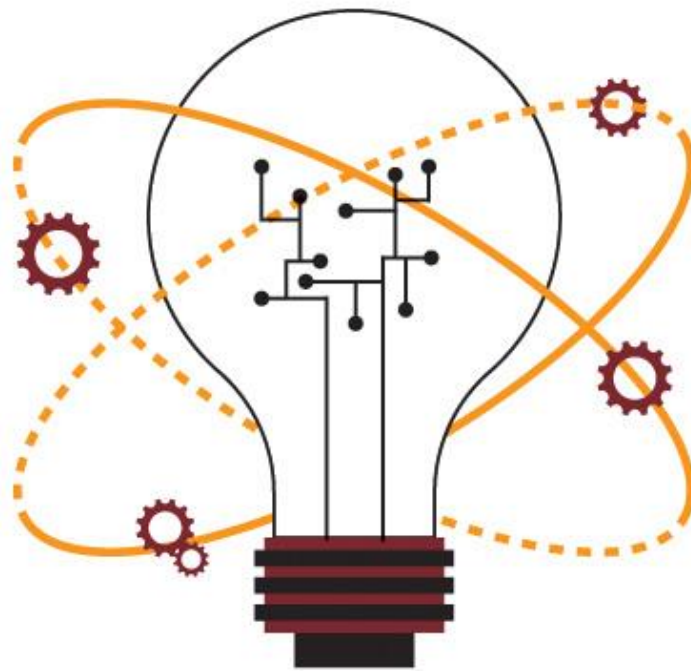




Academy of Science and Innovation Program of Studies



**Curriculum & Course
Description Catalog
2024-2025**



ACADEMY OF SCIENCE AND INNOVATION
Karen Mooney
Principal

Dear Students and Parents

This Program of Studies has been carefully prepared by the Academy of Science and Innovation faculty to assist students and parents in the course selection process. The booklet provides useful information you will need to make choices for next year's classes, as well as for planning the remainder of your high school years.

Your teachers and school counselors will be happy to assist you in the course selection. They will be able to explain the options and make appropriate recommendations. We realize choosing your classes are an important matter, so you are urged to consult with your parents, teachers, and counselors.

Since we are a Science and Innovation school, I urge you to pursue the math, science and technology classes that we offer students. The most important way to prepare for a Science and Innovation program is to make the most of your science, math, engineering, and computer courses. Students interested in pursuing biotechnology, environmental studies in college should take every theme related course available. Not only will such courses provide you with a solid scientific background, but they will also prepare you for the rigorous requirements of intense college degree programs.

Good luck in your course work; the entire staff wishes you well in your educational pursuits.

*Karen Mooney
Principal*



Academy of Science and Innovation

600 Slater Road

New Britain, CT 06053

www.crecschools.org

Telephone (860) 223-0726 Fax (860) 223-0742

Administration Office of Academy of Science and Innovation

Mrs. Karen Mooney, Principal

Mr. Royston Jordan, Assistant Principal

Dr. Antonio Ramos, Assistant Principal

Ms. Kerry Ann Rhoden, Dean of Students

Mrs. Kimberly Winfield, Dean of Students

Mr. Michael Robbins, Math Coach

Ms. Jennifer Yanke, STEM Coach

School Counselors

Counselor	Grade						
	6	7	8	9	10	11	12
Ms. Jennifer Asmar (Counseling Team Leader)				ALL			
Mr. Justin Escobales			ALL		ALL		
Mrs. Katie Mangione						ALL	*A - K
Ms. Erin Strazzulla (Shemeth)	ALL	ALL					
Mrs. Elizabeth Woods							*L - Z

* Letters represent a split by last name for grades 10-12

Administrative Assistants

Mrs. Alicia Perez, Receptionist – Main Office

Ms. Evelyn Delacruz, Family/ Lottery Coordinator

Ms. Beth Rich, Administrative Assistant to Principal Mooney

Ms. Rachel Sclare, Administrative Assistant – Counseling Office 6th – 12th

Mrs. Julie Soule, Administrative Assistant – Main Office

Academy of Science and Innovation

Vision, Mission, and Belief Statement

School Vision: The Academy of Science and Innovation Magnet School is a solutions-oriented, technology-based science and engineering community. Students are inspired and prepared to meet the challenges of the 21st century through a robust academic program where collaboration, innovation, and critical thinking skills ensure college and career readiness. Students are respectful, self-disciplined, and productive global citizens in a diverse, multicultural environment.

Mission: The mission of the Academy of Science and Innovation Magnet School is to empower learning, unleash talent, and lead a culture of creativity to find solutions to global problems.

Innovative Solutions to Global Problems:

- Promote farming practices to combat global famine (Hydroponics, Aquaponics)
- Conserve and rebuild habitats (Engineering)
- Investigate our microscopic world (Forensics, Cellular Biology)
- Improve production and techniques for automation in industry (Robotics, Drones, Coding)

We Believe...

- We believe our science, technology, and environmental themes are key components to developing 21st century learners who are college and career ready.
- We believe a diverse school community enriches learning and promotes a collaborative and productive culture where students are valued, empowered, challenged, and recognized.
- We believe in cultivating environmentally and socially conscious students, citizens, and future leaders.
- We believe success is dependent upon partnerships among students, staff, families, and the community.
- We believe in an educational community where everyone chooses to bring energy, passion, and a positive attitude.
- We believe in an education tailored to meet the individual needs of each student.
- We believe fostering teacher growth and effectiveness is directly linked to student achievement.

The CREC Difference

CREC Magnet Schools cultivate the mind, body and heart of each student. We have a shared vision and coordinated plan for promoting, enhancing and sustaining a positive school climate. Each member of the faculty and staff understand their individual role while applying a systematic approach to developing an environment that fosters optimal academic engagement for all students.

CREC Magnet School *parents and staff* work together to:

- Promote a positive and successful educational experience for every child
- Embrace diversity
- Ensure students are college and career ready
- Foster self-confidence and self-discipline in our students
- Connect success in school to future successes in life
- Develop global awareness
- Guide students through conflicts, encourage them to restore trust and rebuild relationships
- Value and support students through disciplinary issues

CREC Magnet School *students* will:

- Demonstrate honor, respect and responsibility in their actions and decisions
- Embrace diversity
- Develop self-confidence and self-discipline
- Connect success in school to future successes in life
- Develop global awareness
- Reflect on conflict and seek ways to restore trust
- Work with teachers, administrators and parents when school rules are violated to restore environment and relationships

CREC District Goals:

1. Inspire all students to achieve at high levels through an innovative, student centered approach to teaching and learning that prioritizes the mastery of core content and the development of essential skills.
2. Mobilize a positive, collaborative and productive culture where students are at the center of their learning.
3. Engage families and the community as active partners in the education of our students.
4. Maximize professional capital and cultivate innovation by supporting and empowering a diverse group of talented educators.

Academy of Science and Innovation

Code of Responsibilities

The Administration, Faculty, and Staff of Academy of Science and Innovation will:

- Create an emotionally and physically safe and healthy learning environment for all students
- Respect the dignity of each family, its culture, customs, and beliefs
- Promote, respond, and maintain appropriate communications with the family, staff and administration
- Consider the family's concerns and perspectives on issues involving its children
- Encourage participation of the family in the educational process
- Recognize, respect and uphold the dignity and worth of students as individual human beings
- Engage students in the pursuit of truth, knowledge and wisdom and provide access to all points of view
- Foster in students the full understanding, application and preservation of democratic principles and processes
- Assist students in the formulation of worthy, positive goals
- Promote the right and freedom of students to learn, explore ideas, develop critical thinking, problem solving, and necessary learning skills to acquire the knowledge needed to achieve their full potential
- Maintain the confidentiality of information concerning students

Parent Responsibilities: We will be involved in the education of our children by the following:

- See that my children to get to school regularly and on time
- Let my children know that I value education by providing a home environment that encourages my child to learn
- Ensure that all homework assignments are completed by setting up a routine for homework
- Support positive school-home relationships by communicating regularly with my child's teachers
- Support the school in developing positive behaviors through reinforcement and communication
- Talk with my child about his/her school activities on a daily basis
- Encourage my child to read and write at home and to monitor his/her TV viewing and video-game playing
- Volunteer time at my child's school and attend activities when possible
- Show respect and support for my child, the teacher and the school

Student Responsibilities: We will share the responsibility for learning by the following:

- Follow PRIDE
- Attend school regularly and be on time
- Always try to do my best in my work and in my behavior
- Work cooperatively with my classmates and teachers
- Show respect for myself, my school, and other people through what I say and do
- Obey the school and bus rules
- Take pride in my school
- Complete and return my homework and come to school prepared to learn every day
- Believe that I can and will learn
- Believe that others in the school can and will learn
- Be honest in everything I say and do

Technological Awareness

In a society geared to continual technological development, we realize our obligation to prepare students to be literate in new and widening fields of technological study. Academy of Science and Innovation provides an atmosphere and curriculum designed to help students adapt to the technological challenges of the future.

Personal/Academic Integrity

Academics and technology do not exist in a vacuum at Academy of Science and Innovation. We seek to instill a sense of personal integrity in all areas of life by fostering sound moral values in a climate of mutual respect. As a community, we strive to provide a physically safe and emotionally healthy environment. By combining the resources of school and community, Academy of Science and Innovation makes available professional guidance and special programs to help students help each other and themselves.

Non-Discrimination/Equal Employment Equal Education Opportunity

In compliance with regulations of the Office of Civil Rights and with Equal Opportunity practices as determined by state and federal legislation, the Academy of Science and Innovation Board of Education, as a matter of Policy, does not knowingly condone discrimination in employment, assignment, program or services, on the basis of race, gender, color, religion, national origin, age, sexual orientation, disability, or related abilities to perform the duties of the position.

The right of a student to participate fully in classroom instruction and extracurricular activities shall not be abridged or impaired because of race, gender, color, religion, national origin, age, sexual orientation, pregnancy, parenthood, marriage, or for any other reason not related to his/her individual capabilities.

Harassment/Bullying

Innovation prohibits all forms of harassment, discrimination and hate crimes based on race, color, religion, national origin, ethnicity, sex, sexual orientation, age or disability. The civil rights of all community members are guaranteed by law and the protection of those rights is of utmost importance to our school. This document is written in compliance with regulations of Title IX of the Education Amends of 1972, Section 504 of the Rehabilitation Act of 1973, Title VI of the Civil Rights of 1964 and 1987, and Title 11 of the Americans with Disabilities Act of 1991.

Please be aware that violation of Title IX may be a criminal matter and require police intervention. In addition, violations of Title IX may be considered a violation of child abuse legislation and warrant Department of Children and Families (DCD) intervention.

Commission on Human Rights and
Opportunities
21 Grand Street
Hartford, CT 06106
Telephone: 860-541-3400
Toll Free (CT) 1-800-477-5737

Connecticut, Maine, Massachusetts,
New Hampshire, Rhode Island, Vermont
Offices for Civil Rights/Boston
US Dept. of Education
33 Arch Street, Suite 900
Boston, MA 02110 Tel: 617-289-0111 Fax: 617-289-0150

Course Selection and Schedule Changes

Curriculum choices will be determined by the student's previous record, natural ability, aptitudes, special talents, inclinations, teacher recommendations, and ambitions. Students are urged to give careful consideration to their selection of courses in the spring for the following year, making full use of input from school counselors and teachers. Every effort will be made to provide a program which meets the needs and interests of the individual student. Schedule changes during the school year will be kept to a minimum and will be made only for the following reasons: scheduling errors, teacher recommendations, and extenuating circumstances such as significant illness. Schedule changes will only occur during add/drop window which is during the first two weeks of each semester.

It is important to remember that not every course listed in the Program of Studies is offered every year. Some courses may only be offered every other year and have been designated with the year that they will be offered. Certain courses may not ultimately be scheduled due to insufficient enrollment, scheduling conflicts or limited staff availability. Students should consider their interests, possible career paths and post-secondary planning when making their choices. Course selection should be made with these considerations and a serious commitment to the chosen course work.

A major exception to the above procedure involves Advanced Placement and Early College Experience courses. Because these classes involve specialized staffing, additional teacher training, and expenditure for dedicated materials, AP/ECE CLASSES MAY NOT BE DROPPED without AP/ECE teacher and administrative approval. It is also important to note that seniors, who elect a schedule change after requesting that their academic credentials be sent to colleges, are obligated to notify the college(s) of the change in their program of study. It is always wise for seniors to consult with their prospective colleges before they elect a schedule change!

Academic Levels

Advanced Placement / Early College Experience (AP/ECE)

Several advanced placement courses are offered to recommended students. These courses are college level courses that require an exceptional amount of study on the part of students and allow them the opportunity to take the Advanced Placement Examination. A passing grade (usually 3 or better on a scale of 1 to 5) may earn college credit depending on the requirements of the individual colleges and universities which students plan to attend. Students enrolled in UConn Early College Experience are enrolled in university courses while still in high school. ECE instructors are ASI teachers certified as adjunct professors by UConn. **Please note: Students in ECE must successfully complete the courses with a grade of C or better in order to receive university credit. University credits are highly transferable to other universities. Students enrolling in AP courses must take the AP exam in order to receive AP recognition on their transcript and AP credit weighting toward class rank.**

Special Education Services

The Special Services Department provides a full range of support and related services to students requiring special education assistance during the school day. The Planning and Placement Team (PPT) of which the student's parent is a member, determines whether a student is eligible to receive special education and related services. At the PPT meeting an Individual Education Program (IEP) will be developed if the student is eligible to address the individual educational needs. For students who need additional support, co-taught English classes can also be offered.

Academy of Science and Innovation

Graduation Requirements

To graduate from the Academy of Science and Innovation students in the Class of 2023 and beyond must satisfactorily earned a minimum of 25 credits and must have met all of the credit distribution requirements. The graduation requirements also reflect the school’s magnet theme of Science and Innovation.

Graduation from our CREC public schools implies (1) that students have satisfactorily completed the prescribed courses of study for the several grade levels in accordance with their respective abilities to achieve; (2) that they have satisfactorily passed any examinations and/or standards established by the faculty and approved by the CREC Council; (3) that they have fulfilled the legally mandated number and distribution of credits, and (4) that they have successfully completed their IEP as determined by the Planning and Placement Team. Graduation shall not be held until 180 days of actual school work are completed. The adopted school calendar shall indicate a graduation date which is no earlier than the 180th day. This may be modified after April 1 in any school year in conformity with applicable statute.

Required Courses for Graduation Classes 2023 and Beyond	Credits for Graduation
Humanities	
<i>English</i>	4.0
<i>Social Studies including:</i> <ul style="list-style-type: none">• United States History (1 credit)• Civics (.5 credits)/AP Government (1 credit)	3.0
<i>Fine Arts</i> (Art, Music)	1.0
<i>Humanities Elective</i>	1.0
Science, Technology, Engineering, and Mathematics (STEM)	
<i>Mathematics</i>	4.0
<i>Laboratory Sciences</i>	3.0
<i>Technology, Engineering or STEM Pathway Electives</i>	2.0
Fitness, Health and Safety	
<i>Including:</i> <ul style="list-style-type: none">• <i>Physical Education and Wellness (1 credit)</i>• <i>Health and Safety Education (1 credits)</i>	2.0
World Languages	2.0
Capstone	1.0
Electives	2.0
Total Credits for Graduation	25

Academy of Science and Innovation – Suggested Course Sequence 2024-2025

Grade 9	Credits	Grade 10	Credits
English Language Arts I	1	English Language Arts II	1
Algebra I or Geometry	1	Algebra II or Geometry	1
Physics	1	Biology	1
US History	1	African American/Black and Puerto Rican /Latinx Studies	1
Spanish I/Spanish II/Heritage 1	1	Spanish II/Spanish III/Heritage 2	1
Environmental 1 and 2	1	ECE Environmental Studies	1
Health 9 and PE	1	Health 10 and PE	1
Theme Elective	1	Theme Electives	1
Total	8	Total	8
Grade 11		Grade 12	
English Language Arts III or ECE Intro to Academic Writing	1	English Language Arts IV or ECE Academic Writing & Multimodal Comp.	1.0
Algebra II or Pre-Calculus or Intro to Data Science	1	ECE Stats/Financial Algebra/AP Calculus/Pre-Calculus	1.0
Chemistry	1	Physics or Anatomy & Physiology	1.0
Civics / Criminal Justice	1	Senior Seminar / Psychology or Sociology	1.0
Spanish III or Humanities Elective	1	Study Hall	1.0
Cellular Biology and Genetics	1	Electives	3.0
Capstone / ECE Health Education & Urban Communities	1		
Theme Elective	1		
Total	8	Total	8

Grade Promotion Class of 2023 and beyond

To be a Senior, you must have 19 credits

To be a Junior, you must have 13 credits

To be a Sophomore, you must have 6 credits

Policy on Course Failures – Summer Credit Recovery

Students who fail a course may make up the course during the summer by doing the following:

- Students may make up a failure in a course through the CREC Summer School Program by re-taking the course and successfully passing the summer school class' final exam. The student will receive credit for the class and the course will be added to their transcript under Summer Credit Recovery along with the grade earned. **Not all classes will be available for summer credit recovery.**

NCAA INITIAL ELIGIBILITY REQUIREMENTS

DIVISION I Requirements

Graduate from high school;

Complete these 16 core courses:

- 4 years of English
- 3 years of math (algebra 1 or higher)
- 2 years of natural or physical science (including one year of lab science if offered by your high school)
- 1 extra year of English, math or natural or physical science
- 2 years of social science
- 4 years of extra core courses (from any category above, or foreign language, non-doctrinal religion or philosophy);

Earn a minimum required grade-point average in your core courses of 2.3; *and*

Earn a combined SAT or ACT sum score that matches your core course grade-point average and test score sliding scale (for example, a 2.400 core-course grade-point average needs an 860 SAT).

DIVISION II Requirements

Graduate from high school;

Complete these 16 core courses:

- 3 years of English
- 2 years of math (algebra 1 or higher)
- 2 years of natural or physical science (including one year of lab science if offered by your high school)
- 23 extra years of English, math or natural or physical science
- 2 years of social science
- 34 years of extra core courses (from any category above, or foreign language, non-doctrinal religion or philosophy)

Earn a 2.2 grade-point average or better in your core courses; *and*

Earn a combined SAT or ACT Score matching your core-course GPA on the Division II Sliding Scale.

For up-to-date eligibility requirements visit:
<http://www.ncaa.org/student-athletes/play-division-i-sports>

DIVISION III Requirements: Division III does not use the NCAA Eligibility Center. Contact your Division III college regarding its policies on admission, financial aid, practice and competition.

NCAA DIVISION I SLIDING SCALE CORE GRADE-POINT AVERAGE/TEST-SCORE

Core GPA	SAT	ACT	Core GPA	SAT	ACT	Core GPA	SAT	ACT	Core GPA	SAT	ACT
3.550 +	400	37	3.150	630	48	2.750	810	59	2.350	960	73
3.525	410	38	3.125	650	49	2.725	820	60	2.325	970	74
3.500	430	39	3.100	660	49	2.700	830	61	2.300	980	75
3.475	440	40	3.075	680	50	2.675	840	61	2.275	990	76
3.450	460	41	3.050	690	50	2.650	850	62	2.250	1000	77
3.425	470	41	3.025	710	51	2.625	860	63	2.225	1010	78
3.400	490	42	3.000	720	52	2.600	860	64	2.200	1020	79
3.375	500	42	2.975	730	52	2.575	870	65	2.175	1030	80
3.350	520	43	2.950	740	53	2.550	880	66	2.150	1040	81
3.325	530	44	2.925	750	53	2.525	890	67	2.125	1050	82
3.300	550	44	2.900	750	54	2.500	900	68	2.100	1060	83
3.275	560	45	2.875	760	55	2.475	910	69	2.075	1070	84
3.250	580	46	2.850	770	56	2.450	920	70	2.050	1080	85
3.225	590	46	2.825	780	56	2.425	930	70	2.025	1090	86
3.200	600	47	2.800	790	57	2.400	940	71	2.000	1100	86
3.175	620	47	2.775	800	58	2.375	950	72			

These are minimum NCAA requirements. Most institutions have more stringent requirements for acceptance.

For NCAA DIVISION II sliding scale: http://fs.ncaa.org/Docs/eligibility_center/Student_Resources/DII_ReqsFactSheet.pdf

University of Connecticut Early College Experience

Academy of Science and Innovation has established an ECE program for our students. UConn Early College Experience (ECE) provides academically motivated students the opportunity to take university courses while still 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.

ECE instructors, who are certified as adjunct professors by UConn faculty, create a classroom environment fostering independent learning, creativity, and critical thinking - all pivotal for success in college. Academy of Science and Innovation currently offers ECE courses in Statistics, Spanish, Environmental Science, Health and Urban Studies, English Language and Composition, and English Literature. To support rigorous learning, University of Connecticut library resources are also available to students.

ECE students must successfully complete the courses with a grade of C or better in order to receive university credit. University credits are highly transferable to other universities.

UConn ECE charges \$125 for a 3 credit course and \$160 for a 4 credit course along with a \$25 enrollment fee. However, fees will be waived if a student meets specified income guidelines. Please note that fees may be different than those listed at the time of this printing and are subject to change; students will be informed of the fees. For additional information or questions regarding UConn ECE please contact Royston Jordan at RJordan@crec.org.

Advanced Placement (AP) Offerings

Academy of Science and Innovation has established Advanced Placement course offerings in numerous disciplines. These courses follow strict curriculum guidelines as prescribed by the College Board. The rigor and quality of AP courses is similar to those of college level courses. The skills students acquire in AP courses allow them to stand out in college admission, earn college credit, and develop the habits of mind and content knowledge that position students to pursue even deeper, richer studies at a university. Students are encouraged to take an AP exam in each course they are registered for. These exams are in May. Any questions regarding Advanced Placement please contact Royston Jordan at RJordan@crec.org. The cost to take an AP exam will be determined each year.

Summer Assignments

Advanced Placement (AP) level courses require the completion of special summer reading assignments, which students are to obtain from the instructor of the AP course in which they are enrolling. Students who are unable to contact the course instructor should contact their assigned school counselor.

INNOVATION MIDDLE SCHOOL COURSES

Our middle school program is designed to give each child a wide range of courses for them to explore STEM and other elective courses. All students in grades 6, 7, 8 will be enrolled in Math, Language Arts – Reading, Language Arts – Writing, Science, STEM, and Social Studies. In addition, in Grades 6 and 7 there are two different elective periods that rotate through 5 terms in a year; we call them wheel periods. Grade 8 has one elective period in the wheel and the other elective is a full year of Spanish 8. Each term is approximately 7-8 weeks long. These elective courses may change based on teacher availability.

GRADE 6 Core Courses

0600 – Language Arts 6 – Reading

EN0611 – Language Arts 6 – Writing

The sixth grade reading classroom is a space where we meet students where they are while helping them strengthen their reading comprehension. We use the Common Core State Standards to help them develop good reading habits and an appreciation for texts of all types. Each unit is built upon a novel, short stories, poems, and other multimedia pieces that help us develop reading skills and strategies that will improve their overall comprehension. Large themes of the class include: building vocabulary, finding and using evidence to create and support their ideas, working together to overcome obstacles, and presenting work to others.

SS0501 – World Regional Studies 6

Students in 6th grade begin Social Studies by examining the diversity in culture, history, and geography of the world. 6th graders examine geography and themes related to the study of the earth. Working thematically through case studies of different countries and continents, students investigate the essential question, how does where you live affect how you live. In 6th grade students focus on: Asia’s Economic Powerhouses: India and China; The European Union: The Division and Unification of Modern Europe; South America: Developing Economies and Emerging Democracies; South Africa: Economics, Resources, and Government. Additionally, students will develop skills necessary for success including: critical thinking, analytical reading, persuasive writing, and communication.

6520 – Mathematics 6

This course reinforces mathematical skills taught in prior grades with increased emphasis on algebraic reasoning, writing and using algebraic expressions and equations. Students also study estimation, fractions, decimals, percent’s, positive and negative integer ratios, rates, geometric concepts, basic statistics and rational numbers. Students will develop and expand problem solving skills (creatively and analytically) in order to solve word problems. Theme-related content will be emphasized during lessons pertaining to proportion; ex. body measurement. Rates will include the recording of metabolic processes for the purpose of making marionettes to teach preschoolers a health lesson.

6130 – Science 6

Ideas related to change and systems are interwoven into the physical, life, and earth science studies in grade 6. Investigative skills that engage students in the process of analysis and communication are practiced as students explore characteristic properties of materials, interactions found within different ecosystems, and the changing atmospheric

conditions that define daily and seasonal weather patterns. Applying the knowledge and skills gained in the units unfolds as students engage in inquiry investigations about the properties of earth materials and the effects of human activity on water quality and environmental health. Designing and maintaining a school garden integrates the medical and education themes through the disciplines of science.

SC0701 STEM 6

Students in this course will apply the design process to solve problems and generate proposals for improving organization systems and for improving civil engineering problems. Students will also learn how to apply science concepts and the engineering design process to build and test new products. The course is structured into engineering design challenges, each designed to require student to learn and apply different elements of engineering practice. Student projects progress from highly constrained to more open ended and complex problems culminating in a final project which a student demonstrates the ability to apply engineering practice to a complex real-world problem identified and defined by the student.

GRADE 7 Core Courses

0701 – Language Arts 7 – Reading

The seventh grade Reading class is an environment where students interact with different genres of literature via book clubs to gain a greater understanding of literacy, real world experiences, state and magnet standards, and an array of reading strategies.

Each quarter, students will read novels based on specific topics/genres and ultimately show their understanding of concepts and strategies by way of formative assessments and a PBL-based summative assessment. Quarterly topics/genres include A Deep Study of Character; Nonfiction Texts; Social Issues/Injustices and Historical Fiction.

EN0711 – Language Arts 7 – Writing

The seventh grade writing class will focus on a total of four different categories: narrative writing, argumentative writing, writing about reading and literature, and poetry. Students will work with learning story elements and how to construct narratives. They will examine examples of argumentative writing and will work with nonfiction texts in order to craft well written argumentative essays. A companion book will be created throughout the course of the writing about reading units on a fictional story. Students will learn about the different parts of poems and will examine a variety of examples.

SS0511 – World Regional Studies 7

Students in 7th grade continue their Social Studies curriculum engaged in the diversity of culture, history, and geography of the world. Working thematically through case studies of different countries and continents, students investigate the essential question, how does where you live affect how you live. In 7th grade students focus on: North America: Modern Immigration; Russia: Past and present; Soviet-Russia's transition; Middle East; Foreign involvement in Afghanistan and Iraq; and Southeast Asia: Post imperialism and Post-Cold War Vietnam, North Korea and South Korea. Additionally, students will develop skills necessary for success including: critical thinking, analytical reading, persuasive writing, and communication.

MA200 – Mathematics 7

This course reinforces mathematical skills taught in prior grades with increased emphasis on conversions involving fractions, decimals and percent, problem solving, algebraic reasoning, patterns and functions. Proportional reasoning, rates and ratios as well as geometry and measurement will be emphasized. Students also study fractions, decimals, percent, positive and negative integers, ratios, rates, basic statistics and rational numbers. Students will develop and expand problem solving skills (creatively and analytically) in order to solve word problems. Theme-related content will be included during lessons pertaining to proportion, rates, and measurement.

7530 – Science 7

Human Biology is explored as students discover how science and technology are rapidly advancing the capabilities of the human body machine. Energy transfer and transformations are investigated through the physical, life, and earth systems studied in grade 7. Investigations into how and why energy is transferred through machines, the human body, and Earth's dynamic planet will develop as students unravel the components that make up simple and complex systems found in the world today. Students research new technologies in the medical field and design a medical related solution to a complex problem in order to participate in the Medical Invention Convention.

SC0011 STEM 7

Students will continue to utilize the design process to solve problems and improve systems. Students will begin a more in-depth exploration of energy transformations, Earth science and design basic applications. The science behind mechanical systems and energy transfer will be used to explore real world problems and overcome obstacles and design challenges.

GRADE 8 Core Courses**0801 – Language Arts 8 – Reading**

The eighth grade Reading class focuses on reading, writing, speaking and listening standards to improve comprehension, critical thinking, and communication skills. The students engage with diverse texts to not only feel seen and heard as individuals, but to also build empathy for others. Throughout the year, the eighth-grade teachers work together to create multiple interdisciplinary units that encourage students to practice skills across content areas, in order to deepen their understanding of various topics. Reading units include: Memoir, Dystopia, Nonfiction, and Poetry.

EN0811 – Language Arts 8 – Writing

The eighth grade Writing class is an environment where students work with reading, writing, speaking, and listening standards. Throughout the course, the writing class works closely with other core subjects to gain a greater understanding of literacy and life. There are interactive classroom experiences that have a deep connection with our STEM theme and encourage students to be lifelong learners and writers. Writing units include: Narrative, Argument, Literary Analysis, and Investigative Journalism.

SS0521 – US History 8

Students will explore United States History from initial discovery up to, and including, the Civil War. Working their way chronologically through our country's history students pose the question, how does when you live effect how you live? There are four units of study beginning with Initial Discovery & European Migration, followed by The American

Revolution. The third unit of study reveals the aftermath of the Revolutionary War as students examine The New Nation. Finally, students focus on Two American Identities: North and South as they analyze and relive the Civil War and its effects on the United States as a country.

MA204 – Mathematics 8

Math 8 is a course that encompasses pre-algebra concepts. The eighth-grade math curriculum is taught using interactive activities, learning games, printable worksheets, assessments, and reinforcement. Manipulatives are very important for eighth grade math lessons. Eighth grade math relies on many learning tools - eighth grade lessons with activities, worksheets, reinforcement exercises, and assessments. The major math strands for eighth grade curriculum are number sense and operations, algebra, geometry and, measurement, and data analysis and probability. Strands such as data analysis and measurement lend themselves well to the medical theme with lessons pertaining to medicine administration and effectiveness. Students who demonstrate advanced mathematics skills have the opportunity to take Algebra 1 during their 8th grade year.

8530 – Science 8

Current issues in Science, Technology, and Society are viewed through the world of microorganisms as students critique the current methods of food production and preservation and the effects on human health and increasing populations. Genetics and the processes that ensure the continuation of all species are studied as students design and develop inquiry investigations to test their ideas about how systems work and how to effectively communicate their experimental results using measurable data, logic and reasoning skills. Students continue to build upon their conceptual understandings from the physical, biological, and earth sciences as well as solidify their application of mathematics in science and technology to gather reliable data and explain measurable outcomes resulting from scientific investigation. Structural design will be investigated as students apply their knowledge of forces and properties of materials to analyze historical and 21st century bridge design.

SC0051 STEM 8

Students focus their study on the application of engineering and technology within the fields of physical science, biology and earth science. Within the biotechnology pathway, students will explore cellular and bio molecular processes and how these processes can be used in technologies that impact and improve our lives. Modern biotechnology provides breakthrough products and technologies to combat debilitating and rare diseases, reduce our environmental footprint, feed the hungry, use less and cleaner energy, and have safer, cleaner and more efficient industrial manufacturing processes.

MIDDLE SCHOOL WORLD LANGUAGE

Introduction to Spanish (6th Grade and 7th Grade Exploratory – 1 Term each year)

This exploratory Spanish class will focus on culture and beginning level Spanish expressions, writing through listening, speaking, reading and writing. Concepts such as the alphabet, calendar, cognates, classroom objects and school subjects, commands, numbers, colors, greetings, and a basic understanding of Spanish-speaking cultures will be taught. In grade 7, students will also be presented with basic structure of grammar and introduction to basic vocabulary.

SP6038 - Spanish 8

Exploratory Spanish is an exploratory Spanish course that begins the development of the basic language skills: listening, reading, writing and speaking. This is accomplished through the use of oral drills, vocabulary building, simple

composition, reading assignments, dialogue, and creative writing. The course also stresses cultural awareness and understanding of the Spanish-speaking world and its impact on the United States. Students may take this course prior to taking the High School Spanish 1 Course.

MIDDLE SCHOOL PHYSICAL EDUCATION AND HEALTH

8009 - Health 8

Health is a half year course designed to provide students with resources to assist them in making healthy lifestyle choices. Students will learn about the importance of eating healthy and nutritious food and how exercise helps keep the body in optimal condition. Students will learn how to make decisions and be responsible, respectful and well-informed consumers. Topics to be discussed include nutrition, diseases and disorders, mental and emotional health, the effects of drugs on the body, alcohol, tobacco, growth and development and healthy and safe relationships.

PE 0731 Adventure Education 6, 7, and 8

Adventure education is a physical class that involves a variety of teambuilding and problem-solving challenges and activities to increase community, communication and cooperation in our student.

MIDDLE SCHOOL THEMED ELECTIVES

8010—Middle School Hydroponics

Students in this hands-on, inquiry-based course will learn all about various methods of sustainable agriculture. Students will work in groups to design and construct their own hydroponic systems and collect and analyze data to determine if their system is working efficiently and effectively at producing crops.

0541—Middle School Robotics

In this introductory robotics course, students will develop skills and knowledge related to the engineering design process in order to design and develop robotic devices. Topics covered in the course will include structural design, sensors, motor controls, computer basics, and programmable logic controllers.

8370 - Middle School Game Coding, Design and Theory

Game Theory & Design is a half year elective course designed to introduce students to computer science through game design. Students will start with game logic, exploring common board games: What are the rules, how do you play, can you win? Next students will be introduced to computer coding and game design exploring several classic game types. Students will be expected to design, code, produce and present a mastery game project at the end of the course.

TE0421 - Middle School Computer Science

In this introductory coding course, students will learn how to write computer code and develop computer programs through a fundamental understanding of basic computer science principles.

COMPAPL1D - Computer Applications

In this course, students will be introduced to cloud-based technologies such as Google apps-Google drive, Google docs, Google hangout, Google slides, Schoology, and other Internet based data storage sites. Students will develop the skills necessary to work with their Google Chromebook laptops in the classroom.

TE7010 - MS Artificial Intelligence

This course combines Python programming with miniature autonomous cars equipped with sensors and cameras. Students will be introduced to fundamental A.I. concepts tied to the real-world application of self-driving cars.

EG1101 - MS Intro to Engineering

In this hands-on inquiry-based course students will explore the fundamentals of the Engineering Design Process and learn what it means to be an engineer. Topics discussed include: Engineering Communications, Systems and Optimization, History of Engineering, Teamwork and Concurrent Measurement, Introduction to 3D Solid Modeling, Material Science, Basic Electricity, Problem Solving, Design and Modeling and Traditional Engineering Disciplines.

MIDDLE SCHOOL RELATED ARTS

ART and MUSIC (GRADES 6, 7 & 8)

6361 –Art 6

The Visual Art classes at ASI are introductory studio and STEM integration courses. Students learn the basics of studio art in a hands-on course that provides a vehicle for students to create, perform, and participate in the arts. The course is designed to teach the basic elements of art including drawing, painting, 3-D construction, and mixed media. At the end of the course, students should be able to demonstrate capabilities in different artistic media.

7361 – Art 7

Students work with a variety of media, including pencil, watercolor, paper mâché, and ceramics. They learn how to create a sense of depth in a two-dimensional drawing, how symbols are used in art and some basic color theory. They explore the discipline of art illustration. In addition, they develop and implement an art-teaching lesson for children in and in-house pre-k program.

8361 – Art 8

Students learn about positive and negative space, optical illusions, elements of design, geometric pattern, and perspective drawing. They create a painting that integrates a lesson or story into their work after learning about Australian Aboriginal

art. They study artist M.C. Escher and his inspiration from Islamic tile pattern design. Using geometric and organic shapes they develop a block print that repeats to create a more complex pattern, as well as developing their own tessellations. Various art techniques are explored including drawing, painting, and printmaking.

AR0071 – Middle School Digital Photography

Digital photography is a course that exposes middle school students to the materials, processes, and artistic techniques of taking artistic photographs. Students learn about the operation of a camera, composition, lighting techniques, and depth of field, filters, camera angles, and film development. This course will also focus on the utilization of photography in journalism, media and social activism.

AR0861 - Middle School Creative Coding and Arts

Students will learn to use computers and software as platforms for creative expression. Following a series of intensive coding workshops, students will learn to execute projects involving animations, drawings, and screen-based artworks. Students will work primarily with the online creative coding applications.

8013 – Music 6

During this quarter-long class, students will learn about:

- 1) Fundamentals of Music: All incoming 6th grade students will review, in depth, the elements of music ... Genres, Rhythm, Pitch, Melody, Form, Tempo and Dynamics. Our state-of-the-art, online music curriculum, QUAVER, is infused with performance and composition opportunities, so that students may express themselves creatively, while gaining an introductory knowledge of notation and performance traditions from around the world. Knowledge of the elements of music along with skills like active listening, analysis, evaluation and synthesis will enable students to recognize and pursue musical excellence.
- 2) African Drumming: Students will learn how to play a variety of rhythm patterns and textures through performing in a traditional African Drum Circle. Lessons will emphasize collaborative music making, listening, balancing sounds and staying on beat.
- 3) Introduction to Drumline: Accompanied by real-time scrolling music notation, provided by MODERN BAND and QUAVER, students have the opportunity to learn and apply the basics of rhythm and proper stick/mallet technique on percussion instruments. The aim of the drumline program is to enable students to communicate effectively through percussion instruments and to understand and value a variety of musical and cultural expressions throughout life.

8113 – Music 7

During this quarter-long class, students will learn about:

- 1) Ukulele: Accompanied by real-time scrolling music notation, provided by MODERN BAND and QUAVER, students will experience what it's like to play simple melodies, scales and chords on the Ukulele. Students will be tested on their ability to perform short songs on their ukulele, as well as on their conceptual understanding of melodic reading, rhythmic strumming and chord playing.
- 2) African-American Music Styles: African American musical creativity has generated a vast array of musical styles, from folk and blues, to classical and spiritual, to jazz and hip-hop, and more. These musical creations are a soundtrack to stories of African American history, culture, and community. In this unit, students will listen to, analyze, and make historical connections to many of the creative musical contributions of African American

people, performers and composers. Student expectations will include: active/attentive music listening, reading and research, as well as writing personal responses to these different styles of music and/or their historical context.

8213 – Music 8

During this Quarter-Long class, students will learn about:

- 1) Guitar & Bass: Accompanied by real-time scrolling music notation, provided by MODERN BAND, students will experience what it's like to play chords and simple bass lines on a 6-string Guitar. Students will be tested on their ability to perform chord progressions found in short songs on their Guitar, as well as on their conceptual understanding of reading iconic notation to help them learn rhythmic strumming and chord playing.
- 2) Piano Keyboards: Accompanied by real-time scrolling music notation, provided by MODERN BAND and QUAVER, students will experience what it's like to play simple melodies, scales and chords on the Piano Keyboard. Concepts such as half-steps, whole-steps, melodic scales, chordal harmony, and practicing for mastery will be covered. Students will be tested on their ability to perform short songs on their electric piano, as well as on their conceptual understanding of melodic reading, rhythmic skills and chord playing.
- 3) Science of Sound: Woven into their study of Guitar and Piano, all 8th grade students will study music from a scientific perspective. Acoustics is the science of sound. The manner in which musical sounds are produced, travel in sound waves at a molecular level, change in pitch or volume, how those changes are measured electronically, and how they are reproduced in audio engineering studios are at the center of this unit.
- 4) MODERN BAND - Final Project: Students will form small Modern Band combos, with the intention of performing a modern song for their class (and possibly some invited guests). Each small group will include Drums, Guitar/Ukulele, Bass, Keyboards and possibly vocals.

MV1108 – Music Technology

This course is designed to introduce students to the ever-evolving world of music technology by providing an opportunity to explore a variety of the latest software and hardware used in today's music industry. Studies will focus on applying the fundamentals of music in a step-by-step process of creating, recording, and editing musical compositions. Students will work on individual and group projects and present them to the class for feedback, revision and evaluation.

MU0037 – Band 1 MS & MU0038 – Band 2 MS (May be offered for 1 Term)

This Music Elective class provides students with opportunities to study ensemble/solo activities designed to develop musicianship including tone production, technical skills, music reading, analysis of music and the study of significant styles of band literature. MS Band is a Project-Based/Performance-Based class.

MU0035 – Chorus 1 MS & MU0036 – Chorus 2 MS (Will not be offered for 2024-2025 School Year)

This Music Elective class provides 6th - 8th grade students with opportunities for large group & solo singing. Students will develop their singing technique, learn how to read music, and enhance their tonal memory. MS Chorus is a Project-Based/Performance-Based class. The class may be taken for multiple semesters.

MU001 - African American Music

African American musical creativity has generated a vast array of musical styles, from folk and blues, to classical and spiritual, to jazz and hip-hop, and more. These musical creations are a soundtrack to stories of African American history, culture, and community. In this one-semester class, students will listen to, analyze, and make historical connections to the

creative musical contributions of African American people, performers and composers. This class is open to any 6 – 8 grade student interested in learning this material at a deeper level. Student expectations will include: active/attentive music listening, reading and research, writing responses, and creating original music incorporating some elements of African American musical style. No prerequisite classes necessary.

INNOVATION HIGH SCHOOL COURSES

ENGLISH

EN1372 – English/ Language Arts I – H (1.0)

The study of American Literature is an essential experience for a high school student. In this course, students will read some of the most revered authors in American Literature while looking at their works through the lens of what it means to be American. Several issues in American society (race, identity, war and gender) are examined through an exploration of literature written about or through those issues. Students will revisit the theme of what it means to be American throughout this entire course and will evaluate how the literature they have read has helped them answer this question for themselves.

EN2402 –English/ Language Arts II – H (1.0)

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 this course, students 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 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 “Voices” course is to heighten the students’ understanding of powers, dangers, and endless possibilities of voice.

EN3402 – English/ Language Arts III – H (1.0)

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 the 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.

EN4052 – English/ Language Arts IV – H (1.0)

Students entering grade 12 are prepared for deeper considerations of written expression, ready to tackle social issues through a variety of lenses and to situate their own identities and voices in the larger world of text. Students will analyze, critique, and compose written expression as a vehicle for identity formation, challenging norms, impacting change, and possibly transforming the world in which we live. This course focuses on characters’, authors’, and students’ responses to social constructs and the establishment of identity through writing. Consideration is given to the real or imagined societies in which individuals exist and how these worlds define, create, and demand space for reaction and response. Students in this course are asked to consider themselves as individuals within larger societies whose abilities to think critically and impact change make their stories and arguments worthy of being heard.

EN117 – Creative Writing (0.5) ** Will not be offered 2024-2025

This semester-long course is an introduction to the art of creative writing and publishing, and will focus on expressive writing in a variety of genres. The purpose of this class is to encourage students to develop the habits, attitudes, and flexibility of professional writers in a writing community. Students will write and revise pieces in a number of categories, such as personal essays, short stories, and poetry. The central focus of the class is on the various processes for creating, using mentor texts as inspiration, and learning by providing and listening to feedback. Most important, however, will be learning to interact in an encouraging creative community that supports individual curiosity and artistic risk taking.

EN3462 – Contemporary Literature (0.5) ** Will not be offered 2024-2025

This is a half-year course designed for juniors or seniors who are either in need of additional English credit or those who are interested in reading modern young adult novels. The course is to be taken concurrently with either English III or English IV. The course offers students the ability to explore current topics related to identity and society through modern literature. The course aims to advance students' reading, writing, thinking and speaking skills through the study of contemporary literature. We will focus on understanding how modern literature has developed into what it is today and how it can be useful and enjoyable, simple yet challenging, and familiar but new. In addition to reading a variety of authors, we will practice writing in a variety of formats. While many of these types of writing are geared toward preparing students for the kinds of writing they may encounter in college, all assignments are designed to be helpful and applicable to any student.

EN1004– ECE Introduction to Academic Writing (1.0)**UConn ECE – ENGL 1004**

Development of the reading and writing skills essential to university work. Students placed in ENGL 1004 must pass the course before electing ENGL 1007. ENGL 1004 is designed to prepare students not yet qualified to take the required academic writing seminar (ENGL 1007) but who would benefit from a preparatory course that carries college credit.

AP/ECE courses are given 0.5 added value to a student's GPA.

EN3000 ECE Academic Writing and Multimodal Comp (1.0)**UConn ECE – ENGL 1007**

College composition through multiple forms of literacy, including rhetorical, digital, and information literacies necessary for twenty-first-century contexts. The development of creatively intellectual inquiries through sustained engagement with texts, ideas, and problems. Emphasis on transfer of writing and rhetorical skills to academic and daily life. Students design a digital portfolio that curates creations and skills-based micro-credentials they earn in coursework.

Eligibility Guidelines: Successful completion of two years of high school English is required. Students placed in ENGL 1004 must pass that class before enrolling in ENGL 1007. AP/ECE courses are given 0.5 added value to a student's GPA.

MATHEMATICS**MA1010 – Math Problem Solving 1 (0.5) MA1011 – Math Problem Solving 2 (0.5)**

This is a basic preparatory course for first year algebra, designed for students who have had difficulty in mathematics and are two or more years below grade level in mathematics. The approach of this course is more concrete than abstract and

focuses on increasing the understanding of basic concepts, gaining fluency in handling mathematical symbolism, and increasing problem solving techniques. Successful completion will lead to placement in Algebra I.

MA2014 – Algebra I – H (1.0)

Algebra I units of study deepen and extend understanding of linear and exponential relationships by contrasting them with each other and applying linear models to data that exhibit a linear trend. Students engage in methods of analyzing, solving, and using quadratic functions. Students will extend their knowledge of the number system to include irrational numbers. Students will use technology and models to investigate and explore mathematical ideas and relationships to develop multiple strategies for analyzing complex situations verbally, numerically, graphically, and symbolically. The Mathematical Practice Standards apply throughout the course, and along with the Connecticut Core content standards, ensure that students will apply mathematical skills and make meaningful connections to life's experiences. Active learning will be enhanced with technology-rich instruction including computer applications, and the use of graphing or the desmos calculators.

A TI 83 OR TI-84 calculator is required for this class.

MA2102 – Geometry – H (1.0)

Geometry units enable students to develop analytic and spatial reasoning skills and move towards formal mathematical arguments and constructions. Students study probability and statistics so they can create arguments and justify conclusions by applying their statistical reasoning. Student also will apply what they know about two-dimensional figures to three-dimensional figures in real-world contexts, build spatial visualization skills, and deepen their understanding of shape and shape relationships. Students develop deductive reasoning skills that can be applied to both mathematical and real-world problem contexts. The Mathematical Practice Standards apply throughout the course, and along with the Connecticut Core content standards, ensure that students will apply mathematical skills and make meaningful connections to life's experiences. Active learning will be enhanced with technology-rich instruction including computer applications, and the use of graphing or desmos calculators as well as Geogebra geometry applications.

A TI 83 OR TI-84 calculator is required for this class. Prerequisite: Algebra I

MA4052 - Financial Algebra – H

Financial Algebra is designed to introduce students to the world of personal finance. This course will cover the following topics: careers, loans (including college loans), banking, taxes, budgeting, investing, and insurance. This course will use case studies, projects, and mathematical modeling so students can learn about these relevant topics as they work to solve real career and financial problems.

MA2202 – Algebra II – H (1.0)

Algebra 2 extends and applies the concepts of Algebra I and Geometry. The curriculum includes the study of functions including polynomial, radical, rational, exponential, logarithmic and trigonometric. Students will use technology and models to investigate and explore mathematical ideas and relationships to develop multiple strategies for analyzing complex situations verbally, numerically, graphically, and symbolically. The Mathematical Practice Standards apply throughout the course, and along with the Connecticut Core content standards, ensure that students will apply mathematical skills and make meaningful connections to life's experiences. Active learning will be enhanced with technology-rich instruction including computer applications, and the use of graphing or desmos calculators.

Prerequisite: Algebra I. After completion of this course students would enroll in Pre-Calculus, Financial Algebra or AP Statistics with recommendation.

MA2243 – Pre-Calculus – H (1.0)

Pre-calculus extends and applies the concepts of all their previous courses. The curriculum includes a study of trigonometric relationships, matrices and systems, vectors, conics and limits. Students will use technology and models to investigate and explore mathematical ideas and relationships to develop multiple strategies for analyzing complex situations verbally, numerically, graphically, and symbolically. The Mathematical Practice Standards apply throughout the course, and along with the Connecticut Core content standards, ensure that students will apply mathematical skills and make meaningful connections to life's experiences. Active learning will be enhanced with technology-rich instruction including computer applications, and the use of graphing or desmos calculators.

Prerequisite: Successful completion of Algebra I, Geometry, and Algebra 2. After completion of this course students would enroll in AP Calculus and/or ECE Statistics.

MA1009 – Intro to Data Science – H (1.0)

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.

After completing this course, students would either take ECE Statistics or Algebra 2.

MA2326 – ECE Statistics (1.0)

The ECE Statistics course is equivalent to a one-semester, introductory, non-calculus-based college course in statistics. The course introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. There are four themes in the ECE Statistics course: exploring data, sampling and experimentation, anticipating patterns, and statistical inference. Students use technology, investigations, problem solving, and writing as they build conceptual understanding. **Prerequisite: Successful completion of Algebra 1, Geometry, Algebra II or Intro to Data Science.** AP/ECE courses are given 0.5 added value to a student's GPA.

MA2304 – AP Calculus AB (1.0)

AP Calculus has been designed by the College Board. Their description of the course is as follows: “AP Calculus AB is roughly equivalent to a first semester college calculus course devoted to topics in differential and integral calculus. The AP course covers topics in these areas, including concepts and skills of limits, derivatives, definite integrals, and the Fundamental Theorem of Calculus. The course teaches students to approach calculus concepts and problems when they are represented graphically, numerically, analytically, and verbally, and to make connections amongst these representations. Students learn how to use technology to help solve problems, experiment, interpret results, and support conclusions.” AP/ECE courses are given 0.5 added value to a student's GPA. **Prerequisite: Successful completion of Algebra 1, Geometry, Algebra II, Pre-Calculus**

SCIENCE

SC3272 – Integrated Science (1.0) – H

Integrated Science is a broad scoped course which offers an understanding of how our actions affect the world we live in. Students will acquire a broad foundation in scientific inquiry and conduct meaningful experiments including the collection, assessment and analysis of data, draw conclusions, and report their findings. Topics from both physics and chemistry are covered. Emphasis is placed on concepts of energy, heat, electricity, and magnetism, the structure of atoms and their properties and the formation of chemical compounds. Students will also be asked to explore the impact of humans on our world and environment.

SC1141 STEM 9 (1.0) * Will not be offered 2024-2025**

In this course, students will continue their understandings of the engineering design process and scientific exploration through project-based learning. Students will apply the design process to complete individual project related to designing earthquake safe buildings, generating alternative fuels, combating climate change, designing rockets and drones, demonstrating molecular bonding, and electromagnetism. These projects are supervised designs, simulations or experimental projects involving the definition of a design problem, carrying out the research and design, and demonstrating results. Students will work in teams and will be provided the opportunity to demonstrate good judgment, challenge and enhance the ability to solve open-ended design problems, and improve teamwork skills.

SC3132 – Biology (1.0) – H

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.

SC3212 – Chemistry (1.0) – H

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. ***Prerequisite: Algebra II concurrent or completed***

SC3314 – Physics (1.0) – H

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.

SC3041 – Environmental Science I (0.5)

Environmental Science I is a science course that focuses on the abiotic or non-living aspects of environmental science. The course is essential to our school's theme of environmental science and sustainability and enriches student's conceptual understanding of and science practice skills in the core science curriculum found in Geosciences.

SC3042 – Environmental Science II (0.5)

Environmental Science II is a course that focuses on the biotic or living aspects of environmental science. The course is essential to our school's theme of environmental science and sustainability and enriches student's conceptual understanding of and science practice skills in the core science curriculum found in Biology. ***Prerequisite: Environmental Science I***

SC3113 – Epidemiology (0.5) **Will not be offered 2024-2025****

In this half year course, students will learn and apply basic concepts of epidemiology to multiple domains of public health. Students will illustrate and practice using epidemiology to better understand, characterize, and promote health at a population level. The class will engage students in active and collaborative learning through team activities, individual projects, case studies, group discussion, and individual projects. ***Prerequisite: Biology***

SC2233 – ECE/AP Environmental Science (1.0)

UConn ECE – NRE 1000

ECE/AP Environmental Science is a science course that seeks to investigate, in depth, current social issues such as Environmental interrelationships, Environmental Ethics, Environmental Risk/Economics and Energy and Civilization: Patterns of Consumption as well as address the scientific principles related to the field of environmental science. ***ECE/AP courses are given 0.5 added value to a student's GPA. Prerequisite: Biology***

SC3104 – AP Biology (1.0)

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. *AP/ECE courses are given 0.5 added value to a student's GPA. Prerequisite: Biology*

SC4051 –Forensics (0.5)

Forensics is a half year elective science course that focuses on the key aspects of forensic science. Students will utilize forensic science concepts and investigation techniques to visit various “crime scenes”, collect samples, analyze data and draw conclusions as to the cause of the crime. Topics will integrate crime scene investigation and forensic science to examine how scientists: process the scene, utilize tools of the lab, gather physical evidence, study forensic toxicology, analyze inorganic/organic compounds and study entomology.

SC2261 – Fresh Water Ecology (0.5)

Freshwater ecology is a half year science course that focuses on the local ecology of the Connecticut River. Students will visit various sites along the river, collect samples, analyze data and draw conclusions as to the health of the river as part of a project-based program. This course will enhance the learning of environmental science and sustainability with a focus on preserving local fresh water sources. Unit topics will include: Aquatic Ecology, CT River Ecosystems, Invasive Species, Land and Water Use and Weather and Climate *Prerequisite: Biology concurrent or completed*

SC3305 – Anatomy & Physiology (1.0)

Anatomy and Physiology is an upper level course designed for students interested in the health professions. The course will require students to be highly independent learners. Students will gain an in-depth understanding of the structure and function of the major human body systems from the cellular level to the organ system level. Students will research how diseases affect body systems and how body systems function together for optimal health.

SC3605 – ECE Biotechnology (1.0) ** Will not be offered 2024-2025**UConn ECE – SPSS 3230**

UConn ECE Biotechnology- Science, Application, Impact, and Perception integrates the fundamental concepts of life and physical sciences together with the laboratory skills necessary to engage in authentic research within the field of biotechnology. This course introduces students to the fundamentals of biotechnology, current trends and careers in biotechnology, and the business, regulatory, and ethical aspects of biotechnology. The knowledge and skills gained in this course will provide students with a broad understanding of biotechnology and its impact on society. This course is intended to meet the needs of a diverse body of learners. The target audience includes all students who would like to study foundational concepts and established laboratory protocols in a broad spectrum of disciplines such as biology, chemistry, biochemistry, microbiology, molecular and cell biology, genetics, and immunology. Most importantly, the course focuses on fostering scientific literacy and providing a foundation for entry into post-secondary education or into the biotechnology field. *AP/ECE courses are given 0.5 added value to a student's GPA. Prerequisite: Biology*

SC2581 – Cellular Biology (0.5)

Cellular biology is the study of the structure and function of prokaryotic and eukaryotic cells. In this course we will examine many different areas of cellular biology including: the synthesis and function of macromolecules such as DNA, RNA, and proteins; control of gene expression; membrane and organelle structure and function; bioenergetics; and cellular communication. Examples of relevant human disorders will also be used to help the student understand what happens when cells don't work as they should. Laboratories will focus both on exercises that help illustrate cellular phenomena, as well as on the introduction of techniques and procedures commonly utilized in modern cell and molecular biology research. The development of critical thinking processes and proficiency in scientific reading and writing will be emphasized throughout the course. *Prerequisite: Biology*

SC1132 – Genetics (0.5)

This course provides an overview of the principles of plant and animal genetics including Mendelian and modern concepts of heredity. Developments in molecular genetics will be addressed through the chemistry and physiology of the gene and the nature of gene action in prokaryotic and eukaryotic cells. This course will convey the basic principles of modern genetics that apply to all living things on earth. Specific components will include Mendelian genetics, gene regulation, molecular genetics and genomics. Emphasis will be placed on genetics methods and concepts with many opportunities to engage with biotechnology through laboratory experimentation. *Prerequisite: Biology*

FC2601 – Food Science (0.5)

Students taking this course will be introduced to the world of food science and what a food scientist does. Some of the topics explored in this course include: microbiology, food preservation, food preparation, macro and micro nutrients, and fermentation.

SC3323 – Introduction to Hydroponics (0.5)

The Hydroponics course is a half year technology elective that will teach students about the various technologies utilized to grow plants in a nutrient water solution without soil. Students will design and construct their own hydroponic systems and collect and analyze data to determine if their system is working efficiently and effectively at producing crops. This course will integrate a variety of sciences including environmental science, biology, chemistry, physics, and earth science behind the future of farming (both personal and large-scale) through hydroponic systems. Beyond the science, students will engage in problem solving through the integration of citizen science projects.

SC3831 – Aquaponics (0.5)

This course will integrate a variety of sciences including environmental science, biology, chemistry, physics, and earth science behind the future of farming (both personal and large-scale) through aquaponics systems. Beyond the science, students will engage in problem solving through the integration of citizen science projects. In the two semester-long courses, students will learn how aquaponics systems work, how to manage an aquaponics system, and how aquaponics can be used to further food production within communities, large and small.

SOCIAL STUDIES

SS4022 – US History (1.0) – H

United States History is a course designed to take students on a chronological study from post-Civil War through modern times. Students will examine the significant events, people, and ideologies of the nineteenth, twentieth, and twenty-first centuries – particularly identifying how and why these events impact our world today. Students will evaluate and analyze primary and secondary sources, use inquiry to write argumentative and research papers, develop geographical skills, investigate economic impacts on societies, and gain an initial understanding of civics. This course begins with Reconstruction and examines topics such as: World War I, Women’s Rights, the Great Depression, World War II, the Cold War, the Civil Rights Movement, and influences in modern American society.

SS2205 – Civics (0.5) – H

Civics is a required course for graduation. The focus of this course is to prepare students to participate in exercising their political responsibilities as thoughtful and informed citizens. Civics provides a basis for understanding the rights and responsibilities for 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.

SS4245 - Criminal Justice (0.5) – H

This course provides an overview of the criminal justice system, covering its essential components: police, courts, and corrections. Students will explore criminology, criminal behavior theories, forensic investigations, and the legal concepts behind civil and criminal trials. We’ll delve into current issues impacting the system, including race-related challenges. By the end of the course, students will gain a deeper understanding of the U.S. criminal justice system, investigative processes, and the role of courts and corrections.

SS4241 – World History (1.0) ** Will not be offered 2024-2025

Students will explore what we have come to learn about our world. From the origins of rational thought in various world cultures, to the modern scientific revolution and beyond, students will see how innovations in science and technology have changed the world throughout history. Knowledge grants power, and has dramatic consequences in politics, war, history, and international relations. Examples include: The Industrial Revolution, the discovery of atomic energy, the Darwinian revolution, the discovery of DNA, and the environmental movement. The course concludes with an examination of the modern internet age and predictions for the future in a world of ever-increasing technological sophistication.

SS4371 – Psychology (0.5) – H

This course will introduce basic concepts used by psychologists in understanding human behavior. Topics that will be explored include psychology as a science, human development, biological bases of behavior, motivation and learning, thinking and intelligence, normal and abnormal behavior, therapies, testing, and the effects of group membership on behavior.

1302 – Sociology (0.5) – H

Sociology is the study of society. In order to understand various societies, including our own, we must be able to see the world through the eyes of others. In the course, students will focus on the systematic understanding of social interaction, social organization, social institutions, and social change.

SS2001 – African American/Black and Puerto Rican/Latinx Studies – H

This is a full credit course where students will explore the contributions, accomplishments, achievements and perspectives of African American, Black, Puerto Rican, and Latinx communities throughout American History. Students will explore social, cultural, and economic contributions of these communities and its overall impact on the American society and identity.

SS3001 – AP African American Studies

AP African American Studies is an interdisciplinary course that examines the diversity of African American experiences through direct encounters with rich and varied sources. Students explore key topics that extend from early African kingdoms to the ongoing challenges and achievements of the contemporary moment. The course draws from a variety of fields, including history, literature, the arts, geography, and science, to explore the vital contributions and experiences of African Americans. As with all AP courses in the humanities, this course offers direct engagement with evidence and events.

SS4223 – AP Psychology (1.0) ** Will not be offered 2024-2025

The AP Psychology course introduces students to the systematic and scientific study of human behavior and mental processes. While considering the psychologists and studies that have shaped the field, students explore and apply psychological theories, key concepts, and phenomena associated with such topics as the biological bases of behavior, sensation and perception, learning and cognition, motivation, developmental psychology, testing and individual differences, treatment of abnormal behavior, and social psychology. Throughout the course, students employ psychological research methods, including ethical considerations, as they use the scientific method, analyze bias, evaluate claims and evidence, and effectively communicate ideas. *AP/ECE courses are given 0.5 added value to a student's GPA.*

SS4563 – AP Government and Politics (1.0)

AP Government and Politics introduces students to key political ideas, institutions, policies, interactions, roles, and behaviors that characterize the political culture of the United States. The course examines politically significant concepts and themes, through which students learn to apply disciplinary reasoning, assess causes and consequences of political events, and interpret data to develop evidence-based arguments. *AP/ECE courses are given 0.5 added value to a student's GPA.*

SS4353 – AP US History ** Will not be offered 2024-2025

AP United States History is an introductory college-level U.S. history course. Students cultivate their understanding of American history from c. 1491 CE to the present through analyzing historical sources and learning to make connections and craft historical arguments as they explore concepts like American and national identity; work, exchange, and technology;

geography and the environment; migration and settlement; politics and power; America in the world; American and regional culture; and social structures. *AP/ECE courses are given 0.5 added value to a student's GPA.*

WORLD LANGUAGE

SP5012 – Spanish I (1.0) – H

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 (1.0) – H

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. *Prerequisite: Spanish I*

SP5212 – Spanish III (1.0) – H

Students enrolled in this intermediate 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 refine their effective communication skills through purposeful listening, speaking, reading and writing activities. Students participate in advanced, authentic exchanges of information for a real purpose between people, such as describing a visit to a national park, school competitions, the arts, giving advice about health and nutrition, discussing opportunities for volunteer work in the community, careers, and professions, and how different cultures interact. Authentic units include discussing emergencies and injuries. Students communicate in a variety of tenses, and experience the history, geography, and cultural perspectives of Spanish-speaking countries. Also, students continue their study of literature with an emphasis on poetry. *Prerequisite: Spanish II*

SP5312 – Spanish IV (1.0) – H

Students enrolled in this advanced 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 refine their effective communication skills through purposeful 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 youth, fables and legends, and the environment, students augment and refine their skills in vocabulary and grammatical accuracy as they communicate on the relevant themes in the literary pieces. Students communicate in a variety of advanced tenses.

Cultural perspectives from a variety of Spanish-speaking countries are thematically woven into the units of study. In this course, students receive significant practice and preparation for the Advanced Placement Exam that occurs the following school year. The course is conducted exclusively in Spanish. *Prerequisite: Spanish III*

SP3101 - SPANISH FOR NATIVE/HERITAGE SPEAKERS I

SP3102 - SPANISH FOR NATIVE/HERITAGE SPEAKERS II

The course is designed for freshmen and sophomores who have a strong base in Spanish but lack formal education in the language. Each course will be the equivalent of one year of Spanish instruction and are used as prerequisites for Spanish courses Spanish 3 and above. These courses were designed and tailored to fit the needs of our large Spanish speaking population which often struggle and rebel against having to take a language that they think they know. Providing the students with a Heritage learners class will allow them to learn at an appropriate pace and will target their areas of need. It will focus on improving and refining their Spanish skills while helping them learn reading and decoding skills that can translate to English and that are crucial to the AP Spanish test. The course will also focus on vocabulary building using cognates and varied global interest topics that will also aid in their comprehension of English. Completion of both these courses should have students ready to take Spanish 4, continue to AP or ECE Spanish and receive the Seal of Biliteracy in Spanish and English upon graduation (also contingent on English grade). Upon completion of this course students would continue to Spanish 3, 4, 5, AP or ECE depending on the teacher recommendation.

SP5524 ECE Intermediate Spanish Composition

UConn ECE – 3178

This course provides a thorough review of grammar and methodical practice in composition leading to command of practical idioms and vocabulary. Students will earn UConn ECE credit on successful completion of this course.

ENGINEERING

EG1021 – Principles of Engineering (0.5) (First course in the Engineering Sequence)

In this hands-on, inquiry-based course, students will explore the fundamentals of the **Engineering Design Process** and gain a comprehensive understanding of what it means to be an engineer. Beyond theory, they will actively engage with practical tools and techniques used by engineers. The course covers a wide range of topics, fostering critical thinking, problem-solving skills, and teamwork. Topics discussed include: Engineering, Communications, History of Engineering and Traditional Engineering Disciplines, Teamwork, Measurement, Introduction to 3D Solid Modeling, Basic Electricity, Problem Solving, Design and Modeling.

EG0901 – Intro to Engineering (0.5) (Second Course in the Engineering Sequence)

In this hands-on, inquiry based course students will explore the various areas of engineering based on Electrical, Mechanical and Structural engineering. Engineering Design Process and learn what it means to be an engineer. Topics discussed include: Teamwork and Concurrent Measurement, 3D Solid Modeling, Basic Electronics, Problem Solving, Structural Design and Modeling, Mechanical Systems and Design.

TE2251 – Environmental Engineering (0.5) (Third Course in the Engineering Sequence)

Environmental Engineering is a dynamic one-semester course that explores the intersection of science and engineering within the context of environmental challenges. Students delve into critical topics such as air quality, land pollution, and

water conservation. Through hands-on activities and real-world case studies, they develop practical solutions to safeguard our planet. Join us in shaping a sustainable future!

EG0905 – Intro to Engineering Design (1.0) (Final Course in the Engineering Sequence)

This hands-on, inquiry-based course will introduce students to the engineering design process, research and analysis, teamwork, communication methods, global and human impacts, engineering standards, and technical documentation. The course gives students the opportunity to develop skills and understanding of engineering concepts through problem-based learning. There will be a school-based apprenticeship for this course. **No prerequisite for Seniors**

COMPUTER SCIENCE

TE1131 – Computer Coding (0.5)

Computer Coding is half year course that focuses on learning how to write computer code and develop computer programs. This course requires a fundamental understanding of computer science. The course will provide students with the background knowledge in topics including: Computation, Programming, Internet has a network, Abstractions, Binary sequences, Modeling and Simulations, Computational manipulation, Algorithms, and Cybersecurity.

TE2000 – HS Game Design (0.5)

This course teaches students the fundamentals of game design. By the end of this course, students will understand the design planning process, be knowledgeable of industry related careers, and be able to navigate the Unity environment in order to create their own 3D games.

SC3373 – AP Computer Science A (1.0) ** Will not be offered 2024-2025

AP Computer Science A is equivalent to a first-semester, college-level course in computer science. The course introduces students to computer science with fundamental topics that include problem solving, design strategies and methodologies, organization of data (data structures), approaches to processing data (algorithms), analysis of potential solutions, and the ethical and social implications of computing. The course emphasizes both object-oriented and imperative problem solving and design using Java language. These techniques represent proven approaches for developing solutions that can scale up from small, simple problems to large, complex problems. The AP Computer Science A course curriculum is compatible with many CS1 courses in colleges and universities.

TE1043 – AP Computer Science Principles (1.0)

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.

ASC100 – Cybersecurity (0.5)

Cyber Security is a half year course exploring cyphers, cryptology and information security. Cybersecurity is a growing field in the American and International workplace. This course introduces students to the skills needed to thrive in this field while providing an exploration of the field in general. Students will examine classic historical cyphers such as Caesar, Transposition, Affine, and Simple Substitution. Students will also explore current topics: public key encryption and modern protocols. Students will also be given the opportunity to code examples of many of these cyphers. Students will be expected to produce a mastery project. While it is not required that students have a prerequisite class, it would be useful if they had some exposure to coding.

ROBOTICS

EG3301 – Unmanned Aerial Systems (Drones) (0.5)

Unmanned Aerial Systems is a half year engineering elective in which students will receive an in-depth overview of various aircraft, how they function and fly. Students will learn to build various unmanned aircraft, while learning the physics behind flight. Drones will be used to facilitate some aspects of this course. Subjects include the history of flight, aerodynamics, gliders, hot air balloons, rockets, helicopters, and drones.

EG3302 – Robotics 1 (0.5)

Robotics 1 is a half year engineering elective that will develop and expand students' skills and knowledge related to the engineering design process so that they can design and develop robotic devices. Topics covered in the course will include basic gearing, chassis design, sensors, motor controls, computer basics, and programmable logic controllers. Students will build a programmable 3 wheeled robot and clawbot.

Students are encouraged to join the after school robotics club to gain further experience in Robotics engineering. Students in the club compete at a state and national level.

EG3303 – Robotics 2 (0.5)

Robotics 2 is a half year engineering elective that will expand students' skills and knowledge related to the engineering design process so that they can design and develop robotic devices. Topics covered in the course will include more gearing, alternate chassis design, sensors, motor controls, computer basics, and programmable logic controllers. Students will build a programmable tracked robot and rack and pinion vehicle.

Students are encouraged to join the after school robotics club to gain further experience in Robotics engineering. Students in the club compete at a state and national level.

SC3143 – Robotics 3 (1.0)

Robotics 3 is a full year engineering elective that will further develop and expand students' skills and knowledge developed in Robotics 1 and Robotics 2 courses. Students will utilize the engineering design process to design and

develop robotic devices and. Topics covered in the course will include advanced gearing/pulleys, sensors, motor controls, computer basics, and programmable logic controllers. Students build a scissor lift and a crane. Prerequisite: Robotics 2.

*Students are encouraged to join the after school robotics club to gain further experience in Robotics engineering
Students in the club compete at a state and national level.*

SC3303 – Robotics 4 (1.0)

Robotics 4 is a full year engineering elective that provides students with an advanced understanding of mechanics, robotic control, and robot logic. This course is student lead, self-paced, problem and project based with the intent of leading students to develop innovative robotic solutions to open-ended engineering design problems. Prerequisite: Robotics 3.

*Students are encouraged to join the after school robotics club to gain further experience in Robotics engineering
Students in the club compete at a state and national level.*

SPECIAL COURSES

CP4991 – Capstone (0.5)

All 11th grade students will enroll in 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. This project is research-based and offers 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 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.

HE4025 ECE Health & Education Urban Communities (0.5)

All 11th grade students will enroll in ECE Health and Education Urban Communities. This course will also fulfill the capstone graduation requirement. Explores the historical and social forces that shape health and education in urban communities, specifically in Connecticut. Topics of study will include poverty, culture, and identity and how these phenomena affect children's health, nutrition, schooling and opportunities for success. Through readings, films, discussion, reflection and service-learning opportunities, class members analyze policies, norms and beliefs in our society. Students will be challenged to consider how these trends may lead us to a more just society and how these may perpetuate injustice.

HEALTH AND WELLNESS

PE6L2 – Physical Education (0.5)

Physical Education is a half year course that helps students become empowered to make choices, meet challenges, and develop positive behaviors in fitness, wellness and movement activity for a lifetime. Topics that will be covered include adventure education, lifetime activity, fitness and wellness, skill development, and rhythm, movement, and dance.

HE1001 – Health (0.5) and HE9111 – Health 2 (0.5)

Health is a required class in which students need to earn a total of 1.0 credits. These courses are each a half year designed to provide students with resources to assist them in making healthy lifestyle choices. Students will learn about the importance of eating healthy and nutritious food and how exercise helps keep the body in optimal condition. Students will learn how to make decisions and be responsible, respectful and well-informed consumers. Topics to be discussed include nutrition, diseases and disorders, mental and emotional health, the effects of drugs on the body, alcohol, tobacco, growth and development and healthy and safe relationships.

HE3001—Sports Nutrition (0.5) ** Will not be offered 2024-2025

This course is designed for students to start asking questions about what they are currently eating, why they eat those things and then finally how those choices affect all areas of their life. The final assessment in this unit will be a Socratic seminar where students will use all of their inquiry-based research to have discussion with their peers about “Why We Eat What We Eat”. This discussion will allow for a deeper understanding about the importance of food in our physical, emotional and social wellness.

PE4221—Strength and Conditioning (0.5)

Students in this course will learn about the basics of Strength and Conditioning such as weight-lifting technique, directions for equipment use, strength training theory and application of basic principles. The goal is for each student to utilize scientific principles to create their own strength training program. Students will participate in various exercise and programming techniques and exercises in a hands-on method to design their own experiments and test out their individualized strength training programs.

HE9221 – Lifetime Fitness and Wellness (0.5) ** Will not be offered 2024-2025

Students in this non-traditional PE course will learn the basics of lifetime wellness. This course will combine walking for fitness, low intensity body weight exercises, and wellness concepts that will educate students on the overall benefits of consistent aerobic/body weight exercises. Benefits of this class will also include lowering stress, improving sleep, and learning about lowering personal risk for heart disease, stroke, diabetes, and some cancers. As a result of this class each student will be able to design their own personal fitness and wellness program.

VISUAL AND PERFORMING ARTS

AR6020 – Studio Art – Foundation Course

Studio Art is an Art immersion course focusing on drawing, painting, printmaking, and sculpting. The instructional goals of the Studio Art program are: Encourage creative as well as systematic investigation of formal and conceptual issues. Emphasize making art as an ongoing process that involves the student in informed and critical decision-making. Develop

technical skills and familiarize students with the functions of the visual elements. Encourage students to become independent thinkers who will contribute inventively and critically to their culture through the making of art.

AR6022 – Advanced Studio Art (0.5)

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.

AR6031 – Ceramics (0.5) * Will not be offered 2024-2025**

This is an introductory studio class for students who wish to explore the art of ceramics. Emphasis will be placed on the design elements: line, shape, texture, form and color. Focus will be on hand building techniques: pinch, coil and slabs. Functional as well as sculptural applications will be explored. Glazing techniques will be introduced. There will also be an introduction to traditional and historical ceramic arts incorporated into the studio experiences.

AR3871 – Recycled Art (0.5)

This course is a half year course that provides students with the knowledge and opportunity to explore an art form and to create individual works of art using materials such as trash and recycled materials. Emphasis will be placed on the processes of a particular art form and the design elements and principles supporting a work of art. As students advance and become more adept students will be encouraged to develop their own artistic styles.

AR6202 – Digital Media/Video production (0.5)

Digital photography is a half year elective course that exposes students to the materials, processes, and artistic techniques of taking artistic photographs. Students learn about the operation of a camera, composition, lighting techniques, and depth of field, filters, camera angles, and film development. This course will also focus on the utilization of photography in journalism, media and social and environmental activism.

AR6011 – Mixed Media Exploration

This course intended to build innovative purposeful learning about how Arts and technology can be used in integrative and collaborative ways. In addition to learning powerful skills and building creative stamina, students are encouraged to recognize and respect their own and others' skills and interests. There are two major components to the course: (1) Foundations (2) Arts, Science and Technology

MUSIC

1820 – Band 1 (0.5)

1821 – Band 2 (0.5)

Concert Band is designed to promote students' musicianship and technique for playing brass, woodwind, and percussion instruments and cover a variety of band literature styles, primarily for concert performances. Each semester of learning culminates in a mandatory concert performance that may take place outside of school. Students are encouraged to take Band multiple semesters.

1810 – Chorus 1 (0.5)**1811 – Chorus 2 (0.5)**

Chorus provides students with the opportunity to sing a variety of choral literature styles for men's and/or women's voices and are designed to develop vocal techniques and the ability to sing parts.

CW1046 – Digital Audio Production (0.5)

This course is designed for students who desire the opportunity to explore real-world applications of modern music-making and digital audio production, such as commercial radio jingles, podcasts, YouTube, and scoring for film and video games. Studies will concentrate on composition, recording, editing, mixing, and media scoring techniques using the latest computer software and hardware in ASI's Music Lab. Students will work on individual and group projects and present them to the class for feedback, revision, and evaluation.

INSTR – Instrumental Drumline (0.5) * Will not be offered 2024-2025**

The drumline class provides students the opportunity to learn the basics of rhythm and proper technique on percussive instruments. The specific aim of the drumline program is to enable students to communicate effectively through percussion instruments and to understand and value a variety of musical and cultural expressions throughout life. Drum Line is a Project-Based/Performance-Based class. Each semester culminates in a Concert Performance. Students do not need to play an instrument or read music to sign up for this class. The class may be taken for multiple semesters.

MU0761 – Digital Piano 1 (0.5)

This course is intended for students who have little to no experience on a musical instrument. Students will learn how to read notation for piano while playing music from various cultures and styles. This is a performance-based class where students will be working alone and in groups. Students will also use computers to aid instruction and evaluation.

MV1084 – Beginning Guitar (0.5)

This engaging class immerses students in the art of playing and composing music for the guitar. Through hands-on exploration in the digital music lab, students will master the essential principles. They'll learn to craft captivating chord progressions, weave melodic leads, and skillfully string their instruments. Whether strumming acoustic ballads or shredding electric solos, this course sets the stage for musical creativity and expression.

MU1101 – World Music Connections I (0.5) * Will not be offered 2024-2025**

World Music Connection I is a half year music course that focuses on music as an expression of who we are. This course affords students the opportunity to create, perform, listen to and analyze music from diverse cultures, the stage and film. In addition, students learn to read music as they begin their study of piano and melody chimes.

