ENG359

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DURATION:	semester course
CREDITS:	1
OPEN TO:	all students
NCAA:	approved
PREREQUISITE:	none

Journalism is designed for strong writers who are interested in writing for publications. Student journalists will be expected to enterprise original story ideas and write news, feature, editorial, and sports stories. The journalistic techniques of editing, interviewing, layout, design, and research will also be covered. Students will learn about press law and ethics and are expected to adhere to these standards. Because of the interviewing requirements, it is necessary that students are outgoing and confident in their interpersonal skills.

Alignment to the Iowa Core Curriculum: *Instruction, learning, and assessment are built primarily on the 11-12th grade-band expectations of the Iowa Core Writing and Language Strands.*

MATHEMATICS COURSES

MATHEMATICS COURSE PROGRESSION
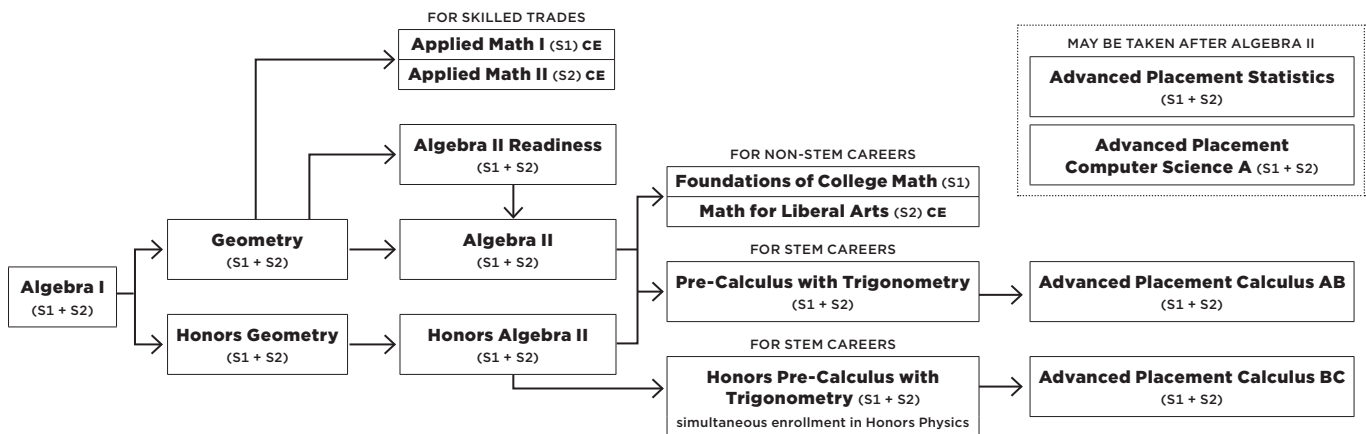
Most 4-year colleges and universities require Algebra I, Geometry, and Algebra II for admission.

CE = CONCURRENT ENROLLMENT

MATHEMATICS

CREDITS REQUIRED FOR GRADUATION	**6 credits** are required for graduation from the Dubuque Community School District.
	Credits earned beyond the requirement are automatically counted as Elective credits.

ALGEBRA I

MTH161 (Sem 1), MTH162 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	all students
NCAA:	approved
PREREQUISITE:	instructor recommendation

Equations and inequalities will be interpreted by using tables and graphs and will be solved through algebraic transformations. Students will experience extensive work with linear equations, including systems of equations. Exponential and quadratic functions will be introduced. By being asked to apply algebraic methods to solve a variety of real world and mathematical problems, students will grow in their ability to use abstraction and symbolism. Graphing calculators will be used throughout the course and are necessary for homework completion. Successful completion leads to Geometry.

Alignment to the Iowa Core Curriculum: *Relationships between quantities and reasoning with equations, linear and exponential relationships, descriptive statistics, expressions and equations, and quadratic functions and modeling.*

GEOMETRY

MTH171 (Sem 1), MTH172 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	all students
NCAA:	approved
PREREQUISITE:	Algebra I

Geometry usually follows Algebra I and precedes Algebra II. In Geometry, many of the concepts from Algebra I are employed to present, develop and use concepts involving figures in a plane (such as triangles, squares and other polygons), in space (such as cubes, rectangular solids and prisms), and other solid figures. The entire course is a development of a logical approach to reasoning and recognition of patterns that can be applied to daily life. Successful completion leads to Algebra II.

Alignment to the Iowa Core Curriculum: *Congruence, proof, and constructions; similarity, proof, and trigonometry; extending to three dimensions; circles with and without coordinates; and applications of probability.*

HONORS GEOMETRY

MTH181 (Sem 1), MTH182 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	freshmen and sophomores
NCAA:	approved
PREREQUISITE:	minimum grade of B- in 8th grade Algebra or instructor / GT facilitator recommendation

Honors Geometry is intended primarily for students who have done well in Algebra I and enjoy the challenge of mathematics. It is designed to meet the needs of students desiring a strong mathematical background. Students will explore the topics of Geometry (MTH171/MTH172) at a greater depth, with some additional topics addressed. Successful completion leads to Honors Algebra II.

Alignment to the Iowa Core Curriculum: *Congruence, proof, and constructions; similarity, proof, and trigonometry; extending to three dimensions; circles with and without coordinates; and applications of probability.*

ALGEBRA II

MTH271 (Sem 1), MTH272 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	sophomores, juniors, seniors
NCAA:	approved
PREREQUISITE:	minimum grade of C- in Algebra I and Geometry or instructor recommendation

Algebra II is a two-semester, two-credit course. Topics include graphing of equations and inequalities, systems, polynomials, quadratic systems, logarithms, trigonometry, and the application of these concepts to real-life. This course is needed to meet the entry requirements for many colleges. It is a prerequisite for many advanced math courses. A graphing calculator is necessary. Successful completion leads to Pre-calculus with Trigonometry or Transition to College Mathematics & Statistics.

Alignment to the Iowa Core Curriculum: *Polynomial, rational and radical relationships; trigonometric functions; modeling with functions; and inferences and conclusions from data.*

HONORS ALGEBRA II

MTH281 (Sem 1), MTH282 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	all students
NCAA:	approved
PREREQUISITE:	Honors Geometry or Geometry with instructor recommendation

Honors Algebra II is a two-semester, two-credit course with topics similar to Algebra II. This course will cover topics in greater depth than Algebra II (MTH271) and with less time spent in review. It meets college entry requirements and successful completion leads to Pre-Calculus with Trigonometry. A graphing calculator is necessary.

Alignment to the Iowa Core Curriculum: *Polynomial, rational and radical relationships; trigonometric functions; modeling with functions; and inferences and conclusions from data.*

PRE-CALCULUS WITH TRIGONOMETRY

MTH331 (Sem 1), MTH332 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	sophomore, juniors, seniors
NCAA:	approved
PREREQUISITE:	Honors Algebra II or a minimum grade of C- in Algebra II and instructor recommendation

Pre-Calculus with Trigonometry is a higher-level course for students taking AP Calculus in high school or Calculus as college freshmen. To be successful, students must have a very strong background in algebra and geometry. Topics include: functions, analytic geometry, trigonometry, parametric and polar equations and the introduction to calculus. The graphing calculator is used to provide a rich array of representation. Real world problem situations are used. A graphing calculator is necessary. Successful completion leads to AP Calculus.

Alignment to the Iowa Core Curriculum: *Polynomial, rational and radical relationships; Trigonometric functions; Modeling with Functions; and Inferences and conclusions from data.*

ALGEBRA II READINESS

MTH341 (Sem 1), MTH342 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	juniors and seniors
PREREQUISITE:	Geometry

Algebra II Readiness has been designed for students who have completed Algebra I and Geometry and would like additional math preparation before Algebra II. This course helps solidify students' understanding of Algebra I and Geometry concepts and introduces Algebra II topics.

Alignment to the Iowa Core Curriculum: *Quadratics, Polynomial, rational and radical relationships; Trigonometric functions; Modeling with Functions; and Inferences and conclusions from data.*

COMMENT: This course may not fulfill admission requirement for four-year institutions.

APPLIED MATH I

NICC CONCURRENT COLLEGE CLASS (MAT:772)

MTH351 (Sem 1)

DURATION:	semester course
CREDITS:	1
OPEN TO:	juniors and seniors
PREREQUISITE:	none
RECOMMEND:	Algebra I and Geometry

Applied Math I is a course designed for students who want to build their mathematical skills for technical fields. Topics include fundamental operations with whole numbers, fractions, decimals, percentages; basic geometry; and measurement. This course has college pacing and rigor. It will require work to be completed outside of class time.

Alignment to Standards: *This course is aligned with the unit objects of the NICC Applied Math Course.*

COMMENT: This is a concurrent enrollment course. In addition to high school credit, students will earn 3 NICC college credits. This course would count towards the following NICC programs: Auto Mechanics Diploma, Auto Technology AAS, Avionics Elect Tech diploma, Diesel Mechanics diploma, Gas Utility Diploma, Industrial Maintenance AAS, HVAC diploma, Renewable Energy diploma, Welding diploma. Applied Math is not a transferable course.

APPLIED MATH II

NICC CONCURRENT COLLEGE CLASS (MAT:773)

MTH352 (Sem 2)

DURATION:	semester course
CREDITS:	1
OPEN TO:	juniors and seniors
PREREQUISITE:	must have one of the following: ALEKS Math score of 14, ACT Math score of 16, high school cumulative GPA of 2.0, or minimum grade of C- in Applied Math I
RECOMMEND:	Algebra I and Geometry

Applied Math II is a course designed for students who want to build their algebra and trigonometry skills for technical fields. Topics include polynomials, equations and formulas, graphing linear equations, systems of linear equations, factoring quadratic equations and trigonometry. This course has college pacing and rigor. It will require work to be completed outside of class time.

Alignment to Standards: *This course is aligned with the unit objects of the NICC Applied Math Course.*

COMMENT: This is a concurrent enrollment course. In addition to high school credit, students will earn 3 NICC college credits. This course would count towards the following NICC programs: Auto Mechanics Diploma, Auto Technology AAS, Avionics Elect Tech diploma, Diesel Mechanics diploma, Gas Utility Diploma, Industrial Maintenance AAS, HVAC diploma, Renewable Energy diploma, Welding diploma. Applied Math is not a transferable course.

FOUNDATIONS OF COLLEGE MATH

MTH361 (Sem 1)

DURATION:	semester course
CREDITS:	1
OPEN TO:	juniors and seniors
PREREQUISITE:	Algebra II

This course is intended to prepare college-bound students for further study in a non-STEM field. This course addresses a variety of topics which will engage students in mathematical decision making. This course will reinforce and expand on topics from prior math courses as well as introduce a variety of topics to prepare students for the Math for Liberal Arts course (MTH362).

Alignment to the Iowa Core Curriculum: *Understands and applies concepts of functions, quantities, and statistics and probability.*

MATH FOR LIBERAL ARTS

NICC CONCURRENT COLLEGE CLASS (MAT:110)

MTH362 (Sem 2)

DURATION:	semester course
CREDITS:	1
OPEN TO:	juniors and seniors
PREREQUISITE:	must have one of the following: ALEKS Math score of 30, ACT Math score of 19, or high school cumulative GPA of 2.79
RECOMMEND:	Algebra II and Foundations of College Math

This course is intended for college-bound students who plan to pursue a non-STEM field. During this course, students will solve problems from many different topics of mathematics. Topics included are: set theory, logic, algebra, graphs, counting techniques, probability, statistics, personal finance, and number representations. The pace and content of this course are college level.

Alignment to Standards: *This course is aligned with the unit objects of the NICC Math for Liberal Arts course.*

COMMENT: This is a concurrent enrollment course. In addition to high school credit, students will earn 3 NICC college credits. Contact your school counselor and/or the admissions office of the postsecondary institution you plan to attend for more information on the transferability of the credits.

HONORS PRE-CALCULUS WITH TRIGONOMETRY

MTH391 (Sem 1), MTH392 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	sophomores, juniors, seniors
NCAA:	approved
PREREQUISITE:	B- or higher in Honors Algebra II or instructor / GT facilitator recommendation; simultaneous enrollment in Honors Physics

Students in Honors Pre-Calculus are taught in-depth Pre-Calculus topics with connections to physics concepts. Honors Pre-Calculus is a higher-level course for students taking AP Calculus in high school or Calculus as college freshmen. To be successful, students must have a very strong background in Algebra, Geometry, and Algebra 2. Topics include: functions, analytic geometry, trigonometry, parametric and polar equations and the introduction to calculus. The graphing calculator is used to provide a rich array of representation. Real world problem situations are used. A graphing calculator is necessary. Successful completion leads to AP Calculus.

Alignment to the Iowa Core Curriculum: *Polynomial, rational and radical relationships; trigonometric functions; modeling with functions; and inferences and conclusions from data.*

ADVANCED PLACEMENT CALCULUS AB

MTH511 (Sem 1), MTH512 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	juniors and seniors
NCAA:	approved
PREREQUISITE:	Pre-Calculus instructor recommendation; completion of, or simultaneously enrolled in, Physics or Honors Physics strongly recommended

AP Calculus AB is designed for students who have successfully completed three years of math including Honors Geometry and Honors Algebra II. This course reviews elementary functions with 90% of the instruction focused on differential and integral calculus and related applications. This course will prepare students to take the Advanced Placement Examination in May. Students may earn college credit depending on the results of the examination. A graphing calculator is necessary.

Alignment to the Iowa Core Curriculum: *Understands and applies concepts of algebra and trigonometric relationships.*

ADVANCED PLACEMENT STATISTICS

MTH521 (Sem 1), MTH522 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	sophomores, juniors, seniors
NCAA:	approved
PREREQUISITE:	Algebra II with instructor recommendation

Statistics is required for many college majors. The major topics in this course include exploring data, planning a study, anticipating patterns, and statistical inference. The course offers the student the opportunity to take the Advanced Placement Examination with the chance to earn college credit depending on the results of the examination. A graphing calculator is necessary.

Alignment to the Iowa Core Curriculum: *Understands and applies concepts of statistics, probability and systematic counting.*

ADVANCED PLACEMENT CALCULUS BC

MTH541 (Sem 1), MTH542 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	juniors and seniors
NCAA:	approved
PREREQUISITE:	Honors Pre-Calculus or Pre-Calculus instructor recommendation; completion of, or simultaneously enrolled in, Physics or Honors Physics

AP Calculus BC is the most advanced course in the mathematics curriculum offered in high school. It is a full-year course in the calculus of functions of a single variable and is comparable to calculus courses in colleges and universities. Topics include all Calculus AB topics plus additional topics such as series and parametric, polar and vector calculus. This course will prepare students to take the Advanced Placement Exam in May. Students may earn college credit depending on the results of the examination. The content is designed to qualify the student for placement and credit in a course that is one course beyond that granted for Calculus AB. A graphing calculator is necessary.

Alignment to the Iowa Core Curriculum: *Understands and applies concepts of algebra and trigonometric relationships.*

PRACTICAL MATH 1

XSM121 (Sem 1), XSM122 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	all students
PREREQUISITE:	placement based on assessment and instructor recommendation

This course is designed to teach the fundamental concepts of mathematics along algebra skills. Topics covered may include number theory, decimals and fractions, rational numbers, ratios, proportions, exponents, square roots, statistics and probability. The class will focus on math skills and practical applications as these skills relate to daily living situations.

Alignment to the Iowa Core Curriculum: *Understands and applies concepts of numbers and quantity, statistics and probability, and geometric properties.*

PRACTICAL MATH 2

XSM221 (Sem 1), XSM222 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	all students
PREREQUISITE:	placement based on assessment and instructor recommendation

This course is designed to teach the fundamentals of algebra. Topics covered may be linear equations with one variable, exponents and polynomials, data, statistics, and probability, irrational numbers and radical expressions. The class will focus on math skills and practical applications as these skills relate to daily living situations.

Alignment to the Iowa Core Curriculum: *Understands and applies concepts of algebra, geometry, and statistics and probability.*

PRACTICAL MATH 3

XSM321 (Sem 1), XSM322 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	all students
PREREQUISITE:	placement based on assessment and instructor recommendation

This course is designed to teach the fundamentals concepts of geometry. Topics covered may be transversal, congruency, transformations, proportion, similarity, geometric figures/measurement, theorems, and proofs. The class will focus on math skills and practical applications as these skills relate to daily living situations.

Alignment to the Iowa Core Curriculum: *Understands, applies and extends understanding of geometry.*

PRACTICAL MATH 4

XSM421 (Sem 1), XSM422 (Sem 2)

DURATION:	year course
CREDITS:	2
OPEN TO:	all students
PREREQUISITE:	placement based on assessment and instructor recommendation

This course is an integrated mathematics course. Concepts are introduced incrementally and are continually practiced throughout the problem sets. Students continue to build upon concepts learned in Practical Math 2 and 3. The class will focus on math skills and practical applications as these skills relate to daily living situations.

Alignment to the Iowa Core Curriculum: *Understands, applies and extends understanding of algebra, geometry, statistics and probability.*

ESSENTIAL ELEMENTS OF MATH

XSM621 (Sem 1), XSM622 (Sem 2)

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DURATION:	year course
CREDITS:	2
OPEN TO:	all students
PREREQUISITE:	placement based on assessment and instructor recommendation

The instruction will develop fundamental concepts of mathematics and concepts of operations and problem solving. Units covered include: operations with numbers, identify algebraic expressions, solve equations, use of graphs, measurement and solving real world problems. Real world applications: money concepts, comparative shopping, purchasing skills, budgets, measuring (cooking and home repair), reading and using graphs.

Alignment to the Iowa Core Curriculum: *Instruction, learning, and assessment are built on the 9-12th grade-band expectations of the Iowa Core and the Essential Elements.*

SCIENCE COURSES

SCIENCE COURSE PROGRESSION
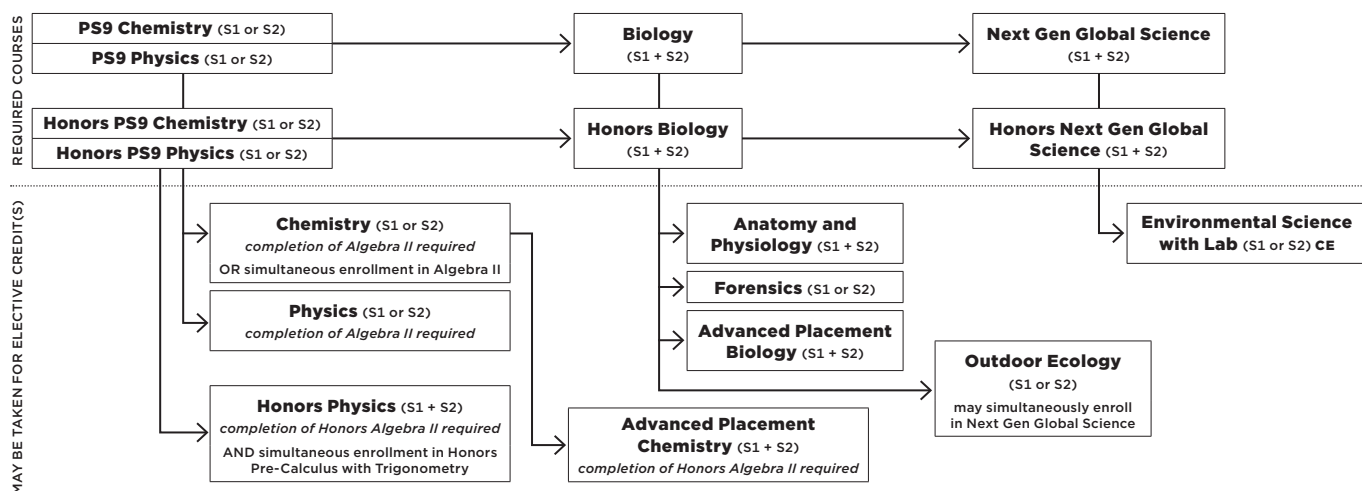
Students planning to enroll in a 4-year college or university should take at least one additional semester of chemistry or physics as an elective.

CE = CONCURRENT ENROLLMENT

PHYSICAL SCIENCE

CREDITS REQUIRED FOR GRADUATION	**2 credits** are required for graduation from the Dubuque Community School District.
	Credits earned beyond the requirement are automatically counted as Elective credits.

PS9 CHEMISTRY

SCI081

DURATION:	semester course
CREDITS:	1
OPEN TO:	freshmen
NCAA:	approved
PREREQUISITE:	none

This physical science course is designed to provide a base understanding of the components of chemistry. The course will focus on the structure and interaction of matter at the molecular level with laboratory experiences that will connect these concepts to a macro level. Connections to students' lives will be woven throughout course.

Alignment to the Iowa Core Science Standards: *HS-PS1 Matter and its Interactions (HSPS1-1, HS-PS1-2, HS-PS1-3, HS-PS1-4, HS-PS1-5, HS-PS1-6, HS-PS1-7, HS-PS1-8), HS-PS2 Motion and Stability: Forces and Interactions (HS-PS2-6), HS-PS3 Energy (HS-PS3-4), and HS-ETS Engineering Design (HS-ETS1-1, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4). For more information, please visit www.nextgenscience.org for a full description of each standard.*

COMMENT: Students planning to enroll in a 4 year college or university will want to take at least one additional semester of elective chemistry or physics during their sophomore, junior, or senior year.