



Grade 12 Academic Courses School Year 2023-2024

English Options:

- English 12 (CP, ACP, H)
- A.P. English Literature and Composition
- English 12 H & Agricultural Management Integration -A double block, integrated course available to students enrolled in the Plant Sciences Programs.

Math Options:

- Algebra III/Trigonometry (CP)
- Pre-Calculus (ACP, H)
- STEAM Integration II (H) :-A double block, integrated Pre-Calculus H & Chemistry course available to students enrolled in the Construction Cluster Programs, Engineering & Automation Technology Program or Advanced Manufacturing Program.
- Calculus (H)
- A.P. Calculus AB

Elective Options: Students choose two elective courses and one alternate elective preferences during the course selection period; elective requests are NOT guaranteed

Lab-Based Science Options - A 4th year of a lab science is recommended for all students anticipating enrolling at a 4 year college/university.

- Chemistry (CP, ACP, H)
- Physics (CP, ACP, H)
- Forensic Science (CP)
- A.P. Physics

Social Science Options:

- Genocide Studies (H, ACP)
- Using History to Understand Contemporary Issues (CP)

Mathematics Options:

- Accounting (CP)

World Language Option:

- Spanish II (CP) This course is available to students who were enrolled in Spanish I Junior Year

Arts Option:

- Dance (CP)

Early College Program in partnership with North Shore Community College: Introduction to Sociology* & Introduction to Psychology*

Grade 12 Academic week student schedules will be completed with a CTAE Theory course and a CTAE Pathway course.

BOLD denotes required content course.

**Term length is semester base*



English 12

Course #: 1402, 1401, 1400

Level: Honors, ACP, CP

This course focuses on a variety of literary and informational texts that include the Western cultural philosophies of nihilism, modernism, idealism, existentialism, and magical realism, including rigorous practice in research, informational writing, and personal narrative. Based on the learning standards of the *Massachusetts Curriculum Frameworks for English Language Arts and Literacy* (2017), students will identify critical lenses, recognize multiple themes, analyze in concrete and abstract perspectives, and evaluate multiple interpretations from secondary sources. Students will draw evidence from literary or informational texts to support their analysis, reflection, and research. Essays and discussions will relate the work to its historical circumstances, trace a symbol through a work or works, or consider a moral or philosophical question. The major works and ideas of Western literature will be addressed. All students will participate in quarterly common assessments. **Credits: 4**

English 12 and Agricultural Management Integration

Course# 1450

Level: Honors

This full-year course is a double-block interdisciplinary course that combines English 12 with the Agricultural Plant Cluster Pathways course, Agricultural Management. This standards-based course is for students who are interested in learning about agricultural management through applied integration learning projects with embedded English content and skills. This course will deepen and extend the connections between the fundamental concepts of agricultural sciences, including the agribusiness management practices, agricultural technology, and effective communication practices. Content standards from the *Massachusetts English Language Arts and Literacy Curriculum Framework* (2017), prescribe that students develop their reading, writing, listening, and speaking skills by using their ability to make sense of problem situations in an applied field. The focus will be on deeper learning through problem-solving strategies, questioning, investigating, analyzing critically, gathering and constructing evidence, and communicating rigorous arguments to justify their thinking. This is a co-taught, high engagement course where application leads to deeper theoretical understanding. Co-teachers will serve as coaches to student-designed integration projects. This course satisfies the requirements for an English course as stipulated in MassCore and the Grade 12 Agricultural Science pathway course. Prerequisite: Enrollment in the Plant Science Cluster (Arboriculture, Landscape & Turf Management, Sustainable Horticulture, Natural and Environmental Sciences). **Credits: 8**

Advanced Placement English Literature & Composition

Course #: 1403

Level: AP

In the A.P. English Literature and Composition course, students engage in becoming skilled readers of prose and poetry written in a variety of rhetorical contexts, and in becoming skilled writers who compose for a variety of purposes. Through critical analysis and focused writing, students learn the interactions among a writer's purposes, audience expectations, and subjects, as well as the way genre conventions and the resources of language contribute to effectiveness in writing. The course follows A.P. curricular guidelines and prepares students for the A.P. test, given in the spring. Students should expect challenging college-level content and a workload requiring nightly preparation and independent study. The accelerated



pace of A.P. coursework is designed to parallel an introductory college semester course. Students are expected to take the College Board A.P. English Literature and Composition Exam in May. College credit may be applied with a score of three or higher on the College Board exam. **Credits: 4**

NOTE: Students who have not met the Competency Determination in Mathematics by earning the equivalent of a *Proficient* score of 240 or better on the Grade 10 Mathematics MCAS will be required to enroll in Algebra III/Trigonometry during Grade 12. For more information see:

<http://www.doe.mass.edu/ccr/epp/qa.html>

Algebra III/Trigonometry

Course #: 2400

Level: CP

This course is based on the *Massachusetts Mathematics Curriculum Framework* (2017) learning standards and is a continuation of concepts presented in Algebra II with greater emphasis on real-world applications of mathematical concepts. The key difference from Algebra II is the emphasis on the connection between algebra, geometry and trigonometry. The focus of this course is exponential/logarithmic functions, polynomials, trigonometric functions and trigonometric identities. All students will participate in quarterly common assessments. **Credits: 4**

Pre-Calculus

Course #: 2402, 2401

Level: Honors and ACP

This course is based on the *Massachusetts Mathematics Curriculum Framework* (2017) learning standards for Pre-Calculus and focuses on four critical areas: (1) extend work with complex numbers; (2) expand understanding of logarithms and exponential functions; (3) use characteristics of polynomial and rational functions to sketch graphs of those functions; and (4) perform operations with vectors. All students will participate in quarterly common assessments. **Credits: 4**

STEAM Integration II - Grade 12

Course #: 9400

Level: Honors

STEAM (Science-Technology-Engineering-Arts-Mathematics) Integration II is full year, double-block course that offers an interdisciplinary, standard-based mathematics and lab-based chemistry pathway for students who are interested in learning Pre-Calculus through applied integration learning projects with embedded mathematical and chemistry content and skills. The intention of this course is for students to do highly engaging projects that deepen and extend the connections between complex numbers, logarithms and exponential functions, the characteristics of polynomial and rational functions, and operations with vectors and the chemistry concepts of periodicity, bonding, and reactivity. Content learning standards from both the *Massachusetts Mathematics Curriculum Framework* (2017) and the *Massachusetts Science and Technology Engineering Curriculum Framework* (2016) provide a foundation for allowing students to experience these standards in real-world problem learning situations. Students will collaborate for two back-to-back blocks with two teachers, one a mathematics teacher and the other a chemistry teacher to build integration learning



projects using problem-solving strategies, questioning, investigating, analyzing critically, gathering and constructing evidence, and communicating rigorous arguments to justify their thinking. Co-teachers will serve as coaches to student-designed integration projects. This course satisfies the requirements for Pre-calculus and a lab-based Chemistry course as stipulated in MassCore. Prerequisites: Successful completion of Algebra 1, Algebra II and Geometry; MCAS mathematics Competency Determination; and enrollment in the Construction Cluster (Carpentry, Construction Craft Laborer, Electricity, HVAC-R, Masonry, Plumbing), Engineering & Automation Technology Program, or Advanced Manufacturing Program.
Credits: 8

Calculus

Course #: 2412

Level: Honors

This course is for students who have successfully completed Pre-Calculus and is based on the *Massachusetts Mathematics Curriculum Framework* (2017) learning standards for Calculus. The course will include a brief review of the critical concepts and skills covered in Precalculus followed by the concepts of limit, derivative, and definite and indefinite integrals. Techniques of numerical and closed form integration with applications of the definite and indefinite integrals will be studied. All students will participate in quarterly common assessments. **Credits: 4**

Advanced Placement Calculus AB

Course #: 2443

Level: AP

A.P. Calculus is a full year mathematics course, structured to closely resemble a first semester Calculus course in college. It is the intent of the course to develop a conceptual understanding and computational fluency in the basics of differential and integral calculus. This course will emphasize basic techniques, problem solving skills, critical thinking, and an understanding of various applications of calculus. Technology will also be emphasized as a problem-solving tool. Students will apply the techniques learned to a variety of different types of functions as well as different representations of functions, and use these to model real-world situations. The course will also introduce basic differential equations, and use them to model growth.
Credits: 4



ELECTIVES

Chemistry

Course #: 3402, 3401, 3400

Level: Honors, ACP, CP

This course is designed to teach students the concepts of composition, structure and properties of substances and the changes they will undergo and is based on the learning standards for Chemistry in the *Massachusetts Science and Technology Engineering Curriculum Framework* (2016). . Topics will include the classification of matter, atomic structure, periodic table and chemical formulas, chemical reactions and gas laws. Students will utilize qualitative as well as quantitative approaches to predict outcomes and identify unknowns. Use of a scientific calculator is required. Strong math skills are recommended for the Honors Level. All students will participate in quarterly common assessments. **Credits: 4**

STEAM Integration II - Grade 12

Course #: 9400

Level: Honors

STEAM (Science-Technology-Engineering-Arts-Mathematics) Integration II is full year, double-block course that offers an interdisciplinary, standard-based mathematics and lab-based chemistry pathway for students who are interested in learning Pre-Calculus through applied integration learning projects with embedded mathematical and chemistry content and skills. The intention of this course is for students to do highly engaging projects that deepen and extend the connections between complex numbers, logarithms and exponential functions, the characteristics of polynomial and rational functions, and operations with vectors and the chemistry concepts of periodicity, bonding, and reactivity. Content learning standards from both the *Massachusetts Mathematics Curriculum Framework* (2017) and the *Massachusetts Science and Technology Engineering Curriculum Framework* (2016) provide a foundation for allowing students to experience these standards in real-world problem learning situations. Students will collaborate for two back-to-back blocks with two teachers, one a mathematics teacher and the other a chemistry teacher to build integration learning projects using problem-solving strategies, questioning, investigating, analyzing critically, gathering and constructing evidence, and communicating rigorous arguments to justify their thinking. Co-teachers will serve as coaches to student-designed integration projects. This course satisfies the requirements for Pre-calculus and a lab-based Chemistry course as stipulated in MassCore. Prerequisites: Successful completion of Algebra 1, Algebra II and Geometry; MCAS mathematics Competency Determination; and enrollment in the Construction Cluster (Carpentry, Construction Craft Laborer, Electricity, HVAC-R, Masonry, Plumbing), Engineering & Automation Technology Program, or Advanced Manufacturing Program. **Credits: 8**



Physics **Course #: 3412, 3411, 3410** **Level: Honors, ACP, CP**
This Physics course will introduce key concepts of the physical world including motion, energy, and electromagnetism based on the learning standards for Physics in the *Massachusetts Science and Technology Engineering Curriculum Framework* (2016). Hands-on labs will reinforce these concepts. Measurement and problem solving including graphing and critical thinking will be introduced. Technology will be used to analyze data collected in classroom lab activities. Use of a scientific calculator is required. Strong math skills are recommended for the Honors Level. All students will participate in quarterly common assessments. **Credits: 4**

Advanced Placement Physics **Course #: 3413** **Level: CP**
A.P. Physics 1 is an algebra-based, introductory college-level physics course that will address the principles of Newtonian mechanics; work, energy, and power; mechanical waves and sound; and introductory, simple circuits. Laboratory-based inquiry learning will develop students' scientific critical thinking and reasoning skills. There is a mandatory summer assignment. Students are expected to take the College Board A.P. Physics Exam in May. College credit may be applied with a score of three or higher on the College Board exam. (Exam is scored from 1 – 5). **Credits: 4**

Forensic Science **Course #: 3440** **Level: CP**
This is a lab-based elective designed to give students an in-depth look at the world of forensics. Students will be introduced to the basic application of science to the law. Students will learn how forensic scientists combine today's technology with the skills of the scientific community in order to help solve crimes. Topics covered include crime scene evaluation, fingerprinting, and DNA analysis; and the examination of current cases as they relate to these topics. **Credits: 4**

Genocide Studies **Course #: 4482** **Level: Honors**
This course examines the 20th century as “the century of genocide,” beginning with the Armenian genocide, the horrors of the Holocaust, and ending with the atrocities in Bosnia and Rwanda and the violence in Darfur, the Democratic Republic of Congo, and Northern Iraq. We will consider many questions in this course: What is genocide? Where did the term come from and how has it been defined and examined over time? What conditions lead to genocide? What are the warning signs? What allows people to act in such evil ways and what causes others to stand by? How can genocide be prevented? Which genocides have been emphasized, and which have been overlooked? We will explore these and other ideas through a historical lens, with critical review of primary sources and research, and through a literary lens, with first-hand accounts and survivor testimony. **Credits: 4**



Using History to Understand Contemporary Issues

Course #: 4410

Level: CP

The 21st century has brought with it unprecedented access to information through various media sources. This presents an amazing opportunity for students to explore contemporary topics with an eye toward critical discernment of sources, and the agendas and motives behind them. This course will actively explore complex issues in our contemporary society through the prism of history. Topics include: globalism and nationalism, bias in media, the Culture War, economic trends of the modern world, and major social issues and their change over time. In order to become better-informed citizens, students will practice evaluating various sources of media and bias. This will be accomplished in a variety of ways including socratic seminar, project-based learning, and facilitated debates and oral presentations. *Credits: 4*

Accounting

Course #: 2460

Level: CP

Accounting is an applied mathematics course where students learn about the operational principles necessary for success in the workplace. Topics include basic accounting procedures, debits and credits, customer needs assessment, investment activities, analyzing, evaluating, and creating financial reports, and technology applications for operating systems and budgets. Building upon these topics, students will conduct a financial analysis of a real-world business organization. *Credits: 4*

Dance

Course #:5450

Level: CP

This is a full-year elective open to seniors seeking an introduction to dance with no previous experience required. The purpose of this course is to give students of varying dance abilities and experience the opportunity to enrich their kinesthetic awareness by learning several genres of dance (ballet, jazz, hip-hop, modern, social and cultural dance) as well as learning basic fitness principles, the history of dance, dance terminology, choreography, and dance production.

Spanish II

Course #:6400

Level: CP

Spanish II continues and solidifies the introduction to the Spanish language and culture with more extended vocabulary and grammar concepts. Students will continue to practice reading, writing, listening, and speaking in Spanish. Students learn how to conjugate stem-changing verbs in the present tense, as well as both types of past-tense verbs. Spanish I is a prerequisite. NOTE: The 2021-22 school year is the final year that this class will be offered in the senior year. All students will participate in quarterly common assessments. *Credits: 4*



Early College Program in partnership with North Shore Community College (NSCC)

Introduction to Sociology

ENSATS Course #: ec4404

Level: Early College

NSCC Course # SOC 106

This Early College Program course introduces students to the study of society, employing all the basic concepts of sociology, such as: the structure and functions of society, culture, norms, roles and status. Attention is given to the origins of sociology, its methods and its place as one of the social sciences. "Introduction to Sociology " will be taught by an NSCC instructor-of-record and will be supported by ENSATS staff. Learning will take place on both the ENSATS and NSCC campuses and transportation will be provided. Successful completion of this Early College course will result in students earning both ENSATS' high school credit along with NSCC college credit and may fulfill an open, liberal arts and/or social science elective requirement at NSCC and/or other Massachusetts public universities. This course is a Semester 1 class. Prerequisite: ENASTS Early College Program enrollment. *Credits: ENSATS: 4; NSCC: 3*

Introduction to Psychology

ENSATS Course #: ec4405

Level: Early College

NSCC Course # PSY102

This Early College Program course engages students in systematic study of behavior including the development of psychology as a science, the biological basis of behavior, learning and memory, motivation, sensation and perception, personality development, cognitive processes, maturation and development, and adjustment. "Introduction to Psychology" 'will be taught by an NSCC instructor-of-record and will be supported by ENSATS staff. Learning will take place on both the ENSATS and NSCC campuses and transportation will be provided. Successful completion of this Early College course will result in students earning both ENSATS' high school credit along with NSCC college credit and may fulfill an open, liberal arts and/or social science elective requirement at NSCC and/or other Massachusetts public universities. This course is a Semester 2 class. Prerequisite: ENASTS Early College Program enrollment. *Credits: ENSATS: 4; NSCC: 3*