MATHEMATICS (MATH)

Mathematics (MATH) 7
Algebraic Literacy with Geometry Continuation Course
This course is a continuation of Math 97 Algebraic Literacy with Geometry.
Completion of Math 97 with a grade of TMP
1 Lecture hours. 1 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR

Mathematics (MATH) 18
Co-Curricular for Math 118
This course is designed to supplement General Education Math by providing foundational math skills necessary to be successful in Gen. Ed. Math. Topics may include: operations with algebraic expressions, basic geometry, order of operations involving fractions, two dimensional graphs, plotting points, equations, and using technology to enhance algebraic concepts. Writing assignments, as appropriate to the discipline, are part of the course.
Concurrent enrollment in linked MATH 118, eligibility for MATH 99 or equivalent and eligibility for ENGLISH 96 or equivalent or consent of Department Chairperson.
2 Lecture hours. 2 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR
Repeatable: Yes, up to 3 times

Mathematics (MATH) 24
Co-Curricular for Math 124
This course is designed to supplement Critical Mathematics (Math 124) by providing foundational math skills necessary to be successful in the course. Topics may include: equivalent fractions, percentages, ratios, absolute value, order of operations, evaluating algebraic expressions, set theory, basic geometry, linear equations and inequalities, the coordinate plane, slope, variation, graphing linear functions, and using technology to analyze data. Writing assignments, as appropriate to the discipline, are part of the course.
Concurrent enrollment in Math 124, eligibility for Math 99 or equivalent and eligibility for English 96 or equivalent or consent of Department Chairperson.
2 Lecture hours. 2 Credit Hours.
Offered At: OH
Repeatable: Yes, up to 3 times

Mathematics (MATH) 25
Co-Curricular for Math 125
This course is designed to supplement Introductory Statistics by providing foundational math skills necessary to be successful in statistics. Topics may include: equivalent fractions, percentages, ratios, absolute value, order of operations, evaluating algebraic expressions, set theory, basic geometry, linear equations and inequalities, the coordinate plane, slope, variation, graphing linear functions, and using technology to analyze data. Writing assignments, as appropriate to the discipline, are part of the course.
Concurrent enrollment in linked MATH 125, eligibility for MATH 99 or equivalent and eligibility for ENGLISH 96 or equivalent or consent of Department Chairperson.
2 Lecture hours. 2 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR
Repeatable: Yes, up to 3 times

Mathematics (MATH) 40
Co-Curricular for Math 140 and 143
This course is designed to supplement College Algebra by providing foundational math skills necessary to be successful in college algebra. Topics may include: operations with algebraic expressions, set theory, basic geometry, linear equations and inequalities, absolute value equations, the coordinate plane, slope, variation, graphing linear and quadratic functions, complex numbers, and using technology to enhance algebraic concepts. Writing assignments, as appropriate to the discipline, are part of the course.
Concurrent enrollment in linked Math 140 or Math 143; completion of Math 097 or higher with a C or better; or eligibility for Math 118, 121 and eligibility for ENGLISH 96; or appropriate score on Placement Test; or consent of Department Chairperson.
2 Lecture hours. 2 Credit Hours.
Offered At: DA, HW, MX, OH, TR, WR, CRED

Mathematics (MATH) 90
Mathematical Literacy
Mathematical Literacy is designed to enable students to develop conceptual understanding and problem solving competence as preparation for quantitative and statistical reasoning level math. This course integrates numeracy; proportional, algebraic & statistical reasoning; functions and modeling and focuses on developing mathematical maturity through problem solving, critical thinking, data analysis, and the writing and communications of mathematics. Students will develop conceptual and procedural tools that support the use of key mathematical concepts in a variety of contexts. Emphasis is placed on modeling and problem solving, with techniques and manipulations covered in context. Throughout the course, Math success content will be integrated with mathematical topics. Credit earned does not count toward any degree, nor does it transfer.
Completion of FS MATH 3001,3002 with a grade of S, or ALEKS math score of 20+, or GED MATH score of 145+, or HiSET MATH score of 8+ and Eligibility for ENGLISH 96, or consent of dept.
6 Lecture hours. 6 Credit Hours.
Offered At: MX, OH, TR, WR

Mathematics (MATH) 97
Algebraic Literacy with Geometry
This course prepares students to make the transition from arithmetical knowledge to algebraic thinking. Topics include but are not limited to: algebraic expressions; linear equations in one and two variables; systems of linear equations in two variables; linear inequalities in one variable; polynomials; factoring; rational and radical expressions; quadratic equations; and introduction to functions. Geometry topics for this course include perimeter, area, and volume. Real-world scenarios and applications of problem-solving skills are emphasized throughout the course. Students must be exposed to graphing technology and/or computer algebra systems. Writing assignments, as appropriate to the discipline, are part of the course.
Completion of FS MATH 3000 with a grade of S, or ALEKS math score of 20+, GED 150, HiSet 10
6 Lecture hours. 6 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR

Mathematics (MATH) 98
Beginning Algebra with Geometry
Course Description: Algebra of real numbers, integer exponents, polynomial operations, factoring, rational and complex expressions, linear equations, word problems, quadratic equations and graphical and algebraic solutions of simultaneous linear equations. Writing assignments, as appropriate to the discipline, are part of the course.
Completion of FS MATH 3001,3002 with a grade of S, or ALEKS math score of 20+ or GED MATH of 145+, or HiSET MATH of 8+, or consent of dept.
4 Lecture hours. 4 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR

Mathematics (MATH) 99
Intermediate Algebra with Geometry
Algebraic operations involving rational exponents, including scientific notation. Algebraic expressions, including radical and rational expressions. Solutions of quadratic, quadratic in form, rational, radical, and absolute value equations. Solutions of compound linear inequalities. Solutions and manipulations of literal equations of literal equations. Graphical and algebraic solutions of systems of linear equations in two and three variables; graphical solutions to systems of linear inequalities. Graphs of linear and quadratic equations. Geometry topics: perimeter, are of geometric figures, triangles, rectangles, and circles; volume of sphere, cylinder and pyramid. Pythagorean Theorem and distance formula. Similarity and proportions. Applications of problem-solving skills are emphasized throughout the course. Students should be exposed to graphing calculator technology and/or computer algebra systems. Writing assignments, as appropriate to the discipline, are part of the course.
Completion of MATH 98 with a C or better, or completion of FS MATH 3003,3004 with grade of S, or ALEKS score of 30+, or GED MATH of 150+, or HiSET MATH of 10+, or Consent of dept.
5 Lecture hours. 5 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR

Mathematics (MATH) 100
Introduction to College Mathematics
This course will provide students with an introduction to college mathematics in two distinct ways. First, students will be exposed to foundational mathematical content that will put them in a position to be successful in their future mathematics courses. The four main topics of the course are numerical literacy, algebraic literacy, math modeling/functions, and graphing. Second, the course will provide students with a space to examine their perceptions, habits, and past experiences in mathematics in an effort to positively influence their future college math coursework and their mathematical identities. Writing assignments, as appropriate to the discipline, are part of the course.
Completion of FS MATH 3000 with a grade of S, or ALEKS math score of 20+, GED 150, HiSet 10
6 Lecture hours. 6 Credit Hours.
Offered At: HW

Mathematics (MATH) 107
Math For Technicians I
Designed to provide mathematical tools for students in terminal technical curricula. Emphasis is on practical aspects of mathematics and less upon the theoretical. Topics include elementary algebra operations, simultaneous and quadratic equations, exponents and radicals, logarithms, introduction to trigonometry, vectors, and use of calculator. Writing assignments, as appropriate to the discipline, are part of the course.
1-5 Lecture Hours. 1-5 Credit Hours.
Offered At: KK, MX, OH

Mathematics (MATH) 108
Math For Technicians II
Continuation of Mathematics 107. Topics include trigonometric functions, solution of oblique triangles, vectors, Cartesian and polar coordinate systems, graphs of functions and basics of differential and integral calculus. Writing assignments, as appropriate to the discipline, are part of the course.
Grade of C or better in MATH 107 or Placement Test, or Consent of Department Chairperson.
3-5 Lecture Hours. 3-5 Credit Hours.
Offered At: KK

Mathematics (MATH) 118
General Education Math
This course is designed to fulfill general education requirements. It is not designed as a prerequisite for any other college mathematics course. This course focuses on mathematical reasoning and solving of real-life problems. Three or four topics are to be studied in depth, with at least three chosen from the following list: counting techniques and probability, game theory, geometry, graph theory, linear programming, logic and set theory, mathematical modeling, mathematics of finance, and statistics. Applications involving problem-solving skills are emphasized throughout the course. Technology is an integral part of this course. Writing assignments, as appropriate to the discipline, are part of the course.
A minimum grade of 'C' in one of the following courses: MATH 90, MATH 97, MATH 99, or MATH 100; or a minimum grade of C in MATH 98 and concurrent or successful completion of MATH 18; or appropriate score on Placement Test; or Consent of Department Chair.
4 Lecture hours. 4 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR
IAI: M1 904 GE: Mathematics

Mathematics (MATH) 121
Math For Elementary Teachers I
This course focuses on mathematical reasoning and problem solving. Topics include operations with rational and irrational numbers, sets, functions, logic, numeration systems and number theory, and solution of linear equations in one variable. Applications are included throughout the course. Problem-solving with the use of calculators and computers is emphasized throughout the course. Writing assignments, as appropriate to the discipline, are part of the course.
A minimum grade of 'C' in MATH 97 or MATH 99; or appropriate score on Placement Test; or Consent of Department Chair.
4 Lecture hours. 4 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR
GE: Mathematics

Mathematics (MATH) 122
Math For Elementary Teachers II
This course is a continuation of Mathematics 121. Topics include probability and statistics, lines, angles, polygons, Pythagorean Theorem, circles, solids, areas, volume, and measurements. Applications are included throughout the course. Problem-solving with the use of computes is emphasized throughout the course. Writing assignments, as appropriate to the discipline, are part of the course.
Grade of C or better in MATH 121, or Consent of Department Chairperson.
4 Lecture hours. 4 Credit Hours.
Offered At: DA, HW, KK, OH, TR, WR
IAI: M1 903 GE: Mathematics

Mathematics (MATH) 124
Critical Mathematics
This course focuses on using mathematics to explore issues of social, political, and economic justice. This course is designed to fulfill general education requirements. It is not designed as a prerequisite for any other college mathematics course. This course focuses on mathematical reasoning applied to the lived experiences of the learners and their communities. At least four topics are to be studied, the multicultural history of mathematics, plus at least three of the following: geometry of neighborhood mapping; unit analysis, ratios, and the disproportion of opportunity; financial mathematics and the distribution of capital; statistics, data, correlations and contradictions; and the probability of injustice. Technology and mathematical modeling are an integral part of this course. Writing assignments, as appropriate to the discipline, are part of the course.
A minimum grade of 'C' in one of the following: MATH 90, MATH 97, MATH 99, or MATH 100; or a minimum grade of 'C' in MATH 98 and concurrent or successful completion of MATH 24; or appropriate score on Placement Test; or Consent of Department Chair.
4 Lecture hours. 4 Credit Hours.
Offered At: OH
IAI: M1 904 GE: Mathematics HD Course

Mathematics (MATH) 125
Introductory Statistics
This course focuses on mathematical reasoning and the solving of real-life problems. Topics addressed include: descriptive statistics (measures of center, variation, and position, and frequency distributions); basic probability theory (counting techniques, sample spaces, probability laws); probability distributions (normal and binomial); statistical inference, which includes estimation, hypothesis testing (z-test, t-test, and chi-square test), errors, and correlation/regression. Tools such as graphing calculators or computers are an integral part of this course. Writing assignments, as appropriate to the discipline, are part of the course.
A min grade of 'C' in one of the following courses: MATH 90 or MATH 97 or MATH 99 or MATH 100; or a minimum grade of C in MATH 98 and concurrent or successful completion of MATH 025; or appropriate score on Placement Test; or Consent of Department Chair.
4 Lecture Hours. 4 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR
IAI: BUS 901,M1 902 GE: Mathematics

Mathematics (MATH) 126
Algebra for Middle School Teachers
This course focuses on the concept of functions in college algebra. It is designed to meet the needs of middle school teachers in accordance to the National Council of Teachers of Mathematics Standards for Teaching Mathematics. Topics include basic definition of different functions and their properties. The following algebraic concepts will be explored: linear functions, systems of linear equations, quadratic functions, non-linear data, combinatorics, probability, exponential functions, log functions, square root functions, absolute value, and trigonometry as periodic functions. Problem solving using calculators, CBLs, and computers is emphasized throughout the course. Writing assignments as appropriate to the discipline are part of the course.
Grade of C or better in MATH 121 and MATH 122.
4 Lecture hours. 4 Credit Hours.
Offered At: TR, WR

Mathematics (MATH) 127
Geometry/Trigonometry for Middle School Teachers
This course focuses on the concepts of plane and solid geometry and trigonometry. It is designed to meet the needs of a middle school teacher in accordance with the National Council of Teachers of Mathematics Standard and the Professional Standards for Teaching Mathematics. Topics include basic definitions and properties of plane and solid figures, congruence, similarity, constructions, Pythagorean Theorem, measurements, transformations, the unit circle and right triangle trigonometry. Problem solving with the use of calculators and computers is emphasized throughout the course. Writing assignments as appropriate to the discipline are part of the course.
4 Lecture hours. 4 Credit Hours.
Offered At: TR, WR
GE: Mathematics

Mathematics (MATH) 140
College Algebra
The focus of this course is on the concept of functions and their characteristics. These consist of polynomial, rational, radical, exponential and logarithmic functions, inverse functions, theory of equations and solving inequalities. The course also includes equations of circles, systems of linear equations, systems of non-linear equations, and matrices useful in solving linear systems. Applications involving problem-solving skills are emphasized throughout the course. Technology is an integral part of this course. Writing assignments, as appropriate to the discipline, are part of the course.
Completion of MATH 99 or higher with a C or better, or Completion of MATH 97 and Concurrent Enrollment in MATH 40; or appropriate score on Placement Test; or Consent of Department Chair.
4 Lecture hours. 4 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR
GE: Mathematics

Mathematics (MATH) 141
Plane Trigonometry
Definition of trigonometric functions, graphs of trigonometric functions and their universes. Applications to triangles, law of sines and cosines, trigonometric identities, equations, vectors and applications. Complex numbers in trigonometric form and DeMoivres Theorem. Calculators will be used. Writing assignments, as appropriate to the discipline, are part of the course.
Completion of MATH 140 with a C or better, or ALEKS math score of 61+, or ACT Math 24+, or SAT Math 580+, or Consent of department.
3 Lecture hours. 3 Credit Hours.
Offered At: DA, HW, KK, OH, TR, WR
GE: Mathematics

Mathematics (MATH) 143
Pre Calculus
Pre-calculus emphasizes the notion of function as a unifying concepts for the topics of college algebra and an extension of the topics of trigonometry. The following families of functions and their characteristics are examined within this course: polynomial functions; rational functions; exponential and logarithmic functions; and trigonometric functions. Writing assignments, as appropriate to the discipline, are part of the course. Applications involving problem-solving skills will be emphasized throughout the course.
Completion of MATH 99 or higher with a C or better, or Completion of MATH 97 and Concurrent Enrollment in MATH 40; or appropriate score on Placement Test; or Consent of Department Chair.
6 Lecture hours. 6 Credit Hours.
Offered At: DA, KK, MX, OH, TR, WR

Mathematics (MATH) 144
Finite Mathematics
Logic, sets, partitions, counting, probability rules and Bayes Theorem, vectors and matrices, and linear programming. Includes applications to behavioral sciences and to business and administration problems. Writing assignments, as appropriate to the discipline, are part of the course.
Completion of MATH 140 with a C or better, or ALEKS math score of 61+, or ACT Math 24+, or SAT Math 580+, or Consent of department.
4 Lecture hours. 4 Credit Hours.
Offered At: DA, HW, KK, MX, TR, WR
IAI: M1 906 GE: Mathematics

Mathematics (MATH) 146
Discrete Mathematics
Introduction to mathematical analysis of finite collections and mathematical foundations of sequential machines, digital logic circuits, data structures, and algorithms. Includes sets, counting, recursion, graph theory, nets, automata, and formal grammars and languages. Writing assignments, as appropriate to the discipline, are part of the course.
Completion of MATH 140 with a C or better, or ALEKS math score of 61+, or ACT Math 24+, or SAT Math 580+, or Consent of department.
4 Lecture hours. 4 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR
IAI: CS 915,M1 905 GE: Mathematics

Mathematics (MATH) 202
Number Concepts/Mid-School Teaching
This course has been designed keeping in mind both the Illinois Professional Content Standards for Teaching (Mathematics) and the content necessary to prepare students to be middle school mathematics and science teachers. A wide range of topics across number of theory and measurement will give the students a grasp of the depth and breadth of mathematics outside of the traditional course structure. Problem solving, estimation, measurements, and construction of simple theories of numbers will be treated with and without the use of technology. Writing assignments, as appropriate to the discipline, are part of the course.
Grade of C or better in (MATH 113, or MATH 126, or MATH 140, or MATH 143).
4 Lecture hours. 4 Credit Hours.
Offered At: TR, WR

Mathematics (MATH) 204
Calculus For Business & Social Sciences
This course provides an introduction to differential and integral calculus with specific applications to business and social science. The use of technology (e.g., graphing calculator, an algebraic system, etc.) and writing as appropriate to the discipline will be emphasized in this course.
Completion of MATH 140 with a C or better, or ALEKS math score of 61+, or ACT Math 24+, or SAT Math 580+, or Consent of department.
4-5 Lecture Hours. 4-5 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR
IAI: M1 900-B GE: Mathematics

Mathematics (MATH) 207
Calculus & Analytic Geometry I
Topics include (but are not limited to) the following: limits and continuity of functions; definition of derivative, rate of change, slope; derivatives of polynomial, rational, trigonometric functions, inverse trigonometric functions, exponential, and logarithmic functions; the chain rule; implicit differentiation; applications of the derivative; indeterminate forms and L'Hôpital's rules; approximation by differentials; higher-order derivatives; Rolle's Theorem and mean value theorem; antiderivatives and the definite integral including the substitution method; the fundamental theorem of calculus. Writing assignments, as appropriate to the discipline, are part of the course.
Completion of MATH 140, 141 with a C or better, or completion of MATH 143 with a C or better, or ALEKS score of 76+, or ACT Math 24+, or SAT Math 580+
5 Lecture hours. 5 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR
IAI: M1 900-1,MTH 901 GE: Mathematics

Mathematics (MATH) 208
Calculus & Analytic Geometry II
Topics include (but are not limited to) the following: applications of the integral; area, physics applications, a rigorous analytic approach to the definitions and properties of logarithmic, exponential functions, and introduction of hyperbolic functions; techniques of integration, including numerical methods, integration by parts, trigonometric substitution, and partial fractions; improper integrals; sequences and series, convergence tests, Taylor and Maclaurin series; parametric equations; polar coordinates and equations of curves, Cartesian, and polar equations of conic sections. Writing assignments, as appropriate to the discipline, are part of the course.
Grade of C or better in MATH 207, or Consent of Department Chairperson.
5 Lecture hours. 5 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR
IAI: M1 900-2,MTH 902 GE: Mathematics

Mathematics (MATH) 209
Calculus & Analytic Geometry III
Topics include (but are not limited to) the following: geometry of the three-dimensional space; equations and graphs of quadratic surfaces; vectors in 2 and 3 dimensions, vector operations; lines and planes in space; calculus of vector valued functions, curvature of curves, Frenet frame vectors, planes, and lines; functions of more than one variable, partial derivatives; the differential, directional derivatives, gradients; extreme values and saddle points of functions of two variables; double and triple integrals, evaluation and applications; using substitution methods that include cylindrical, spherical coordinates, as well as more general transformations. Evaluation of double, and triple integration; line integrals, and their applications; fundamental theorem of line integrals; Green's theorem; surface integrals, and their applications; Stokes' theorem; divergence theorem. Writing assignments, as appropriate to the discipline, are part of the course.
Grade of C or better in MATH 208, or Consent of Department Chairperson.
5 Lecture hours. 5 Credit Hours.
Offered At: DA, HW, KK, MX, OH, TR, WR
IAI: M1 900-3,MTH 903 GE: Mathematics

Mathematics (MATH) 210
Differential Equations
A first course in ordinary differential equations: solutions of first order and first degree differential equations, linear differential equations with constant co-efficients. Linear differential equations of higher order, special differential equations of second order and differential equations of first order but not of first degree. Numerical methods, series solutions and applications included. Writing assignments, as appropriate to the discipline, are part of the course.
Grade of C or better in MATH 208, or Consent of Department Chairperson.
3 Lecture hours. 3 Credit Hours.
Offered At: DA, HW, KK, OH, TR, WR
IAI: MTH 911,MTH 912

Mathematics (MATH) 212
Linear Algebra
Introduction to linear algebra for students who have studied some calculus; computations with vectors and matrices will be emphasized, proofs also will be examined; major topics include systems of linear equations and matrices, determinants, vectors in Euclidean space, abstract vector spaces, linear mappings, computation of eigenvalues and eigenvectors. Writing assignments, as appropriate to the discipline, are part of the course.
Grade of C or better in MATH 208, or Consent of Department Chairperson.
3 Lecture hours. 3 Credit Hours.
Offered At: DA, HW, KK, TR, WR
IAI: MTH 911

Mathematics (MATH) 216
Statistics For Business Majors
The basic concepts of statistical analysis used in business decision-making, including probability and how uncertainty is dealt with in real life. The student will analyze and work out simple problems and should be able to recognize applications of different statistical techniques, interpret the results of analysis and recognize instances in which statistical techniques have been misused. The following concepts and statistical techniques are included: measure of central tendency and variability, random variable and probability distributions, estimation, tests of hypotheses, chi square tests, linear regression and correlations and one-way analysis of variance. Applications are included throughout the course. Problem solving with the use of calculators and computers is emphasized. Writing assignments, as appropriate to the discipline, are part of the course.
Grade of C or better in MATH 140, Placement Test or Consent of Department Chairperson.
4 Lecture hours. 4 Credit Hours.
Offered At: DA, TR
IAI: BUS 901

Mathematics (MATH) 299
Special Topics Mathematics
Special Topics in Mathematics will be discussed along with appropriate computer and calculator activities. New developments will be emphasized, especially materials useful in K-12 education and industry. Each special topic course will have a sub-title. Students can take courses with different sub-titles and receive credit for each. Writing assignments, as appropriate to the discipline, are part of the course.
Consent of Department Chairperson.
1-6 Lecture Hours. 1-6 Credit Hours.
Offered At: DA, HW, KK, OH, WR
Repeatable: Yes, up to 4 times