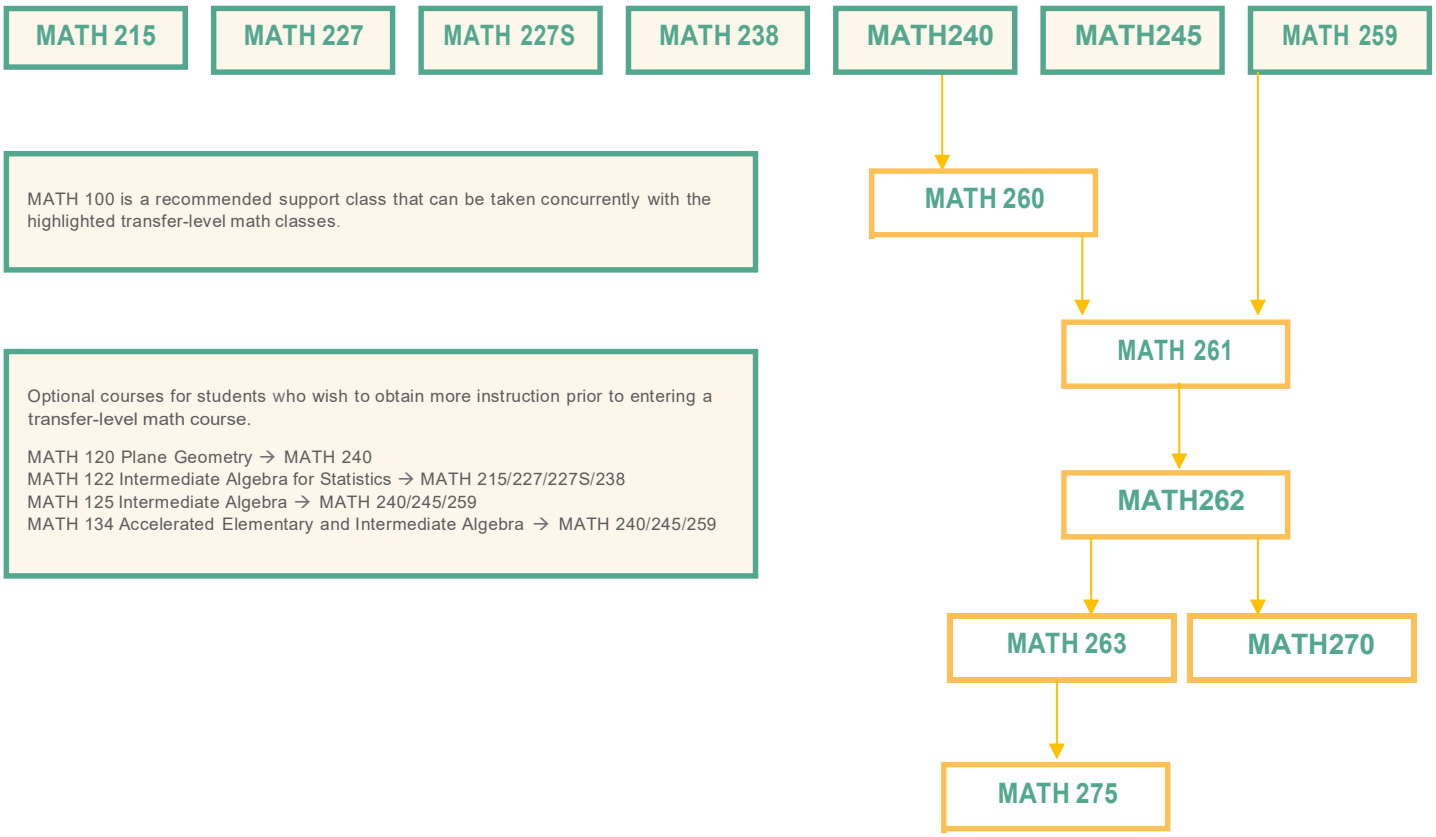
TRANSFER-LEVEL MATH COURSE SEQUENCE



MATH 100 is a recommended support class that can be taken concurrently with the highlighted transfer-level math classes.

Optional courses for students who wish to obtain more instruction prior to entering a transfer-level math course.

MATH 120 Plane Geometry → MATH 240
MATH 122 Intermediate Algebra for Statistics → MATH 215/227/227S/238
MATH 125 Intermediate Algebra → MATH 240/245/259
MATH 134 Accelerated Elementary and Intermediate Algebra → MATH 240/245/259

Student education plan (SEP) is a roadmap for you to reach your goals in a timely manner. An SEP is a planning tool that you and your counselor create together based on your future academic and career goals. Please use the LAVC Program Mapper (https://programmap.lavc.edu/academics) as a starting point prior to meeting with a counselor.

MATHEMATICS (MATH)

Every student planning to enroll in a mathematics course for the first time at Valley College is expected to consult counselors or the mathematics department. Students are advised of their recommended placement and are then allowed to enroll in that course.

100 Mathematics Workshop (1)

Prerequisite: None.
Offered on a Pass-No Pass basis only.
Activity, 2 hours.
This course offers directed practice to mathematics students of varying skill levels.

120 Plane Geometry (5)

Prerequisite: MATH 113 and MATH 114 with grades of C or better; or MATH 115 with a grade of C or better; or appropriate skill level demonstrated through the math placement process.
Lecture, 5 hours.
The course covers properties of points, lines, angles, triangles, quadrilaterals, circles and other polygons. Emphasis is placed on logical reasoning and methods of proof, especially deductive reasoning.

125 Intermediate Algebra (5)

Prerequisite: MATH 113 and MATH 114 with grades of C or better; or MATH 115 with a grade of C or better; or appropriate skill level demonstrated through the math placement process.
Lecture, 5 hours.
This course reviews concepts learned in Math 115 and applies them to more complicated problems. Topics include algebra of functions, quadratic and rational equations and inequalities, absolute values, factoring polynomials, radical equations and expressions,logarithms, exponential equations, systems of equations, complex numbers, nonlinear relationship, modeling, and conic sections.

134 Accelerated Elementary and Intermediate Algebra (6)

Prerequisites: MATH 110 or MATH 112 with agrade of C or better.
Lecture, 4 hours; laboratory, 4 hours.
This is an accelerated course covering topics from Elementary and Intermediate Algebra. Topics include linear equations and inequalities, exponents, polynomials and factoring, rational expressions, rational equations and inequalities, radical expressions and equations, quadratics equations and inequalities, graphing linear and nonlinear equations and inequalities, system of linear and nonlinear equations and inequalities, functions, exponential and logarithmic functions, conics, and sequences and series. This course has a lab component and satisfies anyIntermediate Algebra requisite.

215 Principles of Mathematics (3) UC:CSU

Prerequisite: MATH 125 or MATH 134 with a grade of C or better, or appropriate ski/l level demonstrated through the math placement process.
Recommended: MATH 120.
Lecture, 1 hour; laboratory, 4 hours.
This is a course designed primarily for students who plan to teach in elementary school.
This course focuses on the development of quantitative reasoning skills through in-depth, integrated explorations of topics in mathematics, including real number systems and subsystems. Emphasis is on comprehension and analysis of mathematical concepts and applications of logical reasoning. This course also covers the language of sets, elementary logic, systems of numeration, nature of numbers, fundamental operations, relations and functions, integers, rational and real numbers, and various algorithms used in calculations.

C-1D: MATH 120

UC CREDIT FOR MATH 215 EFFECTIVE FALL 1994.

227 Statistics (4) UC:CSU

Prerequisite: MATH 125 or MATH 122 or MATH 134 with a grade of C or better, or appropriate skill level demonstrated through the math placement process.
Lecture, 4 hours; laboratory, 1 hour.
This course uses technology to analyze data. Probability techniques, hypothesis testing, and predictive techniques are employed to facilitate decision-making by inferring population-level conclusions based on samples. Topics include descriptive statistics; probability and sampling distributions; statistical inference; correlation and linear regression; analysis of variance (ANOVA), chi-square and !-tests; and application of technology for statistical analysis including the interpretation of the relevance of the statistical findings. Applications using data from disciplines including business, social sciences, psychology, life science, health science, and education.

MATH 225, 227 STAT 101 COMBINED, MAXIMUM UC CREDIT, ONE COURSE.

C-1D: MATH 110

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238 Calculus for Business and Social Science I (5) UC:CSU

Prerequisite: MATH 125 with a grade of C or better or appropriate skill level demonstrated through the math placement process.
Recommended: MATH 245.
Lecture, 5 hours.
This course presents a study of the techniques of calculus with emphasis placed on the application of these concepts to business and management related problems. The applicationsof derivatives and integrals of functions including polynomials, rational, exponential and logarithmic functions are studied. Topics in this course include: techniques of differentiating; maximum-minimum problems; curve sketching; derivatives and applications of exponential and logarithmic functions; techniques of integration; linear approximations; matrices and linear systems.

C-1D: MATH 140

240 Trigonometry (3) CSU

Prerequisite: MATH 120 or MATH 121 and MATH 125 with a grade of C or better or concurrent enrollment, or appropriate skill level demonstrated through the math placement process.
Lecture, 1 hours; Laboratory, 4 hours.
This course studies trigonometric functions, their inverses and their graphs, identities and proofs related to trigonometric expressions, trigonometric equations, solving right triangles, solving triangles using the Law of Cosines and the Law of Sines, polar coordinates, introduction to vectors, and complex numbers including De Moivre's theorem and polar coordinates.

C-ID MATH 851

245 College Algebra (3) UC:CSU

Prerequisite: MATH 125 with a grade of C or better, or appropriate skill level demonstrated through the math placement process.
Lecture, 1 hours; Laboratory, 4 hours.
This college-level course in algebra is for majors in the Liberal Arts. It covers polynomial, rational, radical, exponential, absolute value, and logarithmic functions; systems of equations; inverses and transformations of functions; theory of polynomial equations; characterization of the zeros of polynomials ; matrices and determinants; sequences and series; binomial theorem; modeling of calculus-type word problems; and mathematical induction.

MATH 245 COMBINED WITH MATH 260, MAXIMUM UC CREDIT IS 4 UNITS.

C-ID: MATH 150

259 Precalculus with Trigonometry (6) UC:CSU

Prerequisite: MATH 120 or MATH 121; and MATH 125 or MATH 134 with a grade of C *or better or concurrent enrollment in MATH 121 or MATH 120, or appropriate skill level demonstrated through the math placement process.*

Lecture, 6 hours.

This course is preparation for calculus. **It** coversthe study of polynomial, absolute value, radical, rational, exponential , and logarithmic functions, analytic geometry, theory of equations, mathematical induction, sequences and series, binomial theorem, inequalities, matrices, polar coordinates, graphing polynomial, rational,
and conic sections. The study of trigonometric functions, their inverses and their graphs, identities and proofs related to trigonometric expressions , trigonometric equations, solving right triangles, solving triangles using the Law ofCosines and the Law of Sines, and introduction to vectors.

C-1D MATH 955

260 Precalculus (5) UC:CSU

Prerequisite: MATH 240 with a grade of C *or better, or concurrent enrollment; or appropriateskill level demonstrated through the math placement process.*

Lecture, 5 hours.

This course is preparation for calculus. It coverspolynomial, absolute value, radical, rational, exponential, logarithmic , and trigonometric functions and their graphs; analytic geometry and graphing conic sections, theory of equations, mathematical induction, sequences and series, binomial theorem, inequalities, matrices, and polar coordinates .

NOTE: UC ALLOWS A MAXIMUM OF 4 TRANSFERABLE UNITS FOR THIS COURSE.

MATH 245 COMBINED WITH MATH 260, MAXIMUM UC CREDIT IS 4 UNITS.

C-1D MATH 155

261 Calculus I (5) UC:CSU

Prerequisite: MATH 240 and 260; or MATH 259 *with* a C *or better.*

Lecture, 5 hours.

This first course in a three-semester, unified treatment of differential and integral calculus of a single variable includes functions; limits and continuity; techniques and applications of differentiation and integration; rates of change; maxima and minima; Mean Value Theorem; approximations; antiderivatives; definite integrals; Fundamental Theorem of Calculus. Primarily for Science, Technology, Engineering & Math Majors.

MATH 238, 261, 265 COMBINED, MAXIMUM UC CREDIT, ONE COURSE.

C-1D: MATH 211

262 Calculus II (5) UC:CSU

Prerequisite: MATH 261 or 265 with a C *or better.*

Lecture, 5 hours.

This second course in a three-semester, unified treatment of differential and integral calculus of a single variable includes integration; techniques of integration; derivatives and integrals of inverse trigonometric; logarithmic; exponential and hyperbolic functions; improper integrals; numerical methods; infinite sequences and series; polar and parametric equations; conic sections; Taylor formulas; indeterminate forms; power series; and applications of integration. Primarily for Science, Technology, Engineering & Math Majors.

MATH 262, 266 COMBINED, MAXIMUM UC CREDIT, ONE COURSE.

C-1D: MATH 221

263 Calculus III (5) UC:CSU

Prerequisite: MATH 262 or 266 with a C *or better.*

Recommended: MATH 270.

Lecture, 5 hours.

This final course in a three-semester, unified treatment of calculus includes vector valued functions, calculus of functions of more than one variable, partial derivatives, multiple integration, Green's Theorem, Stokes' Theorem, divergence theorem, quadric surfaces, vector and parametric equations in two and three space, curvature, cylindrical and spherical coordinates, gradient, maxima and minima for functions of several variables, surface integrals, and line integrals.

MATH 263, 267 COMBINED, MAXIMUM UC CREDIT, ONE COURSE.

C-1D: MATH 230

270 Linear Algebra (3) UC:CSU

*Prerequisite: MATH 262 or 266, with a grade of*C *or better.*

Lecture, 3 hours.

This course develops the techniques and theory needed to solve and classify systems oflinear equations. Solution techniques include row operations, Gaussian elimination, and matrix algebra. Investigates the properties of vectors in two and three dimensions, leading to the notion of an abstract vector space.
Vector space and matrix theory are presented including topics such as inner products, norms, orthogonality, eigenvalues, eigenspaces, linear transformations, and diagonalization. Selected applications of linear algebra are included.

C-1D: MATH 250

275 Ordinary Differential Equations (3) UC:CSU

Prerequisite: MATH 263 or 267 with a grade of C *or better.*

Recommended: MATH 270.

Lecture, 3 hours.

The course is an introduction to ordinary differential equations including both quantitative and qualitative methods as well as applications from a variety of disciplines. It introduces the theoretical aspects of differential equations, including establishing when solution(s) exist, and techniques for obtaining solutions, including series solutions, singular points, Laplace transforms and linear systems.

C-1D: MATH 240

185 Directed Study - Mathematics (1) CSU
285 Directed Study - Mathematics (2) CSU
385 Directed Study - Mathematics (3) CSU

Prerequisite: Math 261 with a *grade of* C *or better.*

Conference,1 hour per unit.

Direct study allows students to pursue selected topics in mathematics beyond the normal curriculum under the direction of a supervising instructor.

CREDIT LIMIT: A MAXIMUM OF 3 UNITS PER SUBJECT IN DIRECTED STUDY MAY BE TAKEN FOR CREDIT.

UC CREDIT FOR INDEPENDENT STUDY/DIRECTED STUDY COURSES NUMBERED 185, 285, AND 385 IN ANY DEPARTMENT IS NOT AUTOMATIC; CREDIT IS CONTINGENT ON UC CAMPUS EVALUATION AFTER APPLICATION AND ADMISSION. THESE UNITS SHOULD NOT BE USED TOWARD CALCULATION OF THE MINIMUM 60 UNITS NEEDED FOR ADMISSION TO THE UC.