01-34 (1)(b) ◆ 200 minutes per week	License Code: 11010-Mathematics ◆ 7-12 or 9-12 OR 50317-Middle School Math Major Equivalency ◆ 5-8
11009	Algebra	7-8	Number theory, graphs, positive and negative numbers, mathematical sentences, polynomials, and linear equations with one and two variables.	NDAC 67-19-01-34 (1)(b) ◆ 200 minutes per week	
11010	Title I Remedial Mathematics	9-12	Sets numeration, operations and properties, mathematical sentences, geometry, measurement, graphing and functions, and probability and statistics.	Supplemental instruction – provided as needed	License Code: 11010-Mathematics ◆ 7-12 or 9-12 AND 7-12 Math Credential
11030	Prealgebra	9-12	Pre-Algebra courses increase students' foundational math skills and prepare them for Algebra I by covering a variety of topics, such as properties of rational numbers (i.e., number theory), ratio, proportion, estimation, exponents and radicals, the rectangular coordinate system, sets and logic, formulas, and solving first-degree equations and inequalities.	½ or 1	License Code: 11010-Mathematics ◆ 7-12 or 9-12
11031	Algebra I	9-12	Algebra I courses include the study of properties and operations of the real number system; evaluating rational algebraic expressions; solving and graphing first degree equations and inequalities; translating word problems into equations; operations with and factoring of polynomials; and solving simple quadratic equations. NOTE: Use this course code when credit is awarded for the full school year.	1	

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11035	Algebra I Semester 1	9-12	The first part in a multi-part sequence of Algebra I. This course generally covers the same topics as the first semester of Algebra I, including the study of properties of rational numbers (i.e., number theory), ratio, proportion, and estimation, exponents and radicals, the rectangular coordinate system, sets and logic, formulas, and solving first degree equations and inequalities.	½	License Code: 11010–Mathematics ♦ 7-12 or 9-12
11036	Algebra I Semester 2	9-12	The second part in a multi-part sequence of Algebra I. This course generally covers the same topics as the second semester of Algebra I, including the study of properties of the real number system and operations, evaluating rational algebraic expressions, solving and graphing first degree equations and inequalities, translating word problems into equations, operations with and factoring of polynomials, and solving simple quadratics.	½	
11032	Algebra II ♦ Prerequisite: Algebra I - 11031	9-12	Algebra II course topics typically include field properties and theorems; set theory; operations with rational and irrational expressions; factoring of rational expressions; in-depth study of linear equations and inequalities; quadratic equations; solving systems of linear and quadratic equations; graphing of constant, linear, and quadratic equations; properties of higher degree equations; and operations with rational and irrational exponents. The course may introduce topics in discrete math, elementary probability and statistics; matrices and determinants; and sequences and series.	½ or 1	
11033	Discrete Mathematics ♦ Prerequisite: Algebra II -11032	11-12	Discrete Mathematics courses include the study of topics such as number theory, discrete probability, set theory, symbolic logic, Boolean algebra, combinatorics, recursion, basic algebraic structures and graph theory.	½ or 1	
11034	College Algebra	11-12	Covering topics from both Math Analysis and Analytic Geometry, these courses prepare students for eventual work in calculus. Topics include the study of polynomial, logarithmic, exponential, and rational functions and their graphs; vectors; set theory; Boolean algebra and symbolic logic; mathematical induction; matrix algebra; sequences and series; and limits and continuity; the polar coordinate system; equations and graphs of conic sections; rotations and transformations; and parametric equations.	½ or 1	
11037	Linear Algebra ♦ Prerequisite: Algebra II -11032	11-12	Linear Algebra courses include a study of matrices, vectors, tensors, and linear transformations and are typically intended for students who have attained pre-calculus objectives.	½ or 1	

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11038	Linear Programming ♦ Prerequisite: Algebra II -11032	11-12	Linear Programming courses include a study of mathematical modeling and the simplex method to solve linear inequalities and are typically intended for students who have attained pre-calculus objectives.	½	License Code: 11010–Mathematics ♦ 7-12 or 9-12
11039	Abstract Algebra ♦ Prerequisite: Algebra II -11032	11-12	Abstract Algebra courses include a study of the properties of the number system from an abstract perspective, including such topics as number fields (i.e., rational, real, and complex numbers), integral domains, rings, groups, polynomials, and the fundamental theorem of algebra. Abstract Algebra is typically geared towards students who have attained pre-calculus objectives.	½ or 1	
11061	Calculus ♦ Prerequisite: Algebra II - 11032	11-12	Calculus courses include the study of derivatives, differentiation, integration, the definite and indefinite integral, and applications of calculus. Typically, students have previously attained knowledge of pre-calculus topics (some combination of trigonometry, elementary functions, analytic geometry, and math analysis). <i>Note: Calculus is a college level subject. A reasonable goal, for most high schools, is a strong college preparatory mathematics curriculum that will have students ready to begin calculus when they enter college.</i>	½	
11111	General Mathematics I	9-12	General Math courses reinforce and expand students' foundational math skills, such as arithmetic operations using rational numbers; area, perimeter, and volume of geometric figures, congruence and similarity, angle relationships, the Pythagorean theorem, the rectangular coordinate system, sets and logic, ratio and proportion, estimation, formulas, solving and graphing simple equations and inequalities.	½ or 1	
11112	Particular Topics in Foundation Math	10-12	These courses examine particular topics in Foundation math, such as arithmetic or basic conceptual skills, rather than provide a general overview.	½ or 1	
11120	Geometry	9-12	Geometry courses, emphasizing an abstract, formal approach to the study of geometry, typically include topics such as properties of plane and solid figures; deductive methods of reasoning and use of logic; geometry as an axiomatic system including the study of postulates, theorems, and formal proofs; concepts of congruence, similarity, parallelism, perpendicularity, and proportion; and rules of angle measurement in triangles.	½ or 1	

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11121	Analytic Geometry ♦ Prerequisite: Algebra II - 11032, Geometry - 11120	10-12	Analytic Geometry courses include the study of the nature and intersection of lines and planes in space, including vectors, the polar coordinate system, equations and graphs of conic sections, rotations and transformations, and parametric equations.	½ or 1	License Code: 11010–Mathematics ♦ 7-12 or 9-12
11122	Informal Geometry	10-12	Informal Geometry courses emphasize a practical approach to the study of geometry and deemphasize an abstract, formal approach. Topics typically include properties of and work with plane and solid figures; inductive methods of reasoning and use of logic; concepts of congruence, similarity, parallelism, perpendicularity, and proportion; and rules of angle measurement in triangles.	½ or 1	
11124	Solid Geometry ♦ Prerequisite: Geometry - 11120	10-12	The study of the relationship among lines, planes, polyhedrons, cylinders, cones, and spheres.	½ or 1	
11145	Consumer Mathematics	9-12	Consumer Math courses reinforce general math topics (such as arithmetic using rational numbers, measurement, ratio and proportion, and basic statistics) and apply these skills to consumer problems and situations. Applications typically include budgeting, taxation, credit, banking services, insurance, buying and selling products and services, home and/or car ownership and rental, managing personal income, and investment.	½ or 1	
11150	Probability and Statistics ♦ Prerequisite: Prealgebra- 11030 or Algebra I-11031	11-12	Probability and Statistics courses introduce the study of likely events and the analysis, interpretation, and presentation of quantitative data. Course topics generally include basic probability and statistics: discrete probability theory, odds and probabilities, probability trees, populations and samples, frequency tables, measures of central tendency, and presentation of data (including graphs). Course topics may also include normal distribution and measures of variability.	½ or 1	

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11160	Trigonometry ◆ Prerequisite: Geometry - 11120 ◆	10-12	Trigonometry courses prepare students for eventual work in calculus and typically include the following topics: trigonometric and circular functions; their inverses and graphs; relations among the parts of a triangle; trigonometric identities and equations; solutions of right and oblique triangles; and complex numbers.	¼, ½, or 1	License Code: 11010–Mathematics ◆ 7-12 or 9-12
11161	Trigonometry/ Analytic Geometry ◆ Prerequisite: Algebra I - 11031 and Geometry - 11120	11-12	Covering topics of both Trigonometry and Analytic Geometry, these courses prepare students for eventual work in calculus. Topics typically include the study of right trigonometric and circular functions, inverses, and graphs; trigonometric identities and equations; solutions of right and oblique triangles; complex numbers; numerical tables; vectors; the polar coordinate system; equations and graphs of conic sections; rotations and transformations; and parametric equations.	½ or 1	
11162	Geometry/ Trigonometry/ Advanced Algebra ◆ Prerequisite: Algebra I - 11031 and Geometry - 11120	11-12	Transition Algebra courses review and extend algebra and geometry concepts for students who have already taken Algebra I and Geometry. Transition Algebra courses include a review of such topics as properties and operations of real numbers; evaluation of rational algebraic expressions; solutions and graphs of first degree equations and inequalities; translation of word problems into equations; operations with and factoring of polynomials; simple quadratics; properties of plane and solid figures; rules of congruence and similarity; coordinate geometry including lines, segments, and circles in the coordinate plane; and angle measurement in triangles including trigonometric ratios.	½ or 1	
11181	Pre-calculus ◆ Prerequisite: Algebra II - 11032, Geometry - 11120 OR Trigonometry/ Analytic Geometry - 11161 OR Geometry/ Trigonometry/ Algebra II - 11162	10-12	Pre-Calculus courses combine the study of Trigonometry, Elementary Functions, Analytic Geometry, and Math Analysis topics as preparation for calculus. Topics typically include the study of complex numbers; polynomial, logarithmic, exponential, rational, right trigonometric, and circular functions, and their relations, inverses and graphs; trigonometric identities and equations; solutions of right and oblique triangles; vectors; the polar coordinate system; conic sections; Boolean algebra and symbolic logic; mathematical induction; matrix algebra; sequences and series; and limits and continuity.	½ or 1	

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11190	Applied Mathematics ♦ Prerequisite: General Mathematics - 11111	9-12	A course designed to help students develop and refine job related math skills. Units focus on arithmetic operations, problem solving techniques, estimation of answers, measurement skills, algebra, geometry, data handling, statistics, and computers. Emphasis is on the ability to apply functional mathematics to solve problems in the world of work.	½ or 1	License Code: 11010–Mathematics ♦ 7-12 or 9-12
11191	Occupationally Applied Math	9-12	Occupationally Applied Math courses reinforce general math skills, extend these skills to include some pre-algebra and algebra topics, and use these skills primarily in occupational applications. Course topics typically include rational numbers, measurement, basic statistics, ratio and proportion, basic geometry, formulas, and simple equations.	½ or 1	
11580	Advanced Placement Statistics©	10-12	Following the College Board's suggested curriculum designed to parallel college-level statistics courses, AP Statistics courses 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.	½ or 1	
11581	Advanced Placement Calculus AB©	10-12	Following the College Board's suggested curriculum designed to parallel college-level calculus courses, AP Calculus AB provides students with an intuitive understanding of the concepts of calculus and experience with its methods and applications. These courses introduce calculus and include the following topics: elementary functions; properties of functions and their graphs; limits and continuity; differential calculus (including definition of the derivative, derivative formulas, theorems about derivatives, geometric applications, optimization problems, and rate-of-change problems); and integral calculus (including antiderivatives and the definite integral).	½ or 1	

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11582	Advanced Placement Calculus BC©	10-12	Following the College Board's suggested curriculum designed to parallel college-level calculus courses, AP Calculus BC courses provide students with an intuitive understanding of the concepts of calculus and experience with its methods and applications, and also require additional knowledge of the theoretical tools of calculus. These courses assume a thorough knowledge of elementary functions, and cover all of the calculus topics in AP Calculus AB as well as the following topics: vector functions, parametric equations, and polar coordinates; rigorous definitions of finite and nonexistent limits; derivatives of vector functions and parametrically defined functions; advanced techniques of integration and advanced applications of the definite integral; and sequences and series.	½ or 1	License Code: 11010–Mathematics ♦ 7-12 or 9-12

* *High school curricular requirements are spelled out in NDCC 15.1-21-02. Accreditation Rules can be found at <http://www.legis.nd.gov/information/acdata/pdf/67-19-01.pdf>. For accreditation, schools must provide additional units of credit based on school enrollment [see NDAC 67-19-01-32 (3)].*

** *Please refer to the second page of the teacher's North Dakota Educator's Professional license to verify which subject areas a teacher is qualified to teach. Licenses and endorsements are obtained on a teaching license from the Education Standards and Practices Board (ESPB). Credentials are obtained from the Department of Public Instruction (DPI) and are issued to individuals holding a current teaching license.*