

Academy of Aerospace and Engineering

Program of Studies



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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, discuss potential courses for the next academic year within the teacher's discipline.

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 will be available in the School Counseling Office as needed.

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

Enrichment & Challenging a Course

CREC Magnet Schools support students who earned high school credit while in middle school. Official transcripts that show credit earned in middle school will be reviewed by school counselors and instructional supervisors at the district level. When appropriate, courses will be listed on a student's high school transcript with the name of the middle school and year of earned credit. In some cases, courses may satisfy elective requirements. Outside coursework will not factor into GPA calculation or fulfill content-specific graduation requirements at the high school level (such as mathematics or world language graduation requirements).

High school students who pursue coursework that is offered outside of their CREC high school (such as community college coursework, virtual/remote coursework, and summer coursework) are encouraged to submit course and program descriptions for review prior to enrollment in the program. A student's school counselor will notify the parent and student of approval of outside coursework within two weeks of review. With prior approval, credit information can occasionally be included on a CREC transcript after a final review of the official transcript from the outside program/school. However, any outside course added to a CREC transcript will generally not factor into GPA calculation or fulfill content-specific graduation requirements at the high school level.



Students pursuing coursework that is offered outside of their CREC high school will be encouraged to submit all official transcripts to college admission offices during the application process.

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, 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 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 whose families meet qualifying income guidelines are eligible for a reduction or elimination of AP exam fees. 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.



Potential AP and ECE Course Offerings
(availability varies year to year)

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

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



Valedictorian and Salutatorian Honors

CREC Magnet Schools do not publish a class rank. Upon request, information can be provided directly to colleges, scholarships, employers, and community partners to support both college and career readiness.

CREC high schools report Valedictorian and Salutatorian honors to the University of Connecticut for the purpose of the [Presidential Scholars Award](#) program. CREC high school students who entered a CREC high school beginning in grade nine, and continue through grade 12, may be eligible for this Valedictorian and Salutatorian recognition.

Only classes taken on a CREC campus and/or graded by CREC faculty will be counted toward Valedictorian/Salutatorian recognition. The Valedictorian and Salutatorian will be determined by calculating the cumulative grade point average at the end of the first semester in grade 12.

The Academy of Aerospace & Engineering will communicate Valedictorian/Salutatorian recognition for the purpose of the UCONN Presidential Scholarship and to students and families in the students' 12th-grade year via e-mail and US mail after the culmination of the first semester and prior to graduation.



Graduation Requirements

Cluster 1: Humanities		
English	4 credits	Total: 9 credits
Social Studies	3 credits <ul style="list-style-type: none"> ● 1 U.S. History (9th) ● 1 African-American/Black & Puerto Rican/LatinX studies (10th) ● <u>.5 Civics Required (11th)</u> ● <u>.5 Financial Literacy Required (starting with class of 2027)</u> ● .5 Student Choice 	
Fine Art/Music	1 credit	
Humanities Elective	1 credit	
Cluster 2: Science, Technology, Engineering, and Mathematics (STEM)		
Mathematics	4 credits	Total: 10 credits
Laboratory Sciences	4 credits	
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 (includes FAFSA completion)	1 credit	Total: 1 credit
Open Electives	1.5 credits	Total: 1.5 credits
Total Credits		26 Credits

[Class of 2029 and Beyond: Click Here for Credit Check Sheet](#)

**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 websites 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 AAEs 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 5%	Top 10-20%	Top 25-40%	Top 40-60%
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 A+	A 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, Mitchell



[Click Here for a Quick List of All Course Offerings](#)

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

SCIENCE

	Required Courses (H)	AP/ECE	Electives
Grade 9	Physics - H (1.0)	--	--
Grade 10	Biology - H (1.0) Mission to Mars (1.0)	--	
Grade 11 & 12	Chemistry (Gr. 11) - H (1.0)	AP Biology/ECE Biology (1.0) AP Chemistry (1.0) AP Environmental Science (1.0) ECE Physics 1201Q (1.0)	Advanced Astronomy A (.5) Advanced Astronomy B (.5) Anatomy & Physiology A (.5) Anatomy & Physiology B (.5) Aquaponics (.5) Biotechnology & Bioengineering (.5) Forensics (.5) Interdisciplinary Science (.5) Molecular & Cellular Biology (1.0) Zoology (.5)

BIOLOGY

SC3132 Biology

1 Credit
Honors

Throughout Biology, students explore phenomena in the life sciences. Students figure out big ideas related to energy flow in ecosystems, carrying capacity and interactions including group behavior. Next, students focus on the flow of energy and matter through the carbon cycle considering the mechanisms of cellular respiration and photosynthesis at various scales. Students build on their understanding of DNA and chromosomes and investigate how variation leads to differences between individuals at cellular and system levels. To follow, students investigate evolution by natural selection and apply these ideas to populations. Students then use their understanding of evolution through natural selection to explore the evidence for common ancestry and figure out how Earth's systems and life co-evolved. Throughout the course, students also build an understanding of human influence on biological systems, including: the importance of biodiversity and how human interactions affect natural systems and how humans can develop solutions to reduce their impact. Emphasis is placed on scientific inquiry and discovery to develop conceptual understanding. Students will be able to think and communicate effectively as scientists by the end of the course. Biology is required for graduation and fully aligns to the Next Generation Science Standards.



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.

SC3104 AP Biology/UConn ECE Biology

1 Credit
Advanced Placement/ECE

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.

SC3831 Aquaponics

.5 credit
Honors

This semester course offers a comprehensive introduction to aquaponics, an innovative and sustainable food production method that combines aquaculture (fish farming) with hydroponics (soil-free plant cultivation). Emphasizing the importance of local food production to enhance food security, the course addresses the challenges posed by climate change, including flooding, drought, and rising transportation costs, which impact traditional farming. Aquaponics provides a practical solution, especially in urban areas and food deserts, allowing people to grow food indoors year-round with minimal space and resources. Students will explore the science of aquaponics, particularly the nitrogen cycle, and gain hands-on experience with six types of aquaponic systems, including deep water culture, ebb-and-flow, nutrient film technique, wick, aeroponics, and continuous flow. The course also covers selecting and caring for fish species, highlights the role of community gardens in fostering collaboration and job creation, and emphasizes the health benefits of plant-based diets and sustainable protein sources. The final project requires students to create a business plan for an urban farming venture, preparing them to build, manage, and potentially profit from aquaponic systems in the future.

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

Through natural phenomena, this course provides an overview of chemical principles and concepts. Students investigate the particulate nature of matter and figure out how energy transfers on the molecular level as well as on the Earth-systems level through radiation, convection, and conduction. Students build an understanding of atoms, molecules, and substances to describe their properties, including patterns of bonding and periodic table trends. Students explore equilibrium in chemical reactions, to explain how chemical processes interact on Earth. Through exploration of endothermic and exothermic processes, students apply chemical understandings to meet societal energy needs. Inquiry based learning and required hands-on lab activities are integrated into the students' course work. Chemistry is required for graduation and fully aligns to the Next Generation Science Standards.

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.

SC1030 Mission to Mars

1 Credit
Honors

Humanity is nearing its first attempt at becoming a multi-planetary species. During this course, students will examine some of the factors critical to our survival on Earth and how those lessons can help us survive on Mars. The class will be structured as a year-long project meant to address eight critical questions which must be settled before any effort to establish an extraterrestrial settlement is able to proceed. These focus largely on the areas of thermodynamics, fluid dynamics, optics, meteorology, and communications technology. As the course progresses, students will conduct hands-on laboratory exercises, analyze data sets, and complete design projects to make recommendations for how each question should be addressed by future settlers.



PHYSICS

SC3314 Physics

1 Credit

Honors

Through natural and designed phenomena, this course provides an overview of principles of physics. Students explore how humans use machines to transfer energy from Earth's systems into our communities, with a focus on electricity. Using mathematical reasoning and data analysis, students apply an understanding of forces and Newton's laws of motion to natural phenomena. Applying the understanding of energy and forces, including force diagrams, students continue to apply these ideas to understand momentum and collisions. Students will use computational models and mathematical representations to develop an understanding of gravitation and energy flow between systems. Students explore waves through various models, using mathematical representations to show relationships of frequency, wavelength and speed through various media. Inquiry based learning and required hands-on lab activities are integrated into the students' course work. Physics is required for graduation and fully aligns to the Next Generation Science Standards.

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 (1.0)
Grade 10	Principles of Engineering (1.0)
Grade 11/12	Aerospace Engineering (1.0) *SC Computer Aided Drafting (.5) Digital Electronics (.5) *SC Technology (Wood Technology) (.5) Mechanical Engineering (1.0) Robotics (.5) *SC

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.

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.

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.

TE 8348 Computer Aided Drafting

.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.

SC3404 Robotics

0.5 Credit
Honors

Prerequisites: Algebra 1 and Physics

Robotics is a project based course that starts with the basics of electricity, mechanics and software design and then proceeds into the theory, practical use and application of microprocessors, sensors, interfaces and motor controllers in order to read sensors, light LEDs, display alphanumeric information, make music, control motors and interface with other devices. Students will devise and construct real functioning Robots and Robotic systems of their own design.



COMPUTER SCIENCE

	CP	AP
Grade 9	Exploring Computer Science (.5) Python/Computer Coding (.5)	
Grade 10	--	AP Computer Science Principles (1.0)
Grade 11	–	AP Computer Science A (1.0) *SC *pre-req Geometry
Grade 12	Data Structures & Algorithms (1.0) *MA	

TE00106 Exploring Computer Science

.5 Credit
College Prep

Exploring Computer Science is a semester-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

TE1131 Computer Coding: Python

.5 Credit
College Prep

The Python course is a semester-long course that is centered around teaching students the fundamentals of the Python programming language. Throughout the course, students will learn the fundamentals of programming in a text based object oriented language, including keywords and syntax. Students will learn how to declare variables, complete computations, implement control flow strategies, utilize various methods, and manipulate lists and arrays. Each of the units culminates with projects that require students to use their understanding of the skills or methods to solve problems.

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 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 is equivalent to a first-semester college computing course. It will cover the AP Computer Science curriculum and is taught with 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, and recursion. Inquiry-based laboratory activities are used to enhance the understanding of core concepts.

MA2643 Algorithms and Data Structures

1 Credit

Prerequisite: AP Computer Science A

In a digital world, this course provides an opportunity for students to polish their programming skills, in Java, and acquire new skills by studying data structures such as lists, linked lists, stacks, queues, trees and hashing. Familiar algorithms such as those used in the areas of searching, sorting and recursion will be revisited and extended. Students will have the opportunity to participate in computer programming contests including the American Computer Science League (ACSL) contests. After successful completion of this class, a student may undertake an Independent Study in Computer Science the following year.



MATHEMATICS

Grade Level	Honors	AP
Grade 9	Algebra I (1.0) Algebra II (1.0)	--
Grade 10	Algebra II (1.0) Geometry (1.0) Pre-Calculus (1.0)	--
Grade 11	Algebra II (1.0) Geometry 1.0 Pre-Calculus (1.0) Introduction to Data Science (1.0)	AP Calculus AB/BC (1.0)
Grade 12	Financial Algebra (1.0) Introduction to Data Science (1.0) Pre-Calculus (1.0)	AP Calculus AB/BC (1.0) AP Statistics (1.0)

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.

MA2202 Algebra II

1 Credit
Honors

Prerequisites: Algebra I

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.



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.

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 II or Admin approval

12th Grade Course Only

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/BC

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 (1.0)	--	--
Grade 10	English II (1.0)	--	--
Grade 11		ECE 1004 Introduction to Academic Writing (1.0) *pre-req English I and English II	College & Creative Writing (.5)
Grade 12	English IV (1.0)	AP/ECE 1007 Language & Composition (1.0) *pre-req English I, II, and ECE 1004 - C or better AP Literature & Composition (1.0)	

EN1372 English Language Arts I

1 Credit

Honors

In this course, students will expand their English Language Arts skills through four different units of study. Each unit is anchored around key reading, writing, speaking, listening and language skills that students will develop through interactive and personally appropriate learning experiences. Students will read a variety of texts including contemporary poetry, self-selected works of fiction, plays, short and long works of nonfiction. This course has evolved from having an isolated focus on American literature to continued exploration of contemporary issues faced by American youth through a broader range of written and visual works. Some of these issues include race, identity, war, gender, and social class. Students will explore these issues through reading, writing, viewing, listening, and speaking in response to the many types of texts that make up their world.

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. 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.



EN1004 Introduction to Academic Writing/UConn ECE ENGL 1004

1 Credit
UConn ECE

Prerequisite: English I and English II

***Note: Successful completion of two years of high school English is required.**

This “Introduction to Academic Writing” prepares students for the First-Year Writing requirement by offering students more individualized attention in a small class setting. You will be able to enhance your writing practices and further develop the habits of mind required in advanced academic writing. During this course we will probably approach writing very differently from what you are used to. We will focus on the ways writers think, the practices they create, and the moves they make in their writing. This is not a course in writing better sentences; instead, it is a course in which you will be writing, and we will all work on ways to say something new and to contribute to all of our thinking and writing. We will pay close attention to what we can make of what we—and others—have written. Students can earn 4 elective credits from UCONN upon successful completion of the course.

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 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

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. 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.

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 (1.0)	--	--
Grade 10	Black/LatinX Studies (1.0)	--	--
Grade 11	Civics (.5) Financial Literacy (.5)	AP World History (1.0) ECE Sociology (1.0) AP Psychology (1.0)	Intro. to Criminal Justice (1.0) World History (.5) Sociology (.5)
Grade 12	<i>(see elective list)</i>	AP US History (1.0) *pre-req AP World History	

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. Students 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 contributes 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 course focuses on preparing 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.



MA2047 Financial Literacy

.5 Credit
College Prep

The goals of this course are to enhance students' financial literacy skills in the areas of financial management, budgeting, money management, financial decision making, and investment. The course is designed to counteract a rising tide of financial illiteracy in our country, and ensure that students graduate from high school prepared to save, avoid unnecessary debt, take reasonable financial risks, and make informed decisions about money. This course will also cover questions of ethics, borrowing, and credit worthiness.

SS4240 Modern World History

.5 Credit
College Prep

A survey of World History from 1200-present. Topics include Empires and their growth and development, industrialization, world wars, and the current state of globalization. Students will also build connections between events of the past and current world political affairs.

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.

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

~~* Note: It is highly advisable to successfully complete AP World History prior to enrolling in AP US History~~

~~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.~~

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/VISUAL ARTS

	CP
Grade 9 (Foundational Courses)	<u>Art:</u> Innovation 101 (.5) <u>Music/Band:</u> Band (.5 or 1.0)
Grade 10 - 12 (Electives)	<u>Art:</u> 3D Art (.5) Advanced Studio Art (.5) Paint, Materials, & Contingencies (.5) Digital Photography (.5) <u>Music/Band:</u> Band (.5 or 1.0)

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 art, 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.

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.

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.



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.

MU1822: Band

.5 - 1 Credit

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

	Honors	ECE
Grade 9	Spanish I (1.0) Spanish II (1.0) Spanish for Heritage Speakers (1.0)	--
Grade 10	Spanish II (1.0) Spanish III (1.0) Spanish for Heritage Speakers (1.0) Spanish for Heritage Speakers II (1.0)	--
Grade 11	Spanish III (1.0) Spanish IV (1.0) Spanish V (1.0) Spanish for Heritage Speakers II (1.0)	ECE Spanish (1.0)
Grade 12	Spanish III (1.0) Spanish IV (1.0) Spanish V (1.0) Spanish for Heritage Speakers II (1.0)	ECE Spanish (1.0)

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.



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.

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
Grade 9	Exercise & Personal Wellness 1 (.5)
Grade 10	Exercise & Personal Wellness 1 (.5) Exercise & Personal Wellness 2 (.5) Health 1 (.5)
Grade 11	Health 1 (.5) Health 2 (.5) Exercise & Personal Wellness 1 (.5) Exercise & Personal Wellness 2 (.5)
Grade 12	Health 1 (.5) Health 2 (.5) Exercise & Personal Wellness 1 (.5) Exercise & Personal Wellness 2 (.5)

*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.

Cluster 5: Capstone

CP1100 Fresh Focus

.5 Credit

Fresh Focus kicks off your high school experience with purpose and energy. This required semester-long course for all 9th graders at the Academy of Aerospace and Engineering equips you with powerful tools for success, both now and in the future. You'll dive into practical topics like how grades and credits shape your four-year plan, master executive functioning skills like time management and active learning, and strengthen your social and academic confidence. You'll learn how to advocate for yourself and others, build strong relationships, and make responsible decisions that align with your goals. Get ready to explore real-world finances and map out your college and career pathways. Throughout the course, you'll build a dynamic portfolio that showcases your growth—something you'll revisit throughout high school, especially during Senior Seminar in 12th grade.

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.

