

# Academy of Aerospace and Engineering

**Program of Studies  
2024-2025**



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## Course Selection, Faculty Advisement, & Course Placement

The scheduling process at the Academy of Aerospace and Engineering requires a cooperative effort among students, families, and the school to select the most appropriate program for each individual from the diversity of courses offered. This course catalog provides a listing of every course offered at AAE; however some courses may not be offered every year.

Shortly after the second semester begins, faculty will, in consultation with students, recommend courses for the next academic year. Recommendations will then be made available through PowerSchool for families to review. If there is disagreement on the recommendation, families are encouraged to initiate conversations with their child's current team of teachers and school counselor.

Students at AAE are encouraged to take the most rigorous course available. It is a school-wide goal that all classes are accessible to all students. It should be noted however, that as rigor increases so do the expectations on the student. Faculty and staff will work with students to support them in their classes.

Students who enroll at AAE after their ninth grade year will be placed in courses after a thorough review of previous transcripts and in consultation with families when possible.

### Schedule Changes

During the first ten days of school, school counselors will work with students, families, and teachers to fix any scheduling errors. If there is a request to change a course that is not a result of a schedule error, students will be responsible for completing the schedule change request form in its entirety. Changes are contingent upon school counselor, administrator, and parent/guardian approval. This form can be found on their respective Class of 20xx Schoology pages.

Change of teacher within a course (Example: United States history teacher A to United States history teacher B) is not permitted.

### UConn Early College Experience (UConn ECE)/Advanced Placement

**UConn Early College Experience (UConn ECE):** UConn Early College Experience (UConn ECE) provides academically motivated students with the opportunity to take university courses while in high school. These challenging courses allow students to preview college work, build confidence in their readiness for college, and earn college credits that provide both an academic and a financial head start on a college degree and other postsecondary opportunities. UConn ECE Instructors are high school teachers certified by the University. UConn ECE Instructors foster independent learning, creativity, and critical thinking - all important for success in college and careers. The Academy of Aerospace and Engineering offers UConn ECE courses in Physics, Applied Mechanics, English, Biology, Spanish, and Sociology. To support rigorous learning, University of Connecticut academic resources, including library and online classroom access, are available to all UConn ECE Students. **The tuition for all UConn ECE courses are FREE to AAE students, which means a college tuition savings of hundreds to thousands of dollars!!**



**Advanced Placement:** Advanced Placement courses are designed to prepare students for the College Board AP exams in May. They are college level courses and a score of at least a 3 or higher on the AP exam is required in order to gain college credit. The awarding of credit is at the discretion of individual colleges. These courses are very rigorous and require a level of commitment and time that generally greatly exceeds that of College Preparatory or Honors classes.

**AP Exam Policy:**

Advanced Placement courses are designed to prepare students for the College Board AP exams in May. The AP exam is required in order to gain AP credit through the College Board. All students at AAE who enroll in AP courses are encouraged to take the AP exam in May. There is a cost associated with these exams. Students who qualify for financial assistance can request a fee reduction from their school counselor. More information can be found at <https://apstudents.collegeboard.org/ap-exams-overview>

If a student wishes to take more than three AP courses in an academic year, the request will be reviewed by the administrative team and the student's counselor due to the increased demands of the workload.

AAE will do our best to honor any request to take an AP Exam. If a student is not registered for the course for which they would like to take the exam, they must consult with the AP Coordinator to determine if the school can support the administration of an exam outside of our course offerings.

**AP and ECE Course Offerings**

Subject Area	Courses
Science	<ul style="list-style-type: none"><li>● AP/ECE Biology</li><li>● AP/ECE Physics</li><li>● AP Chemistry</li><li>● ECE Applied Mechanics</li><li>● AP Environmental Science</li></ul>
Math	<ul style="list-style-type: none"><li>● AP Statistics</li><li>● AP Calculus AB</li></ul>
Computer Science	<ul style="list-style-type: none"><li>● AP Computer Science Principles</li><li>● AP Computer Science A</li></ul>
Humanities	<ul style="list-style-type: none"><li>● AP Psychology</li><li>● AP US History</li><li>● AP World History</li><li>● ECE Sociology</li><li>● ECE Spanish</li><li>● ECE Intro to Academic Writing</li><li>● AP Language and Composition</li><li>● AP Literature and Composition</li></ul>

## Dual Enrollment

### Senior Seminar Credit Requirement

Successful student completion of the Senior Seminar is necessary for graduation from The Academy of Aerospace and Engineering. Students will receive 1 credit for completing the required outcomes outlined in the Senior Seminar course. A grade of *Pass with Distinction*, *Pass*, or *Fail* will be recorded on students' high school transcript but will not count toward GPA.

### Grade Level Promotion

Promotion to the next grade is based on the total credits earned by the student. To earn a credit, a student must earn a 60 or higher average at the end of the course. Failure to make adequate progress to the next grade level may have serious consequences, including not graduating on time.

In order for students to move to the next grade they must meet the following criteria:

- Students who have accrued 6.0 or more credits are promoted to the 10<sup>th</sup> grade.
- Students who have accrued 13.0 or more credits are promoted to the 11<sup>th</sup> grade.
- Students who have accrued 20.0 or more credits are promoted to the 12<sup>th</sup> grade.

### Valedictorian and Salutatorian Honors

CREC high school students who entered a CREC high school beginning in grade 9, and continue through grade 12, may be eligible for valedictorian and salutatorian honors\*.

- Only classes taken on our campus and/or graded by our faculty will be counted towards Valedictorian or Salutatorian honors.
- All classes taken on our campus and/or graded by our faculty will be counted towards Valedictorian or Salutatorian honors.
- **The valedictorian and salutatorian will be determined by the cumulative grade point average taken at the end of the first semester, grade 12.**

\* ONLY students who have spent their entire high school career with CREC will be eligible for valedictorian and salutatorian honors.

## Graduation Requirements

Cluster 1: Humanities		
English	4 credits	Total: 9 credits
Social Studies	3 credits <ul style="list-style-type: none"><li>1 U.S. History (9th)</li><li>1 African-American/Black &amp; Puerto Rican/LatinX studies (10th)</li><li>.5 Civics Required (11th)</li><li>.5 Student Choice</li></ul>	
Fine Art/Music	1 credit	
Humanities Elective	1 credit	
Cluster 2: Science, Technology, Engineering, and Mathematics (STEM)		
Mathematics	4 credits	Total: 10.5 credits
Laboratory Sciences	4 credits	
Financial Literacy (starting with the class of 2027)	.5 credit	
STEM Elective	2 credits	
Cluster 3: Fitness, Health, and Safety		
Physical Education & Wellness	1 credit	Total: 2 credits
Health & Safety Education	1 credit	
Cluster 4: World Language		
World Language	2 credits	Total: 2 credits
Cluster 5: Capstone		
Senior Seminar	1 credit	Total: 1 credit
Open Electives	1.5 credits	Total: 1.5 credits
Total Credits		26 Credits

[\\*Click here to access the counseling department Class of 2025 & 2026 Credit Check/Scheduling/Graduation Requirements document.](#)

*\*Consideration of reduction of credits will be determined on a case by case basis with the Principal and in conjunction with the Superintendent of Schools. Requests of this nature are rare and will be considered in extreme circumstances.*

## Grade Point Average

This is the grade point average table we have used; however as we switch to standards based grading we will need to update this.

Letter Grade	Numeric Value	GPA	Honors Weight	AP/ECE Weight
A+	100	4.5	4.75	5.0
A+	96-99	4.4	4.65	4.9
A	93-95	4	4.25	4.5
A-	90-92	3.7	3.95	4.2
B+	86-89	3.4	3.65	3.9
B	83-85	3	3.25	3.5
B-	80-82	2.7	2.95	2.9
C+	76-79	2.4	2.65	2.9
C	73-75	2	2.25	2.5
C-	70-72	1.7	1.95	2.2
D+	66-69	1.4	1.65	1.9
D	63-65	1	1.25	1.5
D-	60-62	.7	.95	1.2
F	0-59	0	0	0

A student's GPA will only include classes that have been taken within a CREC high school program. This would also include credit recovery taken during the summer, if applicable.

### High School Honor Roll Protocol

- Students who earn a quarterly GPA average of 3.0 or higher with no Ds or Fs shall earn "Honor Roll" for that academic quarter.
- Students who earn a quarterly GPA average of 3.5 or higher with no Cs, Ds or Fs shall earn "High Honors" for that academic quarter.
- Students who earn a quarterly GPA of 4.0 or higher and earn only grades in the "A" range shall earn "Honors with Distinction" for that academic quarter.



## College Planning

Admission requirements for colleges vary greatly, but general guidelines like those below can be very helpful for students planning their high school program. Be sure to consult with counselors on a regular basis and to read the college, university, and trade school catalog to be sure that you are taking the number and types of courses that will meet their specific requirements for admission. Below are some general requirements for types of colleges based on selectivity. Please also keep in mind that you must meet AAE's credit requirement (both total credits and category credits) and AAE's credit requirements may be higher.

	Most Selective	Highly Competitive	Very Competitive	Competitive
English	4 credits			
Math	4 credits	3-4 credits	3 credits	
Science	4 credits	3 credits	3 credits	
Social Studies	4 credits	3 credits	2 credits	
World Language	3-4 years of the same language	3 years of the same language		2 years of the same language
Fine Arts	1 credit recommended			
Extracurricular	Leadership and initiative activities			
Rank in class	Top 10-20%	Top 20-35%	Top 35-50%	Top 50-65%
SAT/ACT scores	1310-1600 or ACT minimum of 29	SAT 1240-1308 ACT 27-28	SAT 1146-1238 ACT 24-26	SAT 1000-1144 ACT 21-23
GPA	A to B+	B+ to B	B to B-	B- to C+
AP/ECE Expectations	Expected		Recommended	Optional
Computer Literacy	Recommended			
Example Schools	MIT, Yale, Harvard, Stanford	UConn (Storrs), RIT, Quinnipiac, RPI	CCSU, UConn (regional campus)	UHart, Becker,



## Cluster 1: Science, Technology, Engineering and Math (STEM)

### SCIENCE

	Required Courses (H)	AP/ECE	Electives
<b>Grade 9</b>	Physics - H	--	--
<b>Grade 10</b>	Biology - H	--	Physics
<b>Grade 11 &amp; 12</b>	Chemistry - H (Grade 11)	AP Biology/ECE Biology AP Chemistry AP Environmental Science	Advanced Astronomy A & B Advanced Science & Engineering Research Anatomy & Physiology A Anatomy & Physiology B Biotechnology & Bioengineering Environmental Science Forensics Interdisciplinary Science Molecular & Cellular Biology ECE Physics 1201Q ECE Physics 1401Q ECE Applied Mechanics CE2110 Zoology

### BIOLOGY

#### SC3132 Biology

1 Credit  
Honors

This course is designed to develop a comprehensive understanding of fundamental concepts and principles in the life sciences. Students will explore real-world scientific phenomena in order to demonstrate mastery of the Performance Expectations (PE) as part of the Next Generation Science Standards (NGSS).

#### SC3294 Molecular and Cellular Biology

1 Credit  
Honors

Prerequisite: Biology

Molecular and Cell biology integrates multiple scientific disciplines. Students will experience significant growth in an area of personal interest within the biological sciences. A strong emphasis will be placed on students to develop individual or group projects that solve problems or answer questions of personal interest. Students will collaborate, problem solve and analyze their data. Students are encouraged to develop projects that allow them to participate in various science competitions, like the Connecticut Science and Engineering Fair and the Connecticut Junior Science and Humanities Symposium. The major products include a DEVELOPING research project proposal, literature review, and Research Poster, along with a final research paper and reflection and a portfolio documenting the student work, growth and project development and data analysis of research findings.



Prerequisite: Biology

This course will cover the advanced placement curriculum in biology from atoms to zoology. Students will study general chemistry as it relates to macromolecules and apply this to an understanding of structural features and metabolism in cells. With this as a foundation to build on, they will explore genetics and biotechnology, anatomy and physiology in organs and organ systems, the phylogeny and evolution of organisms, and interactions between organisms and their environment.

SC3604 Biotechnology and Bioengineering

0.5 Credit  
Honors

This course will introduce students to the theoretical aspects of Biotechnology & Bioengineering and societal issues and ethics arising from various technologies. Students will review primary research literature to explore new aspects of biotechnology and bioengineering. Students will develop a project based on personal interest which may be done individually or in groups. Hands-on laboratory activities will reinforce theoretical information and teach laboratory safety, data analysis, the scientific method, and related computer and engineering skills.

SC3304A Anatomy and Physiology A

0.5 Credit - Fall  
Honors

Prerequisite: Biology

This course is designed for students interested in biomedical research or the medical field. Students will learn about the structural organization of the human body and the underlying physiological processes that are essential for maintaining homeostasis. In the first part of this course, students will learn the organization of the human body and histology and review basic biology and biochemistry. Organ systems will be covered in depth, with the first semester focusing on the nervous, muscular, skeletal and integumentary systems. Throughout the course, we will consider not only the normal structures and function of the body, but also what happens when the body's normal mechanisms fail and disease results. Students will have in- depth discussions, diagnose case studies, and complete presentations on medical conditions and diseases. Laboratory experiments will include dissection of preserved organs and/or animals.

SC3304B Anatomy and Physiology B

0.5 Credit - Spring  
Honors

Prerequisite: Biology

This course will be a continuation of Anatomy and Physiology A. This course is designed for students interested in biomedical research or the medical field. Students will learn about the structural organization of the human body and the underlying physiological processes that are essential for maintaining homeostasis. In the first semester of this course, students will learn the organization of the human body and histology and review basic biology and biochemistry. Organ systems will be covered in depth, with the first semester focusing on the nervous, muscular, skeletal and integumentary systems. Systems to be covered in the second semester will include the cardiovascular system, respiratory system, digestive system, urinary system, endocrine system, and lymphatic (immune) system. Throughout the course, we will consider not only the normal structures and function of the body, but also what happens when the body's normal mechanisms fail and

disease results. Students will have in-depth discussions, diagnose case studies, and complete presentations on medical conditions and diseases. Laboratory experiments will involve osmoregulation (kidney function), blood pressure, electrocardiogram (EKG), blood circulation, and will also include dissection of preserved organs and/or animals.

### SC2302 Zoology

.5 credit

Honors

Prerequisite: Biology

Zoology is the scientific study of animals both vertebrates and invertebrates. As humans, we are intricately tied to animal life – we’ve depended on many of them for food, work, companionship, and other services throughout our evolution and history. This course provides a survey of invertebrates and vertebrates, as well as animal taxonomy. The focus of this course will include the comparative evolutionary development of anatomy and physiology of each of the major animal groups. Dissections, handling of specimens and field studies are required. I would like to revise this course from a whole year course to a half year course.

## CHEMISTRY

### SC3212 Chemistry

1 Credit

Honors

Chemistry explores the fundamental concepts, laws, and theories of chemistry; using real-world applications throughout the course. With the implementation of the Next General Science Standards (NGSS); the Disciplinary Core Ideas (DCIs, the chemistry content) will be interwoven with the Science and Engineering Practices (SEPs, the way scientists think about and do science) and the Cross-Cutting Concepts (CCCs, the way different domains of science are linked). Students will be presented with various phenomena throughout the course and will use DCIs, SEPs, and CCCs to describe matter and the changes it undergoes. Chemical principles such as states of matter, atomic structure, electron structure, periodicity, nomenclature, stoichiometry, aqueous reactions, nuclear chemistry, and bonding theory will be covered using NGSS. Additional topics may include thermochemistry and acid-base theory. Inquiry-based laboratory activities involving state of the art technology and equipment will be included with all NGSS bundles of study.

### SC3263 AP Chemistry

1 Credit

Advanced Placement

Prerequisite: Chemistry and Algebra II

The purpose of Advanced Placement Chemistry is to provide a college-level course in chemistry and to prepare the student to seek credit and/or appropriate placement in college chemistry courses. Class time is divided between student forum discussions on each topic and in-class team building inquiry work. Hands-on laboratory work, integrated throughout the course accounts for more than 25% of the class time. Emphasis is placed on depth of understanding of a topic, rather than breadth of topics.

The topics covered in AP Chemistry are organized by the six “BIG IDEAS,” and seven science practices are used to analyze and express concepts and in laboratory experiments:

The Big Ideas are:

1. The chemical elements are fundamental building materials of matter, and all matter can be understood in terms of arrangements of atoms. These atoms retain their identity in chemical reactions.



2. Chemical and physical properties of materials can be explained by the structure and the arrangement of atoms, ions, or molecules and the forces between them.
3. Changes in matter involve the rearrangement and/or reorganization of atoms and/or the transfer of electrons.
4. Rates of chemical reactions are determined by details of the molecular collisions.
5. The laws of thermodynamics describe the essential role of energy and explain and predict the direction of changes in matter.
6. Any bond or intermolecular attraction that can be formed can be broken. These two processes are in a dynamic competition, sensitive to initial conditions and external perturbations.

All students are required to have successfully completed a year of chemistry before taking the AP class. There is a required summer assignment prior to the start of the course. Expect 1 hour of homework for every 1 hour spent in class.

## EARTH, SPACE AND ENVIRONMENTAL SCIENCE

### SC3344 Advanced Astronomy A: Cosmology and Planetary Science

0.5 Credit  
Honors

Explore the history of the universe and what makes it function. This course will provide an overview of the field of cosmology: the study of Cosmic Microwave Background radiation, galaxies, other related phenomena, the history of the universe, and a study of planetary sciences, where we'll take a look at the planetary formations and properties of planets in our Solar System. Part of the course will involve research on current explorations and studies of extrasolar planets and development on research in understanding the depths of our universe.

### SC3354 Advanced Astronomy B: Astrophysics and Stellar Evolution

0.5 Credit  
Honors

This course will provide a broad introduction to the field of astrophysics and the study of stars and interstellar medium, how stars evolve and change with time, and how we study the cosmos. Topics will include: history and development of the field of astronomy, star formation, stellar evolution, supernovae, neutron stars, black holes, and spectroscopy. Students will participate in multiple research opportunities for exploring current research into the field and studying telescopes and the tools used for exploration and current missions. Astronomy B can be taken without having taken Astronomy A.

### SC2233 AP Environmental Science

1 Credit  
Advanced Placement/ECE

Prerequisite: Biology and Integrated Science

The goal of the ECE/AP Environmental Science course is to provide students with the scientific principles, concepts and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems and to examine alternative solutions for resolving or preventing them. Topics include: human population, biodiversity, energy resources, pollution, climate change, agriculture, land and water use, and human health.

## INTERDISCIPLINARY SCIENCES

### SC3244 Forensic Science

0.5 Credit  
Honors

Prerequisite: Biology

This half-year elective course provides an introduction to the topics of criminology within the field of forensic science. Study includes the applications of concepts from the areas of Biology, Chemistry, Physics, Entomology, Earth Science, and Anatomy and Physiology to analyze and investigate evidence that may be discovered in a criminal investigation. Major topics include processing a crime scene, collecting and preserving evidence, identifying types of physical evidence, organic and inorganic analysis of evidence, hair, fibers, and paint, toxicology, arson and explosion investigations, serology, DNA, fingerprints, firearms, and document analysis. The main focus of this course will be to emphasize the evidential value of crime scene and related evidence and the services of what has become known as the crime laboratory. This course combines basic theory and real laboratory experiments, creating an experiment based situation for the better understanding of the students. The experiments used reinforce previously learned scientific principles rooted in Biology, Chemistry and Physics. Classroom activities include experiments, projects, case studies and the incorporation of technology.

### SC3003 Interdisciplinary Science (Science of Superheroes & Super Villains)

0.5 Credit  
Honors

This course is intended for students who wish to extend their knowledge of special topics within Biology, Chemistry, Physics and Psychology with readings, discussions and projects. We utilize productive talk to explore the “science of” various superheroes/villains and characters in various science fiction, including Star Wars, Star Trek, Harry Potter, Dr. Who, and others based on student interest. We will also incorporate discussions related to the book and movie The Martian, followed by designing and executing a research project on how martian soil can be used to grow potatoes.

## PHYSICS

### SC3314 Physics

1 Credit  
Honors

Physics is a course designed to develop a comprehensive understanding of the fundamental concepts and principles in the field of engineering physics. Students will explore the theories and applications of topics such as motion, energy, waves, electricity, magnetism, and light. A strong connection to algebra and geometry will be emphasized throughout the course. This course will have a strong laboratory base where students will learn the fundamentals of science instrumentation and research techniques. Engineering applications of physical principles are emphasized, including electrical circuits, motors, forces, energy, and optics.



Prerequisites: Physics

Students dig deep into the engineering design process, applying math, science, and engineering skills to hands-on projects. They work both individually and in teams to design solutions to a variety of problems that both engage and challenge the student. Students develop advanced skills in problem solving, research, and design while learning strategies for design process documentation, collaboration, and presentation. A strong emphasis will be placed on student developed laboratory research projects based on personal interests within an area of Science or Engineering. Students are expected to develop projects that allow them to participate in science and engineering competitions. Students will build a working prototype, present a poster of their design and testing results, and complete a final research paper.

SC1231 ECE Physics 1201Q

1 Credit  
Advanced Placement/ECE

Co-Requisite of Pre-calculus or higher

ECE Physics 1201Q is the equivalent to the first semester of a college introductory, algebra-based physics course. ECE Physics addresses the topics of kinematics; Newton's Laws of motion; torque; rotational motion and angular momentum; gravitation and circular motion; work, energy, and power; linear momentum; oscillations, mechanical waves and sound; fluid mechanics and thermal physics. This course includes a hands-on laboratory component comparable to a semester-long introductory college-level physics laboratory. Students ask questions, make observations and predictions, design experiments, analyze data, and construct arguments in a collaborative setting, where they direct and monitor their progress. Four transferable UCONN credits may be available for students who earn a grade of C or higher as part of the UCONN Early College Experience (ECE) Program (course number 1201Q).

## ENGINEERING

	CP
Grade 9	Introduction to Engineering
Grade 10	Principles of Engineering
Grade 11/12	Aerospace Engineering Computer Aided Design: Engineering Graphics Digital Electronics Industrial Design Technology - Introduction to Wood Technology Mechanical Engineering Robotics

### EG1910 Introduction to Engineering Design/ PLTW

1 Credit  
College Prep

Introduction to Engineering Design is largely a project-based course that provides students with an introduction to the field of product design and development. Students will learn how to use the CAD software Onshape. Through the year this course will cover the design process, sketching, and 3-D modeling of parts and assemblies.

### EG1911 Principles of Engineering/ PLTW

1 Credit  
College Prep

Principles Of Engineering (POE) is a high school-level survey course of engineering. The course exposes students to some of the major concepts that they will encounter in a post-secondary engineering course of study. Students have an opportunity to investigate engineering and high tech careers. POE gives students the opportunity to develop skills and understanding of course concepts through activity, project and problem-based (APPB) learning. Used in combination with a teaming approach, APPB learning challenges students to continually hone their interpersonal skills, creative abilities, and problem solving skills based upon engineering concepts. It also allows students to develop strategies to enable and direct their own learning, which is the ultimate goal of education. The course applies and concurrently develops secondary level knowledge and skills in mathematics, science, and technology.

### SC1135 Aerospace Engineering

1 Credit  
College Prep

Aerospace Engineering is a project based course which introduces students to the fundamentals of atmospheric and space flight. Students in this course will learn the fundamental principles governing aerospace systems through a mixture of problem solving, laboratory work, and design challenges. Projects will require students to effectively manage the physical concepts at work as they complete design challenges ranging from the construction of various aircraft to navigating flight paths. Students will also receive extensive knowledge on the function, uses, and regulations of drones with the opportunity to test for a commercial drone operator license. Throughout this hands-on course, students will communicate their work with models, presentations, and written technical reports.





### TE2261 Mechanical Engineering

1 Credit  
College Prep

The course includes discussion and experimentation in design, communications, production and manufacturing, and transportation systems and aerodynamics. Topics and units may include alternative energy vehicles, communication, electrical and electronic circuits used in transportation, and polymer and metal manufacturing processes. Students will build an Electrathon America Car to compete at Lime Rock Raceway in May. Students will learn to fabricate and weld assemblies to create the EV racer for the challenge.

### SC3374 Digital Electronics

0.5 Credit  
Honors

Digital Electronics is a project based course that starts with the basic concepts of electricity and advances into the theory, practical use and application of analog and digital solid-state components. Students will have hands-on experience using the latest electronic diagnostic equipment such as multimeters, function generators, digital logic probes and oscilloscopes. In the first half of this course, the students will learn how digital components are combined to make computers and in the second half, they will actually use and program microcontrollers to read sensors, light LEDs, display alphanumeric information, make music, control motors and interface with other devices.

### AR0307 Industrial Design (runs in odd start school years)

.5 Credit  
College Prep

This multidisciplinary field involves applying 2D and 3D fabrication processes to produce objects, commercial products, and systems that entertain, enable, and inspire, and transform the way people live. Today's product designer is multifaceted, with the ability to create, integrate, and communicate ideas across product areas, such as furniture or shoe design, fashion accessories, home, and office décor, consumer products, and packaging. We will be using Autodesk Fusion 360 for our main software for this course.

### TE8001 Technology

1 Credit  
College Prep

This is an introduction to the basics of woodworking. The course is designed to initiate and develop the student's hands-on ability to intelligently design and construct useful products. Construction principles, procedures, machines, materials and hand tools will be covered. Units the students will experience include safety, fasteners, joinery, and material science. Safe working procedures, proper design and pride in craftsmanship will be emphasized. Students will be creating individual and class projects throughout the year.

### SC3374 Digital Electronics

0.5 Credit  
Honors

Digital Electronics is a project based course that starts with the basic concepts of electricity and advances into the theory, practical use and application of analog and digital solid-state components. Students will have hands-on experience using the latest electronic diagnostic equipment such as multimeters, function generators, digital logic probes and oscilloscopes. In the first half of this course, the students will learn how digital components are combined to make computers and in the second half, they will actually use and program microcontrollers to read sensors, light LEDs, display alphanumeric information, make music, control motors and interface with other devices.



EG1004 Computer Aided Design: Engineering Graphics (runs in odd start school years)

.5 Credit  
College Prep

Engineers and Architects have a working knowledge of mechanical parts as well as computer-aided design (CAD) software, such as AutoCAD and Fusion 360. We will work on architecture, mechanical, electrical, and electronic technical drawings used by managers, engineers, and clients to understand the needs and requirements for a new product or system. We will work with digital drawings that directly communicate with CNC and 3D printing machines to make products during the class. Industrial standards for Haas CNC, presentation, formatting, dimensioning, and detailing will be covered in the class.



## COMPUTER SCIENCE

	<b>CP</b>	<b>AP</b>
Grade 9	Exploring Computer Science	
Grade 10	--	AP Computer Science Principles
Grade 11	–	AP Computer Science A
Grade 12	Data Structures & Algorithms	

### TE00106 Exploring Computer Science

1 Credit  
College Prep

Exploring Computer Science is a year-long foundational course developed around a framework of both computer science content and computational practice. Throughout the course, emphasis is placed on how computing enables innovation in a variety of fields and the impacts that those innovations have on society. Assignments and instruction are contextualized to be socially relevant and meaningful for diverse students. Topics in ethical and social issues in computing and careers in computing are woven throughout the six units. Units utilize a variety of tools/platforms, and culminate with final projects around the following topics: Human Computer Interaction, Problem Solving, Web Design, Programming, Computing and Data Analysis and Robotics

### TE1043 AP Computer Science Principles

1 Credit  
Advanced Placement

The AP Computer Science Principles course is designed to be equivalent to a first-semester introductory college computing course. In this course, students will develop computational thinking vital for success across all disciplines, such as using computational tools to analyze and study data and working with large data sets to analyze, visualize, and draw conclusions from trends. The course is unique in its focus on fostering student creativity. Students are encouraged to apply creative processes when developing computational artifacts and to think creatively while using computer software and other technology to explore questions that interest them. They will also develop effective communication and collaboration skills, working individually and collaboratively to solve problems, and discussing and writing about the importance of these problems and the impacts to their community, society, and the world.

### SC3373 AP Computer Science A

1 Credit  
Advanced Placement

This course will cover the AP Computer Science curriculum. It is focused on the JAVA programming language. The course starts with an early introduction to objects and GUI. The course introduces basic data types, user-defined data types, control structures, and basic input and output (both console and graphical interfaces). The course will introduce the analysis and implementation of simple data structures (Arrays and ArrayLists), searching and sorting, recursion, inheritance and polymorphism. Inquiry-based laboratory activities are used to enhance the understanding of core concepts.

## MATHEMATICS

Grade Level	Honors	AP	Electives
Grade 9	Algebra 1 Geometry Pre-Calculus	--	--
Grade 10	Geometry Algebra 2 Pre-Calculus	--	--
Grade 11	Algebra 2 Pre-Calculus Introduction to Data Science	AP Calculus AB AP Calculus BC	Financial Algebra
Grade 12	Pre-Calculus Introduction to Data Science	AP Calculus AB AP Calculus BC AP Statistics	AP Statistics Financial Algebra

### MA2014 Algebra I

1 Credit  
Honors

Based on a discovery approach (learn by doing), this course is designed so that students will discover important algebraic principles blended with geometry, data analysis, discrete mathematics and statistics. This investigative approach, driven by a strong emphasis on conceptual understanding and mathematical relationships, reflects national and state standards. Within the context of real-world data and cooperative learning groups, students will create an algebraic vocabulary; continue to develop oral and written expression; explore graphs and statistical methods to represent and interpret data; extend work with proportions and percents to rates and variation; graph and write linear equations; connect linear equations to parallel and perpendicular lines; solve systems of linear equations; investigate exponential growth and properties of exponents; describe functions and function notation; and model quadratics and find their roots. Active learning will be enhanced with technology-rich instruction including computer software applications, graphing calculator exploration and use of the Geometer's Sketchpad. A TI-83 or TI-84 graphing calculator is required.

### MA2102 Geometry

1 Credit  
Honors

Proof Based Geometry emphasizes advanced geometry including axiomatic foundations of the deductive process. The course integrates different elements of three-dimensional figures and algebraic/graphical representation of geometric principles. Problem solving will include the use of graphing calculators. This course develops a structured mathematical system employing both deductive and inductive reasoning. It includes plane, coordinate, and transformational geometry. Proof is developed and the concepts of congruence and similarity are investigated and applied. Algebraic methods are employed to solve problems involving geometric principles. While Euclidean geometry is the basis of most of the course some non-Euclidean geometries are investigated. When appropriate, portions of MATH 121 will be applied to Foundations in Science courses.



## MA2202 Algebra II

1 Credit  
Honors

Prerequisites: Algebra I and Geometry

Building on the skills, concepts, and vocabulary of Algebra I, this course extends what has been previously learned and introduces students to more advanced topics in algebra. The course is designed to satisfy the Common Core State Standards and to prepare students to compete with peers nationally as well as globally. Students will gain experience with the concepts of functions and inverse functions and investigate polynomial functions, rational expressions and functions, trigonometric functions, exponential and logarithmic functions, and inferential statistics. Use of technology in working with different mathematical models of real world problems is employed to enhance the learning experience. Successful completion of this course provides a foundation for further study in Mathematics as well as providing prerequisite knowledge for courses in other disciplines.

## MA2243 Pre-Calculus

1 Credit  
Honors

This course is a rigorous study of functions and their properties. Trigonometric, polynomial, rational, radical, and exponential mathematical functions are studied in detail as well as sequences and series, vectors, parametric, and polar coordinates. Development of integrated mathematical tools for applications to science will include more advanced levels of mathematical modeling. This course provides a strong foundation in functions and equations as they apply to both mathematical functions and models of science while preparing students to pursue calculus.

## MA1009 Introduction to Data Science

1 Credit  
Honors

Data science is one of the hottest industries in the US where professionals analyze “big data”. You will use a variety of technological tools to understand, ask questions of, and represent data through project-based units. You will be a data explorer and develop your understanding of data analysis, sampling, correlation/causation, bias and uncertainty, modeling with data, making and evaluating data-based arguments, and the importance of data in society. This will provide you with opportunities to understand the data science process of asking questions, gathering and organizing data, modeling, analyzing and synthesizing, and communicating.

## MA2352 Advanced Placement Statistics

1 Credit  
Advanced Placement

This course provides an in-depth study of applied statistics. The focus is on four major areas of statistical analysis:

1. Exploratory data analysis;
2. Planning a statistical study (including experimental design and sampling theory);
3. Probability modeling and simulation;
4. Statistical inference.

This course should be particularly valuable to students with interests in mathematics, engineering, life sciences, environmental science, and medicine. As part of the coursework, each student will plan and conduct a substantial statistical study in an area of his or her interest. Students who successfully complete the course will be prepared to take the AP Statistics exam in May.



### MA4052 Financial Algebra

1 Credit  
Honors

Prerequisites: Algebra 2

Financial Algebra is a comprehensive learning program aligned to the Common Core State Standards. It is an applications-rich, algebra-based, technology-oriented program that incorporates mathematical skills in real-world contexts. Topics include: Banking, Investing, Credit, Employment and Income Taxes, Automobile Ownership, and Household Budgeting. The course allows students to experience the interrelatedness of mathematical topics, find patterns, make conjectures, and extrapolate from known situations to unknown situations. The mathematics topics contained in this course are introduced, developed, and applied in an as-needed format in the financial settings covered. Students are encouraged to use a variety of problem-solving skills and strategies in real-world contexts, and to question outcomes using mathematical analysis and data to support their findings.

### MA2304 Advanced Placement Calculus AB

1 Credit  
Advanced Placement

Prerequisite: Pre-Calculus

This calculus course will provide students with all of the elements required for pursuing further collegiate study of calculus. The course is designed to prepare students for successful performance on the advanced placement exam at the AB level. Concepts presented will include use of graphical, numerical and symbolic representations and other materials usually required for the completion of at least one semester of college level calculus. Applications from biology, chemistry, physics as well as engineering are studied in the context of calculus. Technology is used where appropriate throughout the course. Students completing this course are prepared for successful completion of the calculus Advanced Placement exam (level AB).



## Cluster 2: Humanities

### LANGUAGE ARTS

	Honors	AP/ECE	Electives
Grade 9	English I	--	--
Grade 10	English II	--	--
Grade 11	English III	ECE Introduction to Academic Writing	Journalism College & Creative Writing
Grade 12	English IV	AP Language & Composition (also ECE) AP Literature & Composition	

#### EN1372 English Language Arts I

1 Credit

Honors

Students enrolled in this course will study American Literature through a variety of themes. It will encourage the students to think critically about literature, connect to their personal experiences, and make connections across disciplines. Students in American Literature will work closely with the American History curriculum to complement the content of the course. The American Literature course will also involve the students in a variety of writing experiences to demonstrate their knowledge of the content and their ability to develop their skills in this area. Technology will be integrated to enhance the students' knowledge of American Literature and culture.

#### EN2402 English Language Arts II

1 Credit

Honors

The emergence of voice is integral in understanding the power, authority, and social advancements within societies. Power is gained, maintained, and often restricted through language and the expression of individual and collective voices. Along with the power of voice comes responsibility: the obligation to act justly and the spirit to better the world around. When used properly, strong voices have given rise to leadership, activism, empowerment, and liberation. Unfortunately, the responsibilities of voice are not always fulfilled. Often, voice and the associated power are corrupted, leading to oppression and injustice. In "The Power of Voice," students will study voices from around the globe and across America. Reading classical texts, modern works, current periodicals, and diverse genres will add to student knowledge of global voices. In addition, students will write and create their own works to help discover and develop their own voices and unleash the inherent power to better the world around them. The ultimate goal of the course is to heighten the students' understanding of the powers, dangers, and endless possibilities of voice.

#### EN3402 English Language Arts III

1 Credit

Honors

World Literature provides students with the opportunity to explore literature from many cultures within its historical context. The course will examine how cultural and literary archetypes exist in a multicultural and historical context. Students will learn how literature passes on cultural values and explains natural events.



Students will continue to develop their effective communication skills in the areas of reading, writing, listening, speaking, and viewing. Technology will be integrated to enhance the students' knowledge of world literature and culture. This course will encourage students to think critically about literature, make connections across disciplines, and connect to their personal experiences in order to succeed in their academic studies and their future careers. SAT Verbal skill practice will be integrated into the course.

EN1004 Introduction to Academic Writing/UConn ECE ENGL 1004

1 Credit  
UConn ECE

Prerequisite: English I and English II

This is a UCONN ECE elective credit course, which can be taken in lieu of English III. It serves as an intense introduction to the foundations of various types of writing formats. It focuses on the development of the reading and writing skills essential to university work. It is recommended that students successfully pass this course before electing to take AP Language/ENGL 1010 or AP Literature. Students can earn 4 credits from UCONN.

EN4052 English Language Arts IV

1 Credit  
Honors

This course is designed to assist students in the development of their creativity, as well as their college writing abilities. By reading and discussing the work of selected authors, students will add to their knowledge of characterization, plot, setting and point of view. Students will apply this knowledge while experimenting with different writing genres and discovering their own unique writing styles. Students will also learn and practice college level writing skills, beginning with the college application essay in order to be better prepared for the rigors of college writing. An assortment of mini-lessons will be aimed at improving grammar and mechanics. An emphasis will be placed on peer-revision as students work together to hone both their creative and academic writing skills. In addition to completing numerous written assignments and individual portfolios, each student will contribute to a class anthology and be encouraged to prepare at least one piece for submission to a publishing outlet or writing contest.

EN3103 AP English Language and Composition/UConn ECE ENGL 1007

1 Credit  
Advanced Placement/ECE

Prerequisite: English I, II and ENGL1004 (recommended) or English III

This course engages students in becoming skilled readers of prose written in a variety of rhetorical contexts, and in becoming skilled writers who compose for a variety of purposes. Both their writing and their reading should make students aware of the interactions among a writer's purposes, audience expectations, and subjects, as well as the way genre conventions and the resources of language contribute to effectiveness in writing. The overarching objective is to enable students to write effectively and confidently in their college courses across the curriculum and in their professional and personal lives. AP English Language and Composition provides students with opportunities to write about a variety of subjects from a variety of disciplines and to demonstrate an awareness of audience and purpose. It emphasizes the expository, analytical and argumentative writing that forms the basis of academic and professional communication, as well as the personal and reflective writing that fosters the development of writing facility in any context. In addition, it teaches students that the expository, analytical, and argumentative writing they must do in college is based on reading, as well as, on personal experience and observation. Therefore, it teaches students to read primary and secondary sources carefully, to synthesize material from these texts in their own compositions, and to cite sources using conventions recommended by professional organizations. This course may be taken in lieu of English III or English IV.

Instruction in academic writing through interdisciplinary reading. Assignments emphasize interpretation, argumentation, and reflection, revision of formal assignments and instruction on grammar, mechanics, and style. 4 UConn credits upon successful completion of the course.

### EN1326 AP English Literature and Composition

1 Credit

Advanced Placement

Prerequisite: Senior Standing

Advanced Placement English Literature and Composition engages students in the careful reading and critical analysis of imaginative literature. Through the close reading of selected texts, students deepen their understanding of the ways writers use language to provide both meaning and pleasure for their readers. As they read, students consider a work's structure, setting, characterization, language, and themes. The course includes intensive study of representative works from various genres and periods in both prose and poetic form. The pieces chosen invite and reward rereading and do not, like ephemeral works in such popular genres as detective or romance fiction, yield all (or nearly all) of their pleasures of thought and feeling the first time through. Skills such as close reading, discussion, and both analytical and creative writing will be emphasized in this course. This course may be taken in lieu of English IV.

### EN1221 Journalism

1 Credit

Prerequisite: Junior or Senior Standing

Students will be introduced to the concept of news writing and evaluate media with a critical lens. Students will learn the basic formatting, style and structure of journalism writing, with focus on purpose and audience, and apply the fundamentals of the AP style of writing. Students will focus on the skills necessary for newspaper and desktop publishing. They will become staff reporters for the school newspaper and will become familiar with the elements of writing effective news stories, editorials, and features. Additional topics will include the study of layout, photojournalism, the First Amendment and media ethics, while developing research and interviewing skills.

### EN1312 College and Creative Writing

.5 Credit

Prerequisite: Junior or Senior Standing

Over the course of this class, students will develop as creatives and writers by engaging in a variety of writing exercises that explore why they write and what they want to write about. They will learn the basics of storytelling (character, setting, plot) and how to develop those basics in order to lay the groundwork for whatever type of story they want to tell. Students will work on Creative Writing projects in genres such as dramatic writing (playwriting, tv writing, film writing), personal essay, short fiction, etc.



## SOCIAL STUDIES

	Honors	AP/ ECE	Electives
Grade 9	U.S. History	--	--
Grade 10	Black/LatinX Studies	--	--
Grade 11	Civics	AP World History AP US History ECE Sociology AP Psychology	Sociology Economics Intro. to Criminal Justice World History
Grade 12	(see elective list)		

### SS4022 United States History

1 Credit  
Honors

American History is a course designed to take students on an exploratory journey of the history of North America from post-Civil War to present. Students will investigate history in chronological order through various themes such as expansion, race relations, geography, government, education, immigration, arts & entertainment, transportation, and economics. Students will have an opportunity to look at history from the vantage point of an everyday citizen alongside a more traditional approach of studying significant historical figures and events. Students in American History will work closely with the American Literature curriculum as it complements the content of the course.

### SS2001 African American, Black, Latinx, and Puerto Rican Studies

1 Credit  
Honors

Students will consider the scope of African American, Black, Latino, and Puerto Rican contributions to U.S. history, society, economy, and culture. The course is an opportunity for students to explore accomplishments, struggles, intersections, perspectives, and collaborations of African American, Black, Latino, and Puerto Rican people in the United States. Students will examine how historical movements, legislation, and wars affected the citizenship rights of these groups and how they, both separately and together, worked to build U.S. cultural and economic wealth and create more just societies in local, national, and international contexts. Coursework will provide students with tools to identify historic and contemporary tensions around race and difference; map economic and racial disparities over time; strengthen their own identity development; and address bias in their communities. This course will contribute to the critical consciousness and civic-mindedness competencies of a twenty-first century graduate.

### SS2005 Civics

.5 Credit  
Honors

Civics is a required course for graduation. The focus of this course is to prepare students to exercise their political responsibilities as thoughtful and informed citizens. Civics provides a basis for understanding the rights and responsibilities of being an American citizen and a framework for competent and responsible participation in American government. Emphasis is placed on the historical development of government and political systems, and the importance of the rule of law; the United States Constitution; Federal, State and local government structure; and rights and responsibilities of citizenship. Students will actively investigate local, state and national issues, read and participate in discussions, and develop informed opinions using a variety of writing forms. This course prepares students for college level analytical writing by teaching key writing skills throughout the curriculum.

### SS4243 AP World History: Modern

1 Credit  
Advanced Placement

The purpose of the AP World History: Modern course is to develop historical thinking skills that allow students to analyze global historical narratives from approximately 600 CE to present, with particular emphasis on 1200 CE to present. Students will master selective historical facts but the emphasis of the course is on developing analytical reading and writing skills. The course highlights changes in global frameworks and their causes and consequences, as well as comparisons among major societies. Specific themes provide further organization to the course, along with consistent attention to contacts among societies that form the core of world history as a field of study.

### 1302 Sociology

.5 Credit  
College Prep

Sociology is the systematic study of social behavior and human groups. The course will examine the patterns of human behavior by studying the primary institutions found in all human societies by identifying the membership groups various people belong to. The concepts of social norms, values, status, class ranking, racial, ethnic, gender, and religious elements will form the core basis of the course. The class will also explore the ever changing societal issues of crime, aging, poverty, deviant and anti-social group activities, urbanization, drugs, and alienation. It is the desire of the course to assist the student in developing problem solving skills and a rational approach to the world in which they inhabit.

### SS4071 Sociology/Introduction to Sociology/UConnECE SOCI 1001

1 Credit  
UConn ECE

Prerequisite: Completion or concurrent enrollment in ECE English 1004

Modern society and its social organization, institutions, communities, groups, and social roles: the socialization of individuals, family, gender, race and ethnicity, religion, social class, crime and deviance, population, cities, political economy, and social change. As a UConn ECE course this curriculum will provide an additional college-level experience with credit-earning opportunities. This will help prepare students as they transition to college, while also providing a challenging new course for students who have a greater interest in the subject matter. 3 UConn credits awarded upon successful completion of the course.

### SS4223 AP Psychology

1 Credit  
Advanced Placement

Prerequisites: Biology

This course will cover the advanced placement curriculum in psychology. Students will learn about the history of psychology as a way to both explain the range of human behavior that is considered normal and to establish criteria for identifying that which is abnormal. Many approaches have come into fashion and faded away during this history and we'll learn about what influenced them and what benefits some of these approaches brought to the field. One of the most important advancements came when psychologists began to explore the methods being independently developed and employed by scientists studying behavior in animals. From this historical foundation, students will evaluate the modern study of behavior and mental processes in human beings and other animals and how this knowledge is applied in the various major subfields in psychology. Students will also learn about the ethics and methods psychologists use in their science and practice.



### SS4353 AP United States History

1 Credit  
Advanced Placement

The AP U.S. History course is designed to provide students with the analytic skills and factual knowledge necessary to deal critically with the problems and materials in U.S. history. The program prepares students for intermediate and advanced college courses by making demands upon them equivalent to those made by full-year introductory college courses. Students should learn to assess historical materials—their relevance to a given interpretive problem, reliability, and importance—and to weigh the evidence and interpretations presented in historical scholarship. An AP U.S. History course should thus develop the skills necessary to arrive at conclusions on the basis of an informed judgment and to present reasons and evidence clearly and persuasively in essay format.

### SSXXXX Economics

.5 Credit  
College Prep

This course is an introduction to topics in both macro and micro economics. Students will study key topics including supply and demand, economic performance, economic growth, and business development. They will also study a broader picture of economics including government policy, debt management, and fiscal policy. Students will study historical economic events and trends, but will also learn to analyze current events and understand modern discussions of economics in the news.

### SS4245 Introduction to Criminal Justice

.5 Credit  
College Prep

An overview of the criminal justice system, surveying the basics of law enforcement, the courts, and corrections. Students will develop a working knowledge of the language of the criminal justice system and discuss problems and improvements of the system.



## FINE ART AND DESIGN

	CP
Grade 9 (Foundational Courses)	Band Designing Minds Innovation 101
Grade 10 - 12 (Electives)	3D Art Advanced Studio Art Band Digital Design Music Technology Paint, Materials, & Contingencies Digital Photography Visual Thinking

### AR0308 - Innovation 101

.5 Credit

Innovation is a 9th grade only course for general art. The ability to visualize ideas both rapidly and convincingly on any platform (analog or digital) begins with the development of strong hand-drawing skills. In fact, hand drawing is one of the most valuable skills needed in design work; it is critical for expressing design ideas to oneself, one's colleagues and one's clients. Accordingly, this course explores a wide range of tools, materials, processes, and techniques that help hone drawing and visual communication skills, from very simple working sketches to full-color professional presentation renderings. Topics covered include rapid visualization drawing, ideation, basic and advanced perspective, blocking out shapes, an appropriate point of view, composition, tonal contrast, light and shadow, textures and details, and presentation. Students receive instruction in the use of assorted media, including graphite, markers, pastels, paint, and a variety of drawing papers.

### AR6271 Designing Minds

.5 Credit

Designing Minds is a 9th grade only course that challenges students to design projects that combine meaning with image-making for designs and products that are intended for the public. Students will learn to articulate the elements of design and fundamentals of graphic design through the creation of different products including illustrations, furniture, presentations, and posters. Students achieve the highest level of design excellence through critiques and peer reviews. The ability to communicate ideas both rapidly and convincingly will be through Adobe Illustrator and other mediums.

### AR6022 Advanced Studio Art

.5 Credit

Studio Art is a semester-long foundation course for students who are interested in building on the skills they developed in previous Art courses. Students will also get to explore 2-dimensional art materials like digital painting, graphic design, and mixed media collage. The focus of this course is an exploration of different techniques found in the visual arts. Regardless of a student's perceived level of artistic ability, they will find success.

### AR6401 Digital Design

.5 Credit

Investigate creative and effective 2D visual design systems through the use of visual images. This course works with digital media to create illustrations, collages, paintings, murals, books and paintings and prints with the use of the Adobe Suite which includes Photoshop, Illustrator, and InDesign.

#### AR0306 Paint, Materials, & Contingencies

.5 Credit

Hands-on investigation of technical and formal issues in painting, focusing on the development of technical abilities in collusion with concepts and exploration of different methods of achieving visual “dexterity.” This painting course integrates intellectual and technical ability with historical, contemporary, and personal strategies. Emphasis is on the exposure to and analysis of contemporary painting through visual presentations, lectures, and the practical application of painting as a medium, both in technique and material.

#### AR0305 Visual Thinking (runs in even start school years)

.5 Credit

Explore traditional and contemporary printmaking techniques for transferring images photographically to intaglio, lithograph, and screenprint. This course encourages exploration of and technical experimentation in using drawings, photographs, and computer-generated visual information as components of a print. Furthermore, students master the darkroom and printmaking skills necessary to bring their ideas from conception to printed edition. As a result, each student completes a final portfolio of prints ranging from black-and-white etchings to four-color separation screenprints.

#### AR6202 Digital Photography

.5 Credit

In this course we will explore digital photography with our Canon Rebel DSLRs. Students will be given assigned experiences, projects, techniques to learn about the finer points of the art of photography. All will be asked to produce artwork and participate in class discussion to better understand the characteristics of capturing images as it pertains to art and art making through critiques. Emphasis will be placed on the students' development of an understanding the fine art of photography and the technical ability to achieve this level of photography. The semester culminates in a one-person show of 10 photographic works on a theme of your choice.

#### AR6021 3D Art

.5 Credit

This course will introduce basic three-dimensional processes and materials as well as develop the student's ability to analyze and create form and spatial relationships. 3D design involves purposeful decision making about using the elements and principles of art in an integrative way to create sculpture. Students will create using both additive and reductive processes of sculpture.

#### MU1103 Music Technology

.5 Credit

This course will study the techniques of modern computer-based music. Topics will include drum machine and synthesizer sequencing, musical form, the design and creation of electronic instruments (incorporating techniques such as touch pads and sonar), film scoring, and the Foley effect.

#### MU1822: Band





Band is a team of students, guided by the teacher, who learn how to play instrument parts for popular and classic songs. We have guitars, bass, drums, pianos and other instruments to play in class. There is a public performance in the auditorium at the end of each semester.

### **Cluster 3: World Language**

	<b>Honors</b>	<b>ECE</b>
Grade 9	Spanish I Spanish II Spanish for Heritage Speakers	--
Grade 10	Spanish II Spanish III Spanish for Heritage Speakers Spanish for Heritage Speakers II	--
Grade 11	Spanish III Spanish IV Spanish for Heritage Speakers Spanish for Heritage Speakers II	ECE Spanish
Grade 12	Spanish IV Spanish V Spanish for Heritage Speakers Spanish for Heritage Speakers II	ECE Spanish

#### **SP5012 Spanish I**

1 Credit  
Honors

Students enrolled in this beginning course of study participate in thematic units that promote effective communication and improved oral and written proficiencies through a variety of instructional strategies and authentic assessments. Students become effective communicators in the present tense through purposeful listening, speaking, reading, or writing activities. Students participate in authentic exchanges of information for a real purpose between people, such as discussing pastimes, personality traits, school life, ordering food in a restaurant, and stating the locations of people, places, and objects. Students experience the history, geography, and cultural perspectives of Spain, Central, and South America.

#### **SP5112 Spanish II**

1 Credit  
Honors

Prerequisites: Spanish I or teacher recommendation

Students enrolled in this course of study continue to participate in thematic units that promote effective communication and improved oral and written proficiencies through a variety of instructional activities and authentic assessments. Students continue to build upon their effective communication skills through purposeful listening, speaking, reading and writing activities. Students participate in authentic exchanges of information for a real purpose between people, such as describing classroom objects, extracurricular activities, and special events, and inquiring and giving directions. Additional authentic thematic units include discussing emergencies and injuries. Students communicate in the past and present tenses, and they experience the history, geography, and cultural perspectives of Spain. Literature in the form of poetry, fables, and short stories is introduced.

### SP5212 Spanish III

1 Credit  
Honors

Prerequisites: Spanish II

The Spanish III course is designed to provide a review of the fundamentals covered in Spanish I and II followed by further development of their reading, writing, listening, and speaking abilities through a variety of activities. Much of the class is conducted in Spanish and students are expected to take many risks with the language. The focus of the class shifts from vocabulary expansion and the basics of grammar to building a more in depth understanding of how these tools are used in everyday communication and actually putting them into practice in real life situations. Students are introduced to advanced aspects of the language such as command forms, distinguishing between the preterite and imperfect, the future tense and situational use of the subjunctive. Students are exposed to many of these aspects in Spanish I and II, however this course works to give students more practice using these skills in parallel with one another to produce fluid language. Students will practice and develop their skills by reading short stories, articles and dialogues; writing stories, compositions, and longer dialogues which employ learned grammatical concepts and vocabulary; reciting dialogues, speeches, stories, and poetry. They will continue to explore Spanish culture in an increasingly thoughtful manner looking at the relationships of Spanish speaking countries with the United States as well as understand the history behind these relationships.

### SP5312 Spanish IV

1 Credit  
Honors

Prerequisites: Spanish III

Spanish IV is for students who want to become proficient in the language. The class is taught exclusively in Spanish and participation is a necessity. The course will review tenses previously taught in levels 1-3: present, preterite, commands, imperfect, future, conditional, and subjunctive. This class will deepen the understanding of all tenses as well expand higher level vocabulary needed to express thoughts, emotions, and ideas in a meaningful manner. Students will speak exclusively in Spanish, review and refine grammatical skills in Spanish through reading and writing, read and discuss original work in Spanish (short stories, novels, newspapers, etc.), and continue to deepen the appreciation of the Spanish speaking culture and people outside of and within the United States.

### SP5522 Spanish V

1 Credit  
Honors

Prerequisites: Spanish IV

Students enrolled in this advanced course of study will continue to participate in the thematic units that promote communication and improved oral and written proficiencies through a variety of instructional activities and authentic assessments. Students continue to refine their effective communication skills through powerful listening, speaking, reading, and writing activities. Students participate in advanced, authentic exchanges of information for a real purpose between people, helping them to connect their learning to the community in which they live and to see the relationship between language, community, and career. Through selected literary pieces from various countries based on themes such as heroism, friendship, myths, and humanistic perspectives, students augment and refine their proficient skills in vocabulary and grammatical accuracy as they communicate. Cultural perspectives from a variety of Spanish-speaking countries are thematically woven into the units of study. The course is conducted in Spanish.



### SP5524 UConn ECE Spanish

1 Credit  
UConn ECE

#### SPAN 3178: Intermediate Spanish Composition (3 UConn credits)

This course provides a thorough review of grammar and methodical practice in composition leading to command of practical idioms and vocabulary. Eligibility Guidelines: Successful completion of three or more years of high school Spanish or instructor consent is recommended.

1 Credit  
UConn ECE

#### SPAN 3179: Spanish Conversation: Cultural Topics (3 UConn credits)

In-depth development of speaking skills through cultural readings, group discussions and oral presentations on selected topics concerning the Spanish-speaking world. Eligibility Guidelines: Successful completion of three or more years of high school Spanish, successful completion of SPAN 3178, or instructor consent is recommended.

### WL3503 Spanish for Heritage Speakers

1 Credit  
Honors

This course is designed to continue to develop and challenge students' ability in speaking, reading, writing, listening, and cultural understanding in Spanish. Spanish-speaking students are able to study Spanish formally in an academic and creative setting in the same way native English-speaking students study English language arts. Students will gain confidence using Spanish to express their own thoughts on social and academic themes, interact with other speakers of the language, understand oral and written messages, make oral and written presentations, and reflect on language variation. Students will be able to understand the material presented on a variety of topics related to contemporary events and issues in Hispanic communities.

### WL3504 Spanish for Heritage Speakers II

1 Credit  
Honors

This course is the continuation of Spanish for Heritage Speakers I. Students will build upon their current language skills to develop language and cultural literacy, as well as their own creative expression following a language arts approach. This course will continue to guide students in developing a deeper appreciation for their own cultural heritage while recognizing the diversity within the Latino community.

Reading, both as a class and independently, is a core component of the course, including newspaper articles, short stories, and novels. Students work to further develop their Spanish literacy and academic language skills, to learn more about their language and cultural heritage, and to critically view and evaluate media resources and websites.

## Cluster 4: Fitness, Health, Safety

	Required - CP	Electives
Grade 9	Exercise & Personal Wellness 1	--
Grade 10	Health	--
Grade 11	Health 2	Obstacles and Adventures
Grade 12	Exercise & Personal Wellness 2	

\*Courses are recommended in this sequence, but starting in the sophomore year courses can be taken in any sequence and may also be doubled up.

### PE9001 Exercise and Personal Wellness 1

.5 Credit

Welcome to High School Physical Education 1, a dynamic course that goes beyond traditional fitness by integrating Academic Fitness and Health Content, Intentional Fitness, Motor Skills, and Social-Emotional Safety. Students will engage in a holistic approach to physical well-being, combining academic knowledge with intentional fitness practices. The curriculum emphasizes the development of motor skills, fostering a strong foundation for overall physical competence. In addition to goal setting and fitness planning, students will explore the vital aspects of social-emotional safety, creating a supportive environment for holistic growth. Through teamwork activities, students will collaborate, communicate, and build essential interpersonal skills. This course is designed to not only enhance physical fitness but also instill a lifelong appreciation for holistic well-being and teamwork.

### PE9101 Exercise and Personal Wellness 2

.5 Credit

Welcome to High School Physical Education 2, where we embark on a holistic journey to enhance physical fitness and well-being. This course is designed to empower students with a comprehensive understanding of the 5 components of fitness—cardiorespiratory endurance, muscular strength, muscular endurance, flexibility, and body composition. Through the application of the FITT principle (Frequency, Intensity, Time, and Type), students will learn how to tailor exercise regimens to individual needs and goals. The course places a strong emphasis on fitness planning, guiding students in the creation of personalized, sustainable fitness routines. Through a combination of theory and practical exercises, students will not only develop a strong foundation in the principles of physical fitness but also cultivate lifelong skills for maintaining a healthy and active lifestyle.

### HE9211 Health

.5 Credit

Welcome to Health Education 1, a comprehensive course designed to empower students with essential skills for a healthy and fulfilling life. This course goes beyond traditional health education, focusing on key aspects such as managing mental and emotional health, developing effective interpersonal communication, making informed decisions, accessing reliable information, analyzing influences, and becoming advocates for personal and community well-being.

### HE2500 Health 2

.5 Credit

Welcome to Health Education 2, a transformative course dedicated to exploring and enhancing community health. This program focuses on essential skills such as Health Access, where students will delve into healthcare systems, resources, and advocacy. Management and Goal Setting empower students with effective



time and stress management strategies, fostering habits for long-term well-being. Analyzing Influences and Decision Making equips students with critical thinking skills to make informed health choices amidst internal and external influences. Finally, Health Advocacy and Communication empower students to be effective advocates for personal and community health, honing communication skills to address health-related issues. Through interactive lessons and real-world applications, students will not only gain a deep understanding of community health but also emerge as advocates capable of navigating and positively impacting the health landscape.

#### PE3001 Obstacles and Adventure

.5 Credit

Students who take this course will partake in adventures that generate excitement and motivation to be physically active for life. Activities will include obstacle courses, climbing walls, self-defense training, outdoor sports and fitness programs that support participation in these types of activities. Students will set personal best goals, improve their confidence in their physical abilities while contributing to a positive social experience.

## **Cluster 5: Capstone**

### CP4000 Senior Seminar

1 Credit

The Capstone Project portion of this course is designed to be a cumulative experience of a student's high school years that demonstrates in-depth learning in a variety of ways. Students have the opportunity to use their personal interests, abilities, skills and special talents to create and present authentic projects. These projects are research-based and offer students the chance to demonstrate their knowledge and understanding of their chosen topic and to demonstrate the essential skills for a student graduating from high school. The Capstone Project involves each student choosing a research topic and research question, writing a proposal, extensive research of the chosen topic, designing and bringing the topic to fruition and publicly and formally presenting the findings to a panel of faculty, community members and students.