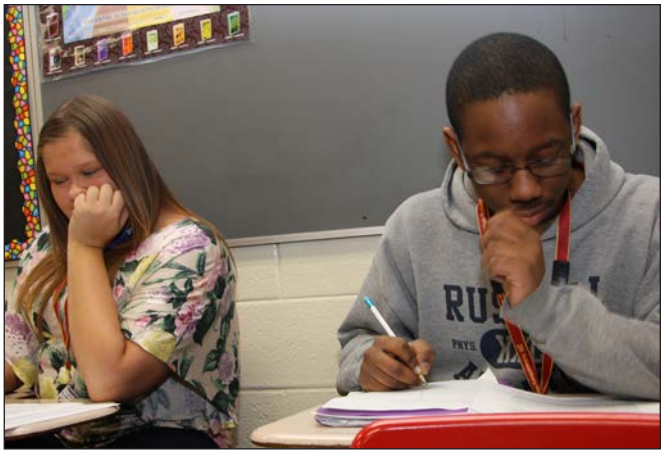


Mathematics

Freshman	Sophomore	Junior	Senior
M328 1 Unit Acc. Algebra 2/Pre-Calculus	M439 1 Unit Trig./Calculus A	M479 1 Unit AP Calculus BC	M579 1 Unit Multivariable Calculus
			M419 1 Unit AP Statistics
M218 1 Unit Acc. Geometry	M328 1 Unit Acc. Algebra 2/Pre-Calculus	M439 1 Unit Trigonometry/Calculus A	M479 1 Unit AP Calculus BC
			M449 1 Unit AP Calculus AB
M217 1 Unit Plane & Solid Geometry	M308 1 Unit Advanced Algebra 2	M408 1 Unit Adv. Trig./Pre-Calculus	M419 1 Unit AP Statistics
	M317 1 Unit Algebra 2	M417 1 Unit Trigonometry/Pre-Calculus	M447 1 Unit Calculus
M147 1.5 Units Advanced Algebra 1	M248 1.5 Units Adv. Geometry & Trig.	M348 1.5 Units Adv. Algebra. 2/Pre-Calc.	M459 1.5 Units AP Calculus AB
M117 1 Unit Algebra 1	M217 1 Unit Plane & Solid Geometry	M317 1 Unit Algebra 2	M417 1 Unit Trigonometry/Pre-Calculus
M114 1 Unit Algebra 1	M214 1 Unit Plane & Solid Geometry	M314 1 Unit Algebra 2	M435 1 Unit Quantitative Literacy
M113 2 Units Algebra 1			M414 1 Unit Algebra 3
M111 1 Unit Intro. to Sec. Mathem.	M114 1 Unit Algebra 1	M214 1 Unit Plane & Solid Geometry	M314 1 Unit Algebra 2
	M212 1 Unit Exp. of Geometric Topics	M312 1 Unit Concepts in Mathematics	

Solid lines are mainstream sequences; dashed lines are alternative selections made through recommendations.

Computer Science Electives

M256 1 Unit Intro to Computer Programming and Software Design	M319 1 Unit AP Computer Science Principals	M257 1 Unit App Development	M468 1 Unit Ind. Computer Science
M266 .5 Unit Apps. in Computer Programming	M359 1 Unit AP Computer Science		

All freshmen in High School District 211 enroll in a mathematics course. Placement at the freshman level is determined by entrance test scores and junior high school performance. A second year of mathematics is taken during the sophomore year and additional mathematics courses are required until the student successfully completes a 300-level course.

Freshmen who have successfully completed junior high school algebra may be placed in M217 Plane and Solid Geometry or M218 Accelerated Plane and Solid Geometry. Other freshmen may be placed in M117 Algebra 1, M114 Algebra 1, M113 Algebra I, M111 Introduction to Secondary Mathematics, M120 Essential Mathematics, or M100 Applied Mathematics 1.

A student who fails to meet the grade prerequisite for any course must repeat the requisite course to improve the grade in order to proceed to the next sequential course.

College-bound students are encouraged to complete four years of mathematics, including trigonometry.

The Mathematics Departments of High School District 211 provide honors and accelerated programs which allow students to complete up to three semesters of calculus leading to Advanced Placement examinations. Advanced Placement testing in computer science (JAVA) and statistics also are available.

M100 Basic Mathematical Applications — LEVEL: 1,2

One year — One unit

PREREQUISITE: Placement through staff conference recommendation.

This course is designed to teach students basic computational and money skills to increase the student's independence in the community. Money skills, whole number operations, time, and calculator usage are emphasized.

M111 Introduction to Secondary Mathematics — LEVEL: 1,2

One year — One unit

This course reinforces arithmetic skills, as their mastery is essential for continued study of mathematics. Pre-Algebra skills of variable recognition, signed numbers, formulas, and single variable equations are introduced as well as beginning geometry topics.

M113 Algebra 1 — LEVEL: 1,2,3

One year — Two units

PREREQUISITE: Acceptable performance on the entrance examination or department approval

This course introduces students to the fundamental principles of algebra with extended instruction and practice. Algebraic symbolism, simplifying expressions, solutions to elementary equations, and the graphic representations associated with variables will be introduced. (NCAA Core Course, 1 unit)

M114 Algebra 1 — LEVEL: 1,2,3

One year — One unit

PREREQUISITE: Acceptable performance on the entrance examination or department approval.

This course introduces students to the fundamental principles of algebra. Algebraic symbolism, simplifying expressions, solutions to elementary equations, and the graphic representations associated with variables will be introduced. (NCAA Core Course)

M117 Algebra 1 — LEVEL: 1

One year — One unit

PREREQUISITE: Acceptable performance on entrance examination

This course introduces students to the fundamental principles of algebra. Algebraic symbolism, simplifying expressions, solutions to equations, and the graphic representations associated with variables are among the course topics. This course emphasizes the algebraic processes applied to word problems. (NCAA Core Course)

M130-M630 Mathematics — LEVEL: 1,2,3,4

One year — Two units

(Community-Based, Hoffman Estates High School Only)

PREREQUISITE: Placement through staff conference recommendation

These courses are designed for student with significant communication deficits. Emphasis is placed on using mathematics within the community and real-life situations while demonstrating appropriate behaviors and utilizing effective communication skills. Student apply themselves in the areas of self care, domestic skills, recreation and entertainment, social skills, community involvement, and vocational skills. Functional mathematics skills of number writing/recognition, money skills, time skills, calculator skills, basic operations, and measurement skills are emphasized. Students are given added instruction according to each student's individualized needs.

M147 Advanced Algebra 1 — LEVEL: 1

One year — One and one-half units

PREREQUISITE: Acceptable performance on entrance exam

This accelerated course is a comprehensive study of algebra including algebraic symbolism, simplifying expressions, solutions to equations, and graphic representations associated with variables. The course will also include advanced techniques of graphing, solving equations and inequities, and functions in preparation for M248 Advanced Geometry and M247 Advanced Trigonometry. This course requires a graphing calculator. (NCAA Core Course)

Do what you can, with what you have, where you are.

– Theodore Roosevelt

M170 Essential Mathematics LEVEL: 1

One year One unit

PREREQUISITE: Placement through staff conference recommendation

This course reinforces arithmetic skills aligned to the state's performance indicators with emphasis on number operation, patterns, ratios, proportions, and estimation. Pre-algebra skills of variable recognition, formulas, and single variable equations are introduced as well as beginning Geometry concepts such as points, lines, planes, and space.

M212 Explorations of Geometric Topics LEVEL: 2,3,4

One year One unit

PREREQUISITE: M114, M113, M111

The course exposes students to a sampling of basic geometric topics including measuring, points, lines, planes, perimeter, area, volume, similarity, congruence, polygons and transformations. This course does not meet the NCAA clearinghouse rules. Students desiring to take Algebra 2 must enroll in at least M214 to satisfy the geometry prerequisite of Algebra 2.

M214 Plane and Solid Geometry LEVEL: 2,3,4

One year One unit

PREREQUISITE: M113 Algebra, M114 Algebra 1, or M117 Algebra 1 (D)

This study of geometry involves studying the axioms and theorems that relate points, lines, planes, and solids. An overview of plane and solid geometry is presented through geometric constructions, measurement formulas, and limited writing of formal proofs. (NCAA Core Course)

M217 Plane and Solid Geometry LEVEL: 1, 2

One year One unit

PREREQUISITE: M117 Algebra 1 (A,B,C) or acceptable performance on Algebra examinations

This comprehensive study of plane and solid geometry includes constructions, formulas for measurement, and formal proofs. It is based on the axioms and theorems that relate points, lines, planes, and solids. Algebraic techniques are integrated into the solution of many geometric problems. (NCAA Core Course)

M218 Accelerated Plane and Solid Geometry LEVEL: 1,2

One year One unit

PREREQUISITE: High performance on Algebra examinations or department approval

This accelerated course is a comprehensive study of plane and solid geometry including constructions, formulas for measurement and formal proofs. It is based on the axioms and theorems that relate points, lines, planes, and solids. Many of the topics are covered in great depth, especially area and volume of solids. Additional emphasis is placed on the integration of algebraic techniques in solving geometric problems. (NCAA Core Course)

M248 Advanced Geometry and Trigonometry LEVEL: 2

One year One and one-half units

PREREQUISITE: M147 (A,B,C)

This accelerated course is a comprehensive study of plane and solid geometry including constructions, formulas for measurement and formal proof. It is based on the axioms and theorems that relate points, lines, planes, and solids. Many topics are covered in great depth, especially area and volume of solids. Additional emphasis is placed on the integration of algebra techniques in solving geometric problems. In the study of trigonometry, the student applies algebra and geometry skills to circular and periodic functions with applications in preparation for M348 Advanced Algebra 2/Pre-Calculus. This course requires a graphing calculator. (NCAA Core Course)

M256 Introduction to Computer Programming and Software Design LEVEL: 1,2,3,4

One year One unit

PREREQUISITE: Algebra I

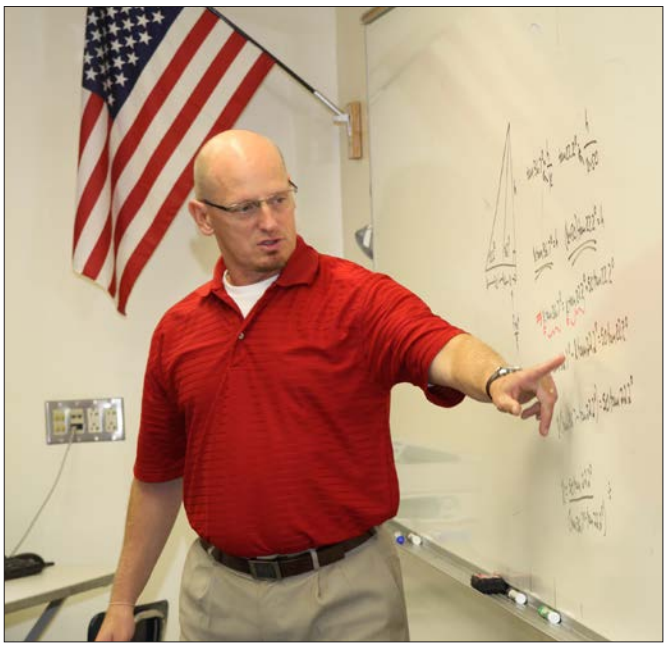
Students are introduced to the basic concepts of computer programming through the creation of software applications. Examples may include: games, phone apps, interactive web pages, networked programs, and interactive animations. No previous knowledge of computer programming is required. (NCAA Core Course)

M257 App Development LEVEL: 3,4

One year One unit

PREREQUISITE: M359 (A,B,C) or department chair approval

Students will complete a study of Mobile App development including rapid iterative prototyping. The differences between Web Apps and Native Apps will be highlighted with relationship to the many deployment platforms available. Commonly accepted UI standards will be highlighted for each deployment platform. (NCAA Core Course)



M266 Applications of Computer Programming LEVEL: 2,3,4

One-half year One-half unit

PREREQUISITE: M256 Computer Programming: A Multimedia Approach and department approval

Through independent study, students apply their computer programming skills to complete highly individualized projects. (NCAA Core Course)

M270 Algebra and Geometry Concepts LEVEL: 2

One year One unit

PREREQUISITE: Placement through staff conference recommendation

This course reinforces skills needed for achieving early high school benchmarks of the Illinois Learning Standards. It introduces algebra concepts such as exponents, algebraic expressions, and graphing. Beginning plane and solid geometry topics are introduced.

M308 Advanced Algebra 2 LEVEL: 2

One year One unit

PREREQUISITE: M217 with department approval

This advanced course is designed for students who have proficient knowledge of algebra and geometry. M308 Advanced Algebra 2 will place an emphasis on questioning, summarizing, justifying, and evaluating. Ideas presented involve advanced techniques of graphing, methods of solving equations and inequalities, and functions. Students are prepared to begin their study of M408 Advanced Trigonometry/PreCalculus. This course requires a graphing calculator. (NCAA Core Course)

M312 Concepts in Mathematics LEVEL: 3,4

One year One unit

PREREQUISITE: Department chair approval and two years of credit in high school mathematics

The course exposes students to a sampling of basic mathematical topics including percent, interpretation of data, probability, tables and graphs, polynomial operations, linear and quadratic functions. This course does not meet the NCAA clearinghouse rules. Students desiring to take Trigonometry must enroll in at least M314 to satisfy the Algebra 2 prerequisite of Trigonometry.

M314 Algebra 2 LEVEL: 3,4

One year One unit

PREREQUISITE: M214 Plane and Solid Geometry

This course reviews topics introduced in M114 Algebra 1 and expands upon them. All standard Algebra 2 topics are covered. The topics include methods of solving equations and inequalities, graphing techniques, conics, and logarithms. This course requires a graphing calculator. (NCAA Core Course)

M317 Algebra 2 LEVEL: 2,3,4

One year One unit

PREREQUISITE: M117 Algebra 1 (A,B,C) and M217 Plane and Solid Geometry

This course is designed for students who have a good knowledge of algebra and geometry. Concepts presented in earlier course work are reviewed and expanded. Ideas presented involve advanced techniques of graphing, methods of solving equations and inequalities, and functions. Students are prepared to begin their study of pre-calculus. This course requires a graphing calculator. (NCAA Core Course)

M319 AP Computer Science Principles LEVEL: 1,2,3,4

One year One unit

PREREQUISITE: Concurrent enrollment in any accelerated math course or completion of M256.

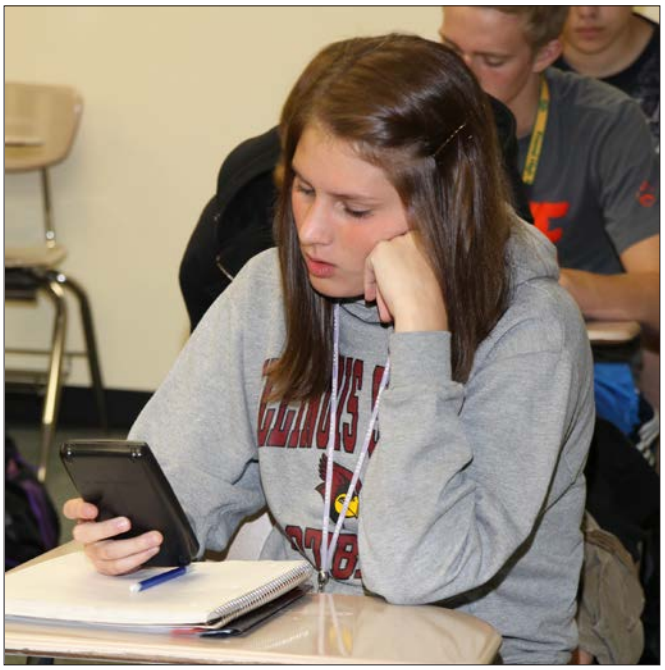
AP Computer Science Principles offers a multidisciplinary approach to teaching the underlying principles of computation. The course will introduce students to creative aspects of programming, using abstractions and algorithms, working with large data sets understandings of the Internet and issues of cybersecurity, and impacts of computing that affect different populations. Students will learn to use current technologies in order to solve problems and create meaningful computational artifacts. (NCAA Core Course)

M328 Accelerated Algebra 2/ Pre-Calculus LEVEL: 1,2,3

One year One unit

PREREQUISITE: M218 (A,B) or department approval

This accelerated course is designed for students who have an excellent knowledge of algebra and geometry. M328 Accelerated Algebra 2 briefly reviews concepts presented in earlier course work and then rigorously expands and applies them to other areas of mathematics. In addition, selected topics from pre-calculus are studied. Ideas presented in this course involve advanced techniques of graphing and solving equations and inequalities and prepares students to take M439 Trigonometry/Calculus A. This course requires a graphing calculator. (NCAA Core Course)



M348 Advanced Algebra 2/ PreCalculus — LEVEL: 3

One year — One and one-half units

PREREQUISITE: M248 (A, B, C)

This accelerated course rigorously expands upon the study of advanced techniques of graphing, solving equations and inequalities, functions (including circular and periodic functions), and trigonometric identities. Students will apply their skills to series and sequences, probability, statistics, limits, and derivative in preparation for M459 Advanced Placement Calculus AB. This course requires a graphing calculator. (NCAA Core Course) *M64802: Harper College Course MTH103, College Algebra, 3 college credit hours.*

M359 Advanced Placement Computer Science — LEVEL: 2,3,4

One year — One unit

PREREQUISITE: Completion of M218 Accelerated Plane and Solid Geometry, or M317 Algebra 2; or M256 Computer Programming: A Multimedia Approach (A,B) with concurrent enrollment in M317 Algebra 2

The JAVA language allows the programmer to process data as well as perform mathematical calculations. In Advanced Placement Computer Science, data structures, programming algorithms, and structured programming are used. Students are expected to use analytical thinking in solving problems and use top-down design methods in developing programs. **AP Computer Science is a strongly encouraged elective any time course prerequisites are met and can be taken in conjunction with another math class.** (NCAA Core Course)

M370 Consumer Mathematics — LEVEL: 3, 4

One year — One unit

PREREQUISITE: Placement through staff conference recommendation

This course targets consumer math skills used in everyday situations such as paying taxes, purchasing a car, investing and managing a household. A full year in this course meets the state of Illinois requirement for consumer education.

M408 Advanced Trigonometry and Pre-Calculus — LEVEL: 3

One year — One unit

PREREQUISITE: M308 with department approval

This advanced course is designed to create a foundation of knowledge needed for success in an advanced placement math course senior year. In the study of trigonometry, the student will apply algebra and geometry skills to circular and periodic functions with applications. In the study of pre-calculus, students will apply their skills to series and sequences, probability, statistics, limits, and derivatives in preparation for M419 AP Statistics and M449 AP Calculus AB. This course requires a graphing calculator. (NCAA Core Course)

It's the possibility of having a dream come true that makes life interesting.

– Paulo Coelho
Alchemist

M414 Algebra 3 — LEVEL: 4

One year — One unit

PREREQUISITE: M314 Algebra 2

This computer-based course helps better prepare students for the mathematics needed for career and college by re-enforcing the fundamental concepts of algebra including rational expressions, complex numbers, and functions that are polynomial, rational, exponential or logarithmic. The class also emphasizes mathematical reasoning and problem solving utilizing multiple approaches (algebraic, geometric, and numeric techniques) with focus on mathematical definitions, theorems, symbols, and notation. This course is aligned to the last developmental course MTH080 Foundations of Math II at Harper Community College. (NCAA Core Course)

M435 Quantitative Literacy — LEVEL: 4

One year — One unit

PREREQUISITE: 23 Math ACT or COMPASS Algebra score 53 or greater and 2 semesters of geometry grades C- or better

This dual enrollment course focuses on the analysis and solution of problems and includes representing and analyzing data using statistical measures, using logical reasoning in a real-world context, estimating, approximating, and judging the reasonableness of answers, and the use of appropriate approaches and tools, such as calculators and computers, in formulating and solving real-world problems. This course is aligned to MTH101 Quantitative Literacy at Harper Community College. Successful completion of the course results in college credit. *M63502: Harper College Course MTH101, Quantitative Literacy, 4 college credit hours.* (NCAA Core Course)

M417 Trigonometry and PreCalculus — LEVEL: 3,4

One year — One unit

PREREQUISITE: M317 Algebra 2 (A,B,C)

In the study of trigonometry, the student applies algebra and geometry skills to circular and periodic functions and rotational velocity. Many topics studied are developed as an extension of concepts introduced in earlier courses as a preparation for calculus. This course requires a graphing calculator. (NCAA Core Course)

M419 Advanced Placement Statistics — LEVEL: 2,3,4

One year — One unit

PREREQUISITE: M328 (with concurrent enrollment in M439), or M408, M417, or M317 (with concurrent enrollment in M417), (A,B,C)

The study of statistics is now a requirement for many university majors. Students in this class will perform statistical tests on data sets using technology in order to organize, analyze, and predict outcomes. This course will follow the guidelines of the Advanced Placement Statistics program. Students are encouraged to take the Advanced Placement exam of the College Entrance Examination Board. This course requires use of a computer and graphing calculator. (NCAA Core Course) **AP Statistics is a strongly encouraged elective any time course prerequisites are met and can be taken in conjunction with another math class.**

M439 Trigonometry - Calculus A — LEVEL: 2,3,4

One year — One unit

PREREQUISITE: M328 Accelerated Algebra 2/Pre-Calculus (A,B) or department approval

In the study of trigonometry, the student applies algebra and geometry skills to circular and periodic functions and rotational velocity. Additional time is spent on extending the trigonometry identities in the first semester. The second semester study of calculus is no longer limited to those preparing for careers in mathematics and the sciences. The need and demand for students in business and social studies who can design procedures, predict and relate the principles of higher mathematics are increasing dramatically. This course emphasizes the applications of differentiation. It is the first of three semesters of college-level calculus and satisfies the requirements for the first semester of calculus suggested by the Advanced Placement Program of the College Entrance Examination Board. This course requires use of a graphing calculator. (NCAA Core Course)

M447 Calculus — LEVEL: 4

One year — One unit

PREREQUISITE: M417 Trigonometry and Pre-Calculus (A,B,C) or department approval

The study of calculus is no longer limited to those preparing for careers in mathematics and sciences. This course emphasizes the skills of differentiation and integration. These students will not qualify for the Calculus AB Advanced Placement Examination. This course requires a graphing calculator. (NCAA Core Course)

M449 Advanced Placement Calculus AB — LEVEL: 4

One year — One unit

PREREQUISITE: M328 Accelerated Algebra 2 (A,B) and Trigonometry, M417 Trigonometry, and Pre-Calculus (A), or M408

The study of calculus is no longer limited to those preparing for careers in mathematics and the sciences. The need and demand for students in business and social studies who can design procedures, predict, and relate the principles of higher mathematics are increasing dramatically. This course emphasizes the various types and applications of differentiation and integration. Students are encouraged to take the Calculus AB Advanced Placement Exam of the College Entrance Examination Board. This course requires use of a graphing calculator. (NCAA Core Course)

M459 Advanced Placement Calculus AB — LEVEL: 4

One year — One and one-half units

PREREQUISITE: M348 (A, B, C)

This accelerated course is the high school equivalent to one semester of college-level calculus. The student is provided additional support in advanced algebra and pre-calculus and prepared to enter college with a strong calculus background. Students are encouraged to take the Calculus AB Advanced Placement Exam. This course requires a graphing calculator. (NCAA Core Course)

M468 Independent Computer Science — LEVEL: 3-4

One year — One unit

PREREQUISITE: M359 (A,B) and department chair approval.

Students complete an independent computer science project beyond M359 curriculum in a supportive environment. Projects will be designed and developed through consultation with the student's advisor (teacher) who will act as advisor/consultant throughout the project. (NCAA Core Course)

M479 Advanced Placement Calculus BC — LEVEL: 3,4

One year — One unit

PREREQUISITE: M439 Trigonometry-Calculus A (A,B) or department approval

This course emphasizes applications of differentiation and integration in relationship to topics from trigonometry and college algebra. Calculus BC concludes the three-semester high school equivalent to two semesters of college-level calculus. The student is prepared to enter college with a strong calculus background. Students are encouraged to take the Calculus BC Advanced Placement Exam of the College Entrance Examination Board. This course requires a graphing calculator. (NCAA Core Course)

M579 Multivariable Calculus — LEVEL: 3,4

One year — One unit

PREREQUISITE: M479 AP Calculus score of 4 or 5

This course is the equivalent to a third course in calculus and analytic geometry including: vector analysis, Euclidean space, partial differentiation, multiple integrals, line and surface integrals, and the integral theorems of vector calculus. M67902: Students with AP Calculus BC scores of 4 or 5 are eligible to enroll in optional University of Illinois credit option at a cost of $300. (NCAA Core Course)

M588 Independent Study Math — LEVEL: 3,4

One year — One unit

PREREQUISITE: M579 (A,B) and department chair approval

Students complete an independent project beyond M579. Projects will be determined through consultation with the student's advisor (teacher) who will act as the advisor/consultant thoughout the project. M68802: Eligible students may enroll in optional University of Illinois credit option at a cost of $300. (NCAA Core Course)