



Advanced Math and Science Academy Charter School

# Program of Studies

2022 – 2023

# Registration Information

## Graduation Requirements

The high school graduation requirements ensure that each student will attain a certain level of competency, meet the state requirements, and complete a well-rounded high school program. **Twenty-eight (28) credits are required for graduation** and 12th graders must have met all the graduation requirements in order to participate in the graduation ceremony.

**A minimum of 7 credits and a maximum of 8 credits must be earned each school year.**

Courses that meet for one period every two school days are worth 0.5 credits.

Courses that meet for two periods every two school days are worth 1 credit.

Courses that meet for three periods every two school days are worth 1.5 credits.

## Requirements by Subject

**Math:** 4 years, 6 credits

**English:** 4 years, 4 credits

**Science:** 3 years, 3 credits

**History:** 3 years, 3 credits

**World Language:** 2 years, 2 credits

**Physical Education:** 4 years, 1.75 credits (0.5 credits each year; 0.25 credits senior year)

**Computer Science:** 3 years, 1.5 credits (2 years if AP Computer Science is taken)

**Art:** 2 years, 1 credit (0.5 credits each year)

**Senior Seminar:** 1 year, 0.25 credits

## Grading

### Grade Point Average

#### Weighted GPA

The student GPA is calculated starting at the end of the ninth-grade school year. A student's GPA can be found on the Naviance account or by checking with the student's guidance counselor. AMSA reports the students' weighted GPA, which reflects the level of the courses that the student has taken. This weighted GPA is based on a 5.1 scale where honors and advanced level courses receive an added weight of 0.5 and Advanced Placement (AP) courses earn an added weight of 1.0. Student transcripts reflect the weighted GPA.

#### Unweighted GPA

A student's unweighted GPA is also available on their Naviance account or by checking with their guidance counselor. The un-weighted GPA is based on a 4.0 scale where all courses are weighted equally. **Weighted GPA is based on a 5.0 scale.** It is used for eligibility into national honor societies, auto insurance rebates and for some scholarships.

# Course Levels

## Unleveled

Unleveled courses are courses which have no distinction between College Prep or Honors. These include art, computer science, physical education, health and wellness, and all electives.

## College Preparatory (CP)

College Prep is a means by which college-bound high-school students may better meet the more stringent scholastic requirements for entry into colleges and universities. CP courses are designed to prepare students for success in college-level coursework.

## Honors (H) and Advanced (Adv)

These honors level classes cover more complex material, permit further in-depth study than a CP course and require independent learning and greater effort. Honors and advanced level courses are recommended for students who have demonstrated exceptional academic achievement through a combination of motivation and ability. Students are expected to be able to organize their time and assignments and to seek help, when necessary, on their own initiative.

## Advanced Placement (AP)

Advanced Placement (AP) is a program created by the College Board offering college-level curriculum and examinations to high school students. AMSA's AP course curriculum is audited by College Board and must be approved for students to receive college credit. AP classes are recommended for students who have demonstrated exceptional academic achievement through a combination of motivation and ability, along with ability to learn independently and at a college-level pace.

## Accelerated (Acc)

These courses require an Advanced Placement course as a prerequisite. They are also weighted the same as an Advanced Placement course.

# Grading Scale

Alpha	Numeric	AP	H	CP
A+	96.5–100	5.3	4.8	4.3
A	92.5–96.5	5.0	4.5	4.0
A-	89.5–92.5	4.7	4.2	3.7
B+	86.5–89.5	4.3	3.8	3.3
B	82.5–86.5	4.0	3.5	3.0
B-	79.5–82.5	3.7	3.2	2.7
C+	76.5–79.5	3.3	2.8	2.3
C	72.5–76.5	3.0	2.5	2.0
C-	69.5–72.5	2.7	2.2	1.7
D+	66.5–69.5	2.3	1.8	1.3
D	62.5–66.5	2.0	1.5	1.0
D-	59.5–62.5	1.7	1.2	0.7
F	0–59.5	0	0	0

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# Department of Mathematics

**Graduation Requirement** *4 years (6 credits)*

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College Prep courses teach the program normally required for college admission, at a slower pace with a focus on practical applications. College Prep satisfies state level requirements for MCAS testing and prepares students for the new SAT I reasoning test.

Honors courses are meant for students who show a deeper understanding and aptitude for math. It covers concepts at faster pace, allowing students to take advanced placement calculus or higher-level electives in their last year. Students who do well in honors courses may move up to the advanced course in grades 11 and 12.

Advanced courses are meant for students with exceptional understanding of mathematical concepts and with an interest to pursue mathematics-related studies after high school. It covers concepts at a faster pace and with more depth than honors track, leaving the last two years for Advanced Placement Calculus and higher-level electives.

**Teacher recommendation is required for all College Prep, Honors, Advanced Placement, and Accelerated courses.**

**Geometry is a two-year course taught in grades 9 and 10. It builds on the elements of geometry that students studied in grades 7 and 8, concentrating on proofs and the development of problem-solving techniques. Students in the Honors level of Geometry will complete the requirement in 9th grade.**

**core  
course**

**grades  
9**

**credits  
1.5**

**homework  
(hrs/week)  
2**

**College Preparatory**

## **Algebra I**

*1130 Algebra I*

Algebra I develops the real number system and all its properties. Students are introduced to the concepts of relation and function and to the methods of solving equations. The axiomatic structure of mathematics is stressed, and the coordinate system is introduced formally in conjunction with systems of equations.

**Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades

9

credits

0.5

homework  
(hrs/week)

1.5

College Preparatory

## Geometry I

*1193 Geom I CP*

This is the first part of College Prep Geometry which is taught over the period of two years. The course builds on the foundations of geometry students have learned in previous courses. Students explore plane geometry, built on the axiomatic approach, with an emphasis on proofs and problem solving. Students will solve a variety of problems, including real world problems.

**Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades

9

credits

0.5

homework  
(hrs/week)

1.5

College Preparatory

## Investigative Geometry A

*1132 Geom A*

This is the first year of Investigative Geometry course taught over the period of two years. In this course, students will study points, lines, planes, parallel lines, congruency of triangles, properties of polygons and properties of circles. Students will practice creating conjectures based on investigations, and then will prove the conjectures, using deductive reasoning and logical arguments. They will solve problems using properties of geometric figures, including problems they see in the real world.

**Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades

9

credits

1.5

homework  
(hrs/week)

2-3

Honors

## Algebra II

*1133 Alg II (H)*

The Algebra II course expands upon the concepts and skills studied in previous Algebra courses. The course further develops the idea of a function, extends the use of the coordinate system to include general quadratic relations and their graphs, and expands the number system to include complex numbers. Students will further develop their problem-solving skills by solving word problems related to the concepts. The honors course emphasizes an analytical approach and gives students a deeper understanding of functions and relations. Students will be presented with a comprehensive study of linear equations, polynomials, logarithmic and exponential functions, and conic sections.

**Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades

9

credits

0.5

homework  
(hrs/week)

2-2.5

Honors

## Geometry I

*1134 Geom I H*

This is a one-year Geometry course that completes AMSA's Geometry requirement. This course builds on the foundations of geometry students have learned in previous courses in middle school. Students explore plane geometry, built on the axiomatic approach, with an emphasis on proofs and problem solving. During the study of transformations and coordinate geometry students will investigate connections between Geometry and Algebra. Solid geometry has emphasis on calculation, previewing calculus ideas and developing students' spatial imagination. Students will solve a variety of problems, including real world problems.

**Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades

9

credits

0.5

homework  
(hrs/week)

2–2.5

**Advanced**

## **Advanced Geometry**

*1136 GeomAdv*

This is a one-year Geometry course that completes AMSA's Geometry requirement. This course builds on the foundations of geometry students have learned in previous courses in middle school. Students explore plane geometry, built on the axiomatic approach, with an emphasis on proofs and problem solving. During the study of transformations and coordinate geometry students will investigate connections between Geometry and Algebra. Solid geometry has emphasis on calculation, previewing calculus ideas and developing students' spatial imagination. Theoretical aspects of solid geometry, rigorous coordinate geometry proofs, the connection of transformational geometry to matrices and vectors, and challenging construction problems will be part of this course. Students will solve a variety of problems, including real world problems.

**Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades

9

credits

1.5

homework  
(hrs/week)

4–5

**Advanced**

## **Algebra II and Trigonometry**

*1135 AlgII/Tr A*

This course provides an in-depth and thorough introduction to more advanced topics in Algebra, Probability/Statistics and Trigonometry through an abstract approach. Students will develop a deep understanding of concepts and be comfortable with abstract logical thinking. A variety of topics will be covered including higher-degree polynomials, conic sections, complex numbers, matrices and determinants, logarithmic and exponential functions, sequences and series, probability (including combinatorics) and trigonometry (up to the law of sine and cosine).

**Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades

9–10

credits

1.5

homework  
(hrs/week)

2–3

College Preparatory

## Algebra II

*1131 Algebra II*

The Algebra II course expands upon the concepts and skills studied in previous Algebra courses. The course further develops the idea of a function, extends the use of the coordinate system to include general quadratic relations and their graphs, and expands the number system to include complex numbers. Students will further develop their problem-solving skills by solving word problems related to the concepts. The honors course emphasizes an analytical approach and gives students a deeper understanding of functions and relations. Students will be presented with a comprehensive study of linear equations, polynomials, logarithmic and exponential functions, and conic sections.

**Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades

10

credits

0.5

homework  
(hrs/week)

1.5

College Preparatory

## Geometry II

*1080 Geom II CP*

This is the second part of College Prep Geometry which is taught over the period of two years. The course builds on the foundations of geometry students have learned in previous courses. Students explore plane geometry, built on the axiomatic approach, with an emphasis on proofs and problem solving. Students will solve a variety of problems, including real world problems.

**Prerequisites and Requirements:**

**1193 GEOM I CP**

core  
course

grades  
10

credits  
1.5

homework  
(hrs/week)  
2.5

## College Preparatory

### Precalculus

*1141 Precalc*

This course builds on conceptual understanding and skills covered in previous algebra courses. After a quick review of advanced algebra concepts including Polynomial Functions and Equations, Logarithmic and Exponential Functions and Equations, students will be presented with a comprehensive study of Trigonometry, including Trigonometric Equations and Identities, modeling periodic behavior, solving triangles using Law of Sine and Law of Cos, Trigonometric Addition formulas. Students will develop a deep understanding of trigonometric relations and learn how to apply them to solve various types of real-life problems.

**Prerequisites and Requirements:**

**1131 ALGEBRA II (B-);** or teacher recommendation

core  
course

grades  
10

credits  
1.5

homework  
(hrs/week)  
3

## Honors

### Precalculus

*1143 Precalc(H)*

This course builds on conceptual understanding and skills covered in previous algebra courses. After a quick review of advanced algebra concepts including Polynomial Functions and Equations, Logarithmic and Exponential Functions and Equations, students will be presented with a comprehensive study of Trigonometry, including Trigonometric Equations and Identities, modeling periodic behavior, solving triangles using Law of Sine and Law of Cos, Trigonometric Addition formulas. Students will develop a deep understanding of trigonometric relations and learn how to apply them to solve various types of real-life problems.

**Prerequisites and Requirements:**

**1133 ALG II (H) (B-);** or teacher recommendation

core  
course

grades

10

credits

1.5

homework  
(hrs/week)

4-5

**Advanced**

## **Precalculus and Beginning Calculus**

*1145 PreCalc(A)*

This course continues applying the abstract approach to studying mathematics as students will continue their in-depth study of trigonometry, and studying more advanced topics in trigonometry, including modeling periodic behavior, solving triangles using Law of Sine and Law of Cos, Trigonometric Addition formulas. Students will be presented with a complete and thorough coverage of topics in Analytical Geometry. Emphasis will be placed on topics that will enhance students' abstract thinking such as Polar Coordinates, Vectors, parametric equations, and a more advanced coverage of sequences and series. Other topics include Probability and Statistics. The last part of the course will be dedicated to a thorough introduction to elementary concepts in Differential Calculus such as limits, derivatives and local and global minimum/maximum.

**Prerequisites and Requirements:**

**1135 ALGII/TR A (B-);** or teacher recommendation

core  
course

grades

10-11

credits

1.5

homework  
(hrs/week)

2.5

**College Preparatory**

## **Algebra III**

*1156 Alg III*

The goal of this course is to prepare students for precalculus, building on knowledge gained in previous algebra courses. The course will delve deeper into the areas of higher degree polynomials, conic sections, trigonometry including law of sine and cosine, and sequences and series.

**Prerequisites and Requirements:**

**1131 ALGEBRA II** or **1133 ALG II (H)**; teacher recommendation

core  
course

grades  
10-11

credits  
0.5

homework  
(hrs/week)  
1.5

### College Preparatory

## Investigative Geometry B

*1142 Geom B*

This is the second year of Investigative Geometry course taught over the period of two years. In this course, students will study right triangles, areas of polygons and circles, surface area and volume of three-dimensional solids, similarity and transformations. Students will practice creating conjectures based on investigations, and will then prove the conjectures, using deductive reasoning and logical arguments. Using properties of geometric figures, they will solve various problems, including problems they see in the real world.

#### Prerequisites and Requirements:

**1132 GEOM A**

elective

grades  
10-12

credits  
0.5

homework  
(hrs/week)  
2.5

### Honors

## Advanced Topics in Geometry

*1086 AdvGeom*

The heart of this elective, beginning with Euclidean synthetic methods and then moving onto vector techniques, is intended to provide a strong foundation in solid geometry - useful in higher mathematics. Here topics will include a study of lines and planes in space, polyhedrons, similarity, angle (dihedral, trihedral), surface area & volume, cones, spheres, and spherical trigonometry. After this core material, one or two enrichment topics will be introduced. These will be drawn from the symmetry groups of regular polygons, Euclidean geometry via complex arithmetic, Non-Euclidean geometries, matrices and transformations, projective or inversive geometry, and interesting applications or famous problems in the history of geometry. This is a 0.5 credit course and is open to recommended 10th and 11th graders who have successfully completed the basic geometry sequence at an honors or advanced level.

#### Prerequisites and Requirements:

**1136 GEOMADV (A-)** or **1146 GEOM II H (A+)**; or teacher recommendation

core  
course

grades  
11-12

credits  
1.5

homework  
(hrs/week)  
2-2.5

### College Preparatory

## Introduction to Calculus

*1152 Intro Calc*

Students will have a review of Precalculus topics with an emphasis on Trigonometry and will be introduced to the main ideas of Calculus, such as limits, continuity, derivatives, and integrals, as well as some applications of derivatives and integrals. This course will prepare students for college level Calculus.

#### Prerequisites and Requirements:

**1141 PRECALC (C)**; or teacher recommendation

core  
course

grades  
11-12

credits  
1.5

homework  
(hrs/week)  
3

### Honors

## Calculus

*1154 Calculu(H)*

The course provides students with experience in the methods of differential and integral calculus. The field of inquiry includes topics of analysis, differentiation, applications of differentiation, integration, applications of integration.

#### Prerequisites and Requirements:

**1143 PRECALC(H) (B)** or **1152 INTRO CALC (B)** or **1141 PRECALC (A)**; teacher recommendation

**AP course****grades**

11–12

**credits**

1.5

**homework  
(hrs/week)**

4–5

**Advanced Placement****Calculus AB***1155 AP Calc AB*

This college-level course prepares students to take the AP Calculus AB exam through the study of calculus including both differential and integral topics. This course is analytical in nature and requires a background in algebra, geometry, and precalculus. Students will be introduced to the methods of differentiation, the techniques of differentiation, and the applications of differentiation. As a part of this aspect of the course, students will become familiar with the concepts of limits, functions, and continuity. The integration portion of the course will explore methods and techniques of integration as well as applications of integration. Course topics include: Limits and Continuity, Differentiation, Techniques of Differentiation, Applications of Differentiation, Integration, Techniques of Integration, and Applications of Integration.

**Prerequisites and Requirements:****1154 CALCULU(H)** (A) or **1145 PRECALC(A)** (B); or teacher recommendation**AP course****grades**

11–12

**credits**

1.5

**homework  
(hrs/week)**

5–6

**Advanced Placement****Calculus BC***1157 AP Calc BC*

This college-level course prepares students to take the AP Calculus BC exam through the study of calculus including both differential and integral topics. This course is analytical in nature and requires a background in algebra, geometry, and precalculus. Students will be introduced to the methods of differentiation, the techniques of differentiation, and the applications of differentiation. As a part of this aspect of the course, students will become familiar with the concepts of limits, functions, and continuity. The integration portion of the course will explore methods and techniques of integration as well as applications of integration. The course topics include Limits and Continuity; Differentiation; Techniques of Differentiation, including L'Hôpital's rule; Applications of Differentiation; Integration; Techniques of Integration, including integration by partial fractions; Applications of Integration; and Taylor and MacLaurin series.

**Prerequisites and Requirements:****1154 CALCULU(H)** (A) or **1145 PRECALC(A)** (A); or teacher recommendation

core  
course

grades  
12

credits

homework  
(hrs/week)

## AMSA Middle School Math Internship Program

*1998 Internship*

Middle School Math Interns assist students during Directed Study (H-Block) by: 1.) reviewing material covered in class, 2.) helping students prepare for quiz retakes by reviewing previous quizzes and 3.) managing the Skills Quiz retake process. Interns will gain valuable collaborative learning experience including listening to other students' explanations of topics and correcting misunderstandings.

**Prerequisites and Requirements:**  
Teacher recommendation

core  
course

grades  
12

credits  
1

homework  
(hrs/week)  
4-5

## Multi-variable & Vector Calculus

*1082 CalcMVC*

This is a course for students who have done well in AP Calculus and extraordinarily well (with teacher recommendation) in Honors Calculus.

M&VC provides a serious development of the standard material of the calculus in two and three variables. In addition, it offers the student experience with some significant applications, as well with the elements of a good argument and proof which underlie the mathematics they will face at the university level.

It starts with a development of Vector Geometry, and discusses some needed ideas on matrices and coordinate systems. It then proceeds to a detailed look at Space Curves, up to the use of curvature and torsion, and an application to Kepler's Laws serves to illustrate the power of these ideas. This is followed by a two-week sequence on power series, and then functions of 2-3 variables are introduced. The differential calculus of real vector functions is studied. This includes limits, continuity, partial derivatives and some uses, the gradient, the full matrix (Jacobian) derivative, Power Series for functions of 2 variables and Taylor's Theorem, the Hessian and Lagrange multipliers for determining extrema of functions. We then study Multiple Integrals, their calculation via iterated integrals, & some applications to problems of area, volume, surface area, probability distributions, moments and inertia. At this point the classical multivariable material is complete, and we turn attention to the powerful ideas of Vector Fields, Gradient and Divergence, Curl, and Line Integrals. Finally, we carry through a sustained look at the vector integral theorems of Green, Gauss, and Stokes. These will be applied to a preliminary study of Maxwell's Equations of electromagnetism (the capstone application of this course).

**Prerequisites and Requirements:**

**1157 AP CALC BC** (B) or teacher recommendation; or **1155 AP CALC AB** (A); or **1154 CALCULU(H)** (A) and teacher recommendation

AP course

grades

12

credits

1.5

homework  
(hrs/week)

4-5

## Advanced Placement

### Statistics

*1161 AP Stats*

This course introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to four broad conceptual themes: - Exploring Data: Describing patterns and departures from patterns -Sampling and Experimentation: Planning and conducting a study -Anticipating Patterns: Exploring random phenomena using probability and simulation -Statistical Inference: Estimating population parameters and testing hypotheses. TI-84 or more advanced calculator is required for this course

#### Prerequisites and Requirements:

**1143 PRECALC(H)** (B) or **1145 PRECALC(A)** (B); or **1154 CALCULU(H)** (B) or **1157 AP CALC BC** (B) or **1155 AP CALC AB** (B) and teacher recommendation

elective

grades

12

credits

1

homework  
(hrs/week)

1.5

## College Preparatory

### Accounting and Business Fundamentals

*1166 Accounting*

Students will study topics such as financial planning, how to keep a checkbook, how to reconcile a bank statement, budgeting, investing, how to prepare your income tax return, and how to start a business. Students will also learn the “language” of business — Accounting. Students will learn the accounting cycle from recording and posting transactions, preparing worksheets and balancing them, and how to prepare and analyze financial statements for small businesses. Students will also be learning/using Microsoft Excel and accounting software throughout the course.

#### Prerequisites and Requirements:

elective

grades

12

credits

1

homework  
(hrs/week)

2.5

Honors

## Mathematics for Business and Economics

*1085 BusiEcon*

The course reviews fundamental ideas on functions from earlier mathematics, in particular those related to linear or exponential behavior. From this foundation, students are provided an intuitive and practical introduction to problems from the mathematics of finance, linear programming, probability and simple data analysis. Concrete applications to aspects of biology, business or the social sciences are emphasized. This course offers students an opportunity to strengthen and broaden their preparation for college or trade work.

**Prerequisites and Requirements:**

**1141 PRECALC** (B-) or **1143 PRECALC(H)** (B-) or **1145 PRECALC(A)** (B-); teacher recommendation

elective

grades

12

credits

1

homework  
(hrs/week)

2.5

Honors

## Statistics

*1164 Stats H*

This course introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to four broad conceptual themes: - Exploring Data: Describing patterns and departures from patterns -Sampling and Experimentation: Planning and conducting a study -Anticipating Patterns: Exploring random phenomena using probability and simulation -Statistical Inference: Estimating population parameters and testing hypotheses.

**Prerequisites and Requirements:**

**1141 PRECALC** (B-) or **1143 PRECALC(H)** (B-) or **1145 PRECALC(A)** (B-); teacher recommendation

elective

grades

12

credits

1

homework  
(hrs/week)

2.5

**Accelerated**

## **Linear Algebra/ Differential Equations**

*1165 Linear/Dif*

This is a college-level course on fundamental principles and uses of Linear Algebra and Ordinary Differential Equations. Students will learn to read and write proofs, in addition to studying methods of calculation. The topics covered include matrices and their properties, systems of linear equations with an emphasis on Gaussian elimination, determinants & their uses, vector spaces and their development through the Fundamental Theorem of Linear Algebra, inner product spaces, linear transformations, and eigenvalues and eigenvectors. There will be a brief introduction to first and second order differential equations. The course will culminate with the solution of systems of linear differential equations with the aid of linear algebra methods and properties studied earlier in the course. In addition, students will study linear algebra and differential equations applications and will work on various real word problems.

**Prerequisites and Requirements:**

**1155 AP CALC AB (B) or 1157 AP CALC BC (B); or teacher recommendation**

# Department of Science

**Graduation Requirement** 3 years (3 credits): 1 credit each in Biology, Chemistry, and Physics

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It is highly recommended by the Science Department that students take Biology in the 9th grade, Chemistry in the 10th grade and Physics in the 11th grade. Additionally, students will be given the opportunity to take AP courses in Biology, Chemistry and Physics. The Science Department also offers several electives in different disciplines. Science Research Electives Science at AMSA are geared towards providing a student experience that is unlike most other classes by providing opportunities to work in a laboratory setting. The focus is on learning research techniques with depth of content applied where appropriate. Students will also learn how to read and analyze primary scientific literature. Successful research students thrive with a hands-on approach and are not discouraged or intimidated by setbacks and failures. Students will learn how to perform advanced laboratory techniques as they work towards fulfillment of a long-term project. Research students are often required to find time outside of the regular scheduled class time to prepare or monitor experiments, including but not limited to: before school, during lunch, after school. Students are required to give presentations of their progress regularly to their lab group and to the AMSA community at the yearly science night.

**Teacher recommendation is required for all Honors, and AP courses. The prerequisite for Honors and AP level courses is a B+ or above in the current year's Honors Science course and teacher recommendation.**

core  
course

grades  
9

credits  
1

homework  
(hrs/week)  
1-2

## Biology

*1233 Biology*

All rising 9th-grade students will be enrolled in Biology for their freshman year. The AMSA Science Dept is dedicated to providing students of all backgrounds and all abilities access to rigorous coursework. In order to achieve this goal in all classes, we offer an Honors Challenge curriculum, a program for students who have a strong desire to strengthen their depth of knowledge and development of skills in a given subject. It is our belief that all students want to learn and respond to the opportunity for intellectual stimulation. Upon successful completion of the Honors Challenges, the distinction of Honors will be awarded at the end of Term Four; in addition there will be an update to the transcript for the year. Students who decide not to pursue the Honors Challenge and those who do not successfully complete it will receive a College Prep distinction.

**Prerequisites and Requirements:**

core  
course

grades

10

credits

1

homework  
(hrs/week)

1-2

## College Preparatory

# Chemistry

*1247 Chemistry*

Chemistry at the College Preparatory level offers students an amazing opportunity to explore the inner workings of atoms, molecules and compounds in a deep and meaningful way. Students will be expected to blend conceptual, mathematical, and practical aspects of chemistry in their investigations. Students in this course are taught to achieve a certain level of mastery of each concept before moving on to more complex curricula. While advanced mathematics is not a requirement for the course, students should be competent at applying algebra to a variety of situations. The laboratory portion of the course is extensive and students are expected to participate in the design of the procedure for each lab and write many lab reports with well thought out and reasoned conclusions based on their own independent analysis. Homework in this class focuses on preview of material. Students are expected to demonstrate perseverance, confidence, comfort with questions and problems that do not readily reveal a solution path, and a willingness to ask questions. Key topics covered include chemical bonding, atomic structure, stoichiometry, periodicity, gases, solutions, thermochemistry, kinetics, equilibrium, and acid-base chemistry.

### Prerequisites and Requirements:

**1233 BIOLOGY** or **1234 BIOLOGY H**

core  
course

grades  
10

credits  
1

homework  
(hrs/week)  
1-2

## Honors

# Chemistry

1248 Chem(H)

Chemistry at the Honors level offers students an amazing opportunity to explore the inner workings of atoms, molecules and compounds in a deep and meaningful way. Students will be expected to blend conceptual, mathematical, and practical aspects of chemistry in their investigations. Students in this course are taught to achieve a certain level of mastery of each concept before moving on to more complex curricula. While advanced mathematics is not a requirement for the course, students should be competent at applying algebra to a variety of situations. The laboratory portion of the course is extensive and students are expected to participate in the design of the procedure for each lab and write many lab reports with well thought out and reasoned conclusions based on their own independent analysis. Homework in this class focuses on preview of material. Typically, students that successfully complete Honors-level chemistry are well prepared for success in future science classes including AP Chemistry and Honors Physics. Students are expected to demonstrate perseverance, confidence, comfort with questions and problems that do not readily reveal a solution path, and a willingness to ask questions. Key topics covered include chemical bonding, atomic structure, stoichiometry, periodicity, gases, solutions, thermochemistry, kinetics, equilibrium, and acid-base chemistry.

### Prerequisites and Requirements:

**1234 BIOLOGY H** (B+); teacher recommendation

elective

grades  
10

credits  
0.5

homework  
(hrs/week)  
≤ 1

# Science Research - Introduction to Biochemistry

1291 ResrchBC

Students in this class will learn skills fundamental to working in a science lab, such as data collection and organization in a notebook, sample maintenance, lab equipment operation and maintenance, planning, timing and performing experiments, and many more important skills. The class introduces a wide variety of molecular biology techniques, including plasmid DNA extraction, restriction digestion, ligation, transformation, gel electrophoresis, PCR, aseptic culture of yeast and E. coli cells and reagent preparation.

### Prerequisites and Requirements:

teacher recommendation

elective

grades

10-12

credits

0.5

homework

(hrs/week)

≤ 1

## Climate/GIS Research

*1202 ClimateGIS*

Geographic Information Science (GIS) for Ecology Research teaches students how to use a variety of geographically referenced data and remotely sensed data to answer ecological questions. A variety of software including ESRI, TerSett, and open-sourced software such as DivaGIS, QGIS, and R will be used. Students will learn the science behind GIS, how to use GIS programs, and ways in which it can be used as a tool for ecology research. Students will work individually or in pairs to develop a research question, collect data, preprocess the data, and produce maps to answer their research question. An interest in software programs, computer programming, data management, and ecology is required.

**Prerequisites and Requirements:**

Teacher recommendation

elective

grades

10-12

credits

0.5

homework

(hrs/week)

≤ 1

## Field Research

*1214 FieldRsrch*

Field Ecology Research teaches students a variety of research techniques centered around wild flora and fauna. Students will work in pairs to develop a research question that will contribute to an over arching class research question. Every project will require students to spend time outside in a variety of weather conditions collecting data. Students will learn a variety of statistical approaches to analyze their data to determine the significance of their findings. The desire and ability to spend time outside in inclement weather is required.

**Prerequisites and Requirements:**

Teacher recommendation

elective

grades

10-12

credits

0.5

homework

(hrs/week)

≤ 1

## Science Research - Engineering

*1206 ResrchEngr*

Engineering Research students explore studies in various fields such as; robotics, aerodynamics, electronics, and prosthetics. Students will be using the engineering design process for their projects.

**Prerequisites and Requirements:**

**1944 INT CAD**; teacher recommendation

elective

grades

10-12

credits

0.5

homework

(hrs/week)

1-2

## Science Research - Geochemistry

*1208 Resrch Geo*

Science research classes at AMSA are geared towards providing a student experience that is unlike most other classes by providing opportunities to work in a laboratory setting. The focus is on learning research techniques with depth of content applied where appropriate. Students will also learn how to read and analyze primary scientific literature. Successful research students thrive with a hands-on approach and are not discouraged or intimidated by setbacks and failures. Students will learn how to perform advanced laboratory techniques as they work towards fulfillment of a long-term project. Students are required to give presentations of their progress regularly to their lab group and to the AMSA community at the yearly poster-fest. Research students are often required to find time outside of the regular scheduled class time to prepare or monitor experiments, including but not limited to: before school, during lunch, after school. Students will be collecting water and soil samples to test their hypothesis. Some of the equipment being used is the X-Ray Florescene, SEM, Soil extractions, Turbidity, Water Rate of Flow, etc.

**Prerequisites and Requirements:**

teacher recommendation

**AP course**

**grades**

10-12

**credits**

**homework  
(hrs/week)**

8-10

## **Advanced Placement**

### **Biology**

*1244 AP Biology*

An honors program course - The curriculum suggested by Educational Testing Service and the College Board will be completed with an emphasis on cell biochemistry. A significant portion of the course will include laboratory investigations, which directly relates to the topics being studied. This course will prepare students to take the Advanced Placement Exam. Students who enroll in this class are expected to take the exam at a cost of approximately \$95. Many colleges grant credit in Biology and/or advanced status for students who complete the AP exam with satisfactory scores. A college text will be used. Dissection of an animal is included in this course; however, students may choose an alternate assignment in lieu of a dissection experience.

**Prerequisites and Requirements:**

**1234 BIOLOGY H (A-)** or **1233 BIOLOGY (A)**; chemistry requirement; teacher recommendation.

**core  
course**

**grades**

11

**credits**

1

**homework  
(hrs/week)**

1-2

## **College Preparatory**

### **Physics**

*1255 Physics*

Physics at the Advanced College Preparatory level is a thorough investigation of the same topics covered in Physics H. Students are expected to perform the same sophisticated laboratory exercises and demonstrate clear understanding of the ideas being discussed. More time will be devoted to guiding students through the problem-solving process and helping them develop understanding. Mathematical concepts will be reviewed as needed, but students are expected to enter the class with a basic understanding of algebra and trigonometry.

**Prerequisites and Requirements:**

core  
course

grades

11

credits

1

homework  
(hrs/week)

2-4

## Honors

# Physics

*1256 Physics(H)*

Physics at the Honors level is a thorough investigation of the fundamental topics of Physics. Five main areas are explored: mechanics, thermodynamics, electricity, magnetism, and optics. Through modeling and demonstration, students are expected to gain a deep understanding of key theories and concepts and be able to independently apply them in new and novel situations. Students are expected to enter the class with a strong understanding of algebra and trigonometry as the class will focus on using these mathematical skills to understand physics concepts. Class time will be devoted to problem solving and sophisticated laboratory exercises allowing students opportunity to develop and hone understanding.

### Prerequisites and Requirements:

**1225 PHYSICS 8** (B+); teacher recommendation

elective

grades

11-12

credits

0.5

homework  
(hrs/week)

# Discovering Wild New England

*1240 DiscWildNE*

“Come forth into the light of things, let nature be your teacher.” ~William Wordsworth Classic naturalists of old, like Darwin, observed nature directly and intimately knew everything about the natural world in which they lived. They knew the plants, animals and fungi as if they were dear friends and developed a keen scientific eye as a result. In this elective, you will cultivate your naturalist mind as you learn about our beloved home in the Northeast. Your own curiosity, and Mrs. Thibault, will be your guides as we dive deep and discover the nature of New England. Through focused systematic study, organic exploration and projects, you will increase your knowledge of geography, geology, field botany, entomology, mammals, reptiles, amphibians, birds and invertebrates of our diverse region. Bring your sense of adventure and a strong desire to learn.

### Prerequisites and Requirements:

elective

grades

11-12

credits

0.5

homework  
(hrs/week)

≤ 1

## Introduction to Meteorology (Geophysics / Natural Disasters)

*1262 Meteorology*

Introduction to Meteorology introduces the student to Earth's atmosphere with respect to its composition, its structure, and its function. Topics of study include the heating of the atmosphere, the global energy balance, temperature, moisture and atmospheric stability, air pressure and winds, and circulation. With that base, the focus will shift to various weather phenomena, analysis and forecasting. Lastly, we will consider our changing climate.

The Geophysical component will explore seismic activity, magnetic fields, gravitational forces and their effect on planet Earth in reference to natural disasters/phenomenon and other planetary destruction.

**Prerequisites and Requirements:**

elective

grades

11-12

credits

1

homework  
(hrs/week)

1

## Science Research - Advanced Biochemistry

*1207 Resrch BC*

Students will learn a wide variety of molecular biology techniques including plasmid DNA extraction, restriction digestion, primer design, PCR, transformation, agarose gel electrophoresis, aseptic techniques, protein purification, polyacrylamide gel electrophoresis, western blot, fluorescence microscopy and other techniques depending on the particular project. Projects in this class involve yeast surface expression of various fluorescently tagged proteins, including cancer marker proteins. Other projects include use of a CRISPR system, magnetic nanoparticle synthesis, lipid nanoparticle synthesis and more!

**Prerequisites and Requirements:**

**1291 RESRCHBC**; or teacher recommendation

elective

grades

11-12

credits

0.5

homework  
(hrs/week)

1-2

## Sustainable Environment

*1263 SustainEnv*

Sustainability is a course designed for students to be to assess their impact on the environment. Students will participate in hands on activities to learn how to reduce, reuse, and recycle properly and efficiently. The course also delves into current pros and cons of many current alternative energy sources, changes in agriculture and how we can evaluate our current living standard in order to procure a sustainable future for us and our planet. Students need to be prepared to go outside during inclement weather.

**Prerequisites and Requirements:**

Positive attitude; respect for the environment

AP course

grades

11-12

credits

1.5

homework  
(hrs/week)

5-7

## Advanced Placement

### Chemistry

*1257 AP Chem*

This is a second-year honors chemistry course for those students who have successfully completed a year of chemistry. The content of the course will include topics covered under the Advanced Placement Chemistry syllabus such as bonding, periodicity, equilibrium, kinetics and electrochemistry. The course emphasizes a much more detailed study of theory than did the first-year course and expects students to have a strong understanding of basic chemistry. Students learn to use a variety of analytical equipment and techniques. This course requires at least twice the number of course meeting hours for independent study outside the classroom.

**Prerequisites and Requirements:**

**1248 CHEM(H)** (B+); teacher recommendation

elective

grades

12

credits

1

homework  
(hrs/week)

5-6

## Anatomy and Physiology

*1261 Anat&Phys*

Students will engage in a detailed study of the anatomy and physiology of vertebrate body systems. Areas of study include the skeletal, cardiovascular, digestive, muscular, nervous, immune and endocrine systems. Structural similarities between vertebrate groups will be emphasized as well as microscopic study of tissue types. Students will also participate in the dissection of a representative vertebrate (bullfrog). Alternatives to dissection are not available in this course. Students are expected to demonstrate appropriate communication strategies through a variety of writing assignments and oral presentations. The concepts covered in this course can be applied to personal health and wellness as well as the health and wellness of the global community.

**Prerequisites and Requirements:**

elective

grades

12

credits

0.5

homework  
(hrs/week)

≤ 1

## Science Research - Astronomy

*1204 ResrchAstr*

Science research classes at AMSA are geared towards providing a student experience that is unlike most other classes by providing opportunities to work in a laboratory setting. The focus is on learning research techniques with depth of content applied where appropriate. Students will also learn how to read and analyze primary scientific literature. Successful research students thrive with a hands-on approach and are not discouraged or intimidated by setbacks and failures. Students will learn how to perform advanced laboratory techniques as they work towards fulfillment of a long-term project. Students are required to give presentations of their progress regularly to their lab group and to the AMSA community at the yearly poster-fest. Research Astronomy students will begin with a standard project about double stars in which they order observations from a remote observatory and measure their system's position, then write an article with their results to submit to a peer-reviewed journal. Once the article is published, their measurements will be entered into professional star catalogs. After the double star study, students will be able to repeat the project with another system, or develop a new project of their choice depending on their interests and initiative. Because the work in this class involves managing a large array of data files, familiarity and comfort with file systems is extremely valuable. Spreadsheet skills will also be helpful.

**Prerequisites and Requirements:**

**1256 PHYSICS(H);** teacher recommendation

elective

grades

12

credits

0.5

homework  
(hrs/week)

≤ 1

## Science Research - Scientific Instrumentation

1212 ResrchSEM

Science research classes at AMSA are geared towards providing a student experience that is unlike most other classes by providing opportunities to work in a laboratory setting. The focus is on learning advanced laboratory techniques with a variety of scientific instruments. Successful research students thrive with a hands-on approach and are not discouraged or intimidated by setbacks and failures. Students in this class will learn the underlying principles and perform techniques such as reagent preparation, microscopy, chromatography, electrophoresis and spectroscopy.

**Prerequisites and Requirements:**

**1233 BIOLOGY** or **1234 BIOLOGY H**; **1247 CHEMISTRY** or **1248 CHEM(H)**

AP course

grades

12

credits

1.5

homework  
(hrs/week)

5-7

**Advanced Placement**

## Physics C: Mechanics and Electricity & Magnetism

1264 AP Physics

This course is equivalent to a calculus-based introductory physics course for university students. In this course, mechanics will be taught in the fall and electricity & magnetism in the spring. The course includes mechanics and electricity and magnetism in full detail, has a strong laboratory component, and emphasizes student problem-solving strategies. Most of the topics will be introduced using related questions or problems. Lessons consist of lecture, discussions, cooperative learning, and critical thinking exercises. During the course, students will get the opportunity to learn problem-solving techniques, including inquiry-based learning, student-centered problem solving, and graphical approaches to problem solving and calculus-based problem-solving techniques. The lab portion will help develop both an understanding of the physics concepts as well as the ability to design and utilize an open-ended inquiry-based method of exploration. These labs will require students to analyze data in a variety of methods including graphs and statistical analysis in order to develop higher level thinking skills.

**Prerequisites and Requirements:**

**1256 PHYSICS(H)** (B+); teacher recommendation

Department of

# Computer Science

Graduation Requirement 3 years (1.5 credits)

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**elective**

## Introduction to Java

**grades**

*1932 Intro Java*

9–12

**credits**

0.5

**homework  
(hrs/week)**

1–2

In the beginning, students learn the main notions of algorithmic thinking and to develop algorithms using proper syntax and pseudo-coding. They also learn basic programming fundamentals like decision making, repeating and method calls which allow students to construct to design and create efficient programs from simple ones. After reviewing algorithmic concepts, we will begin an introductory class to JAVA that focuses on the basics of learning the Java syntax, writing methods, loops and using if/else statements. We will also introduce Object Oriented Design. Rather than just describing programming constructs, we talk in detail about how to apply each construct and where a novice is likely to go wrong when learning how to use each new construct.

**Prerequisites and Requirements:**

**elective**

## Introduction to Linguistics

**grades**

*1940 IntroLing*

9–12

**credits**

0.5

**homework  
(hrs/week)**

1

How does human language work? How can we study it? These are the foundations of the scientific field of Linguistics. Language is full of puzzles, mysterious phenomena, and interesting problems. Why is an S sound so easy to hear when you're whispering? Why does "suspect" change meaning depending on where you stress it? Why can you "go home" in English, but not "go store" or "go Marlborough"? Is a "white truck driver" a white guy who drives a truck, or a guy who drives a white truck? Are the words "wolf", "lupus", "वृक (vruka)" related? How can we write a computer program to tell if a review is positive or negative? All of these questions have deep and interesting answers that Linguistics exists to illuminate. Linguistics can also be connected with numerous other fields like History, Psychology, and not least of all, Computer Science. This class will potentially serve as a prerequisite for a future Computational Linguistics class to be offered at a later date.

**Prerequisites and Requirements:**

elective

grades

9-12

credits

0.5

homework  
(hrs/week)

1

## Web Design & Development

*1934 Web Design*

Students will be introduced to all aspects of Web Design. Students will use industry standard software and techniques for the design and creation of websites with a focus on layout design, styling, typography and content. By the end of this course, students will be able to structure and style content to be published on the web.

**Prerequisites and Requirements:**

elective

grades

10-12

credits

0.5

homework  
(hrs/week)

1-2

## Advanced Web Design & Development

*1954 Advnc Web*

This project-based course builds upon the material covered in Web Design, introducing advanced techniques to enhance web pages. Students will learn the new HTML5 elements and CSS3 properties to produce page layout, format and animate content and graphics. This course also introduces students to client-side JavaScript and the use of the language to turn static into dynamic and interactive web pages. Students will also be introduced to the Document Object Model (DOM), creation of functions, event handling, form validation and eventually learn how client-side scripts interact with server-side programs. Students will also acquire the necessary knowledge to design and develop database-driven web pages using PHP and MySQL.

**Prerequisites and Requirements:**

**1934 WEB DESIGN**

elective

grades

10-12

credits

0.5

homework

(hrs/week)

1

## Introduction to CAD

*1944 Int CAD*

In this class students will learn the basics of drafting with both hand drawings and Computer Aided Design (CAD). Students begin with Orthographic views and progress to dimensioning and notes with proper labels. By the end of the year, students will be able to create working drawings.

**Prerequisites and Requirements:**

AP course

grades

10-12

credits

1

homework

(hrs/week)

2-3

**Advanced Placement**

## Computer Science

*1953 AP CompSci*

AP CS is a first-semester college level course in Computer Science and is guided by the AP College Board's AP Computer Science course description. Advanced concepts using the Java programming language will be covered. Students will study object-oriented programming methodology, problem solving, algorithm development, data structures, iteration, arrays, and classes. Summer reading and practice problem sets are required.

**Prerequisites and Requirements:**

**1932 INTRO JAVA (B+);** teacher recommendation

elective

grades

11-12

credits

0.5

homework

(hrs/week)

1-2

## Advanced CAD

*1955 Adv CAD*

In this class students will continue to learn basic drafting as well as learning how design affects drawings. Students will learn and use the Engineering Design Process to complete independent projects. Students will get an introduction to architectural design using Autodesk Revit. They will use this Software along with Autodesk Inventor to understand how Building Information Management (BIM) works. They will end the year with Motion, Stress, and Environmental Design analysis.

**Prerequisites and Requirements:**

**1944 INT CAD**

elective

grades

11-12

credits

0.5

homework

(hrs/week)

≤ 1

## Digital Media

*1937 DgtlMed CS*

Digital photography, graphic design, animation, and video are the key curricula that will be covered. The course will include the history of photography and different types of film cameras used over time, as well as famous photographers like Edward Weston and Andy Warhol. Students will design a series of images to create stop motion, time-lapse, and filmmaking. As with film, digital post-production is a very important part of the image making process. Students will learn the ins and outs of Lightroom and Photoshop in order to catalog, edit, and manipulate images to make original works of art or to improve photos using the vast toolkit available in Photoshop. By the end of the course, students will complete an e-portfolio, as well as either a short film, stop motion or digital photography portfolio.

You must have a cell phone or handheld device that can take photos and download apps. This is required for the ability to utilize animation and photography software.

### **Prerequisites and Requirements:**

Application; handheld device for pictures; digital portfolio; **1934 WEB DESIGN** or **1932 INTRO JAVA** or **1944 INT CAD**

elective

grades

11-12

credits

0.5

homework

(hrs/week)

1

## Introduction to Robotics

*1966 Robotics*

The Introduction to Robotics class will be focusing on the field of Industrial Automation. The class will work both independently as well as in groups to assemble and run mini assembly lines. An example of classroom tasks could be, but not limited to; sorting, assembling, or packaging products. Students need to be comfortable coding in Java independently. A brief review of the history and economics of running assembly lines effectively and efficiently will be explored.

### **Prerequisites and Requirements:**

**1934 WEB DESIGN** or **1932 INTRO JAVA** or **1944 INT CAD**

elective

grades

11-12

credits

1

homework

(hrs/week)

≤ 1

## Accelerated

# Data Science

*1959 Data Sci*

Data Science is the study of the generalizable extraction of knowledge from data. Being a data scientist requires an integrated skill set spanning mathematics, statistics, machine learning, databases and other branches of computer science along with a good understanding of the craft of problem formulation to engineer effective solutions. This course will introduce students to this rapidly growing field and equip them with some of its basic principles and tools as well as its general mindset. Students will learn concepts, techniques and tools they need to deal with various facets of data science practice, including data collection and integration, exploratory data analysis, predictive modeling, descriptive modeling, data product creation, evaluation, and effective communication. The focus in the treatment of these topics will be on breadth, rather than depth, and emphasis will be placed on integration and synthesis of concepts and their application to solving problems. To make the learning contextual, real data sets from a variety of disciplines will be used.

### Prerequisites and Requirements:

**1953 AP COMPSCI**; Teacher recommendation

elective

grades

12

credits

1

homework

(hrs/week)

1-2

# Architectural and Mechanical Design

*1958 ArcMecDsgn*

Students are introduced to a variety of engineering disciplines through project-based learning. Students will implement the engineering design process, model software, and build prototypes. This is an interdisciplinary course utilizing physics, chemistry, and math concepts. Students will complete projects in either Architectural or Mechanical Engineering fields.

- Architectural: Students will learn the basics of Foundations, Walls, and Roofs. Students will be able to create a working drawing of a conceptual house, including Floor plans and renderings of both the inside and outside of the house.

- Mechanical: Students who choose Mechanical will learn the basics in Castings, Extrusions, Welding theory, Fasteners, and Sheet Metal working.

### Prerequisites and Requirements:

**1955 ADV CAD**; Teacher recommendation

elective

grades

12

credits

1

homework  
(hrs/week)

2-3

**Accelerated**

## **Computer Science Research**

*1205 Resrch CS*

Computer Science research classes at AMSA is a brand-new class and is geared towards providing a student to delve deep in a specific CS field. The focus is on learning research techniques with depth of content applied where appropriate. Students will work in core areas of knowledge representation, learning, decision making, robotics, speech and language processing. The students will make an effort to understand the algorithmic advances applied in areas like bioinformatics, data science, AI and networking systems etc. Our goal is to motivate and help the student develop and sustain innovative applications. Research students are often required to find time outside of the regular scheduled class time to prepare for or research topics and resources online, including but not limited to: before school, during lunch, after school. The goal is to create an artifact, demonstrate and follow stepwise refinement with a structure along with testing techniques.

**Prerequisites and Requirements:**

**1953 AP COMPSCI; 1954 ADVNC WEB; 1959 DATA SCI;** Teacher recommendation

elective

grades

12

credits

1

homework  
(hrs/week)

1

**Accelerated**

## **Cybersecurity and Cryptography**

*1962 CyberSec'y*

This course is meant to be a first course on network security and Cryptography. Students are provided an introduction to the basic principles and techniques of building secure information systems focusing on theory and practice of computer security, focusing in particular on the security aspects of the web and Internet. The students of the course will research and survey cryptographic tools used to provide security, such as shared key encryption (DES, 3DES, RC-4/5/6, etc.); public key encryption, key exchange, and digital signature (Diffie-Hellmann, RSA, DSS, etc.). System security issues, such as viruses, intrusion, and firewalls, will also be covered. Broader social, legal and political aspects of security will also be touched upon, including issues relating to censorship, surveillance and information control.

**Prerequisites and Requirements:**

**1953 AP COMPSCI;** Teacher recommendation

elective

grades

12

credits

1

homework  
(hrs/week)

2-3

**Accelerated**

## **Discrete Mathematics in Computer Science**

*1968 DscrMaCS*

This course covers elementary discrete mathematics for computer science and engineering. The purpose of this course is to understand and use (abstract) discrete structures that are backbones of computer science. In particular, this class is meant to introduce formal logic notation, proof methods; sets, relations, functions, counting, and probability, with an emphasis on applications in computer science. The students will be able to use effectively algebraic techniques to analyze basic discrete structures and algorithms.

**Prerequisites and Requirements:**

**1953 AP COMPSCI** and a calculus course

# Department of English

**Graduation Requirement** 4 years (4 credits)

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The AMSA English program includes seven years of continuous and historically aligned study beginning in grade 6 with a study of the ancient world in literature, art, and history. The Lower School English program begins to develop the skills needed for rigorous levels of literary analysis, critical writing, and research analysis required at AMSA's college prep, honors, and AP levels in the Upper School English curriculum.

Critical reading skills are taught at every level with challenging texts chosen to familiarize students with the historical breadth and depth of English literature as well as with its diversity in addressing the problems of the human condition. At each level, the curriculum provides clear standards and expectations which challenge all students to develop into mature and skillful writers. Topics covered throughout students' seven years of writing study include: grammar and vocabulary skills, effective essay structure, clear and cogent sentences and paragraphs, convincing arguments, and effective style.

Grade 12 English requirements will be satisfied by taking a minimum of one full credit of English. Course selections include a variety of more focused and specialized literature study at the College Prep, Honors, and AP levels.

**Teacher recommendation is required for all College Prep, Honors, and AP courses.**

core  
course

grades  
9

credits  
1

homework  
(hrs/week)  
2-3

## College Preparatory

### English 9

1333 ELA/Lit 9

Students closely examine texts beginning in Medieval and Renaissance England and ending in 20th century Europe and Africa to explore themes of conflict between and within individuals as well as between communities and nations. Students investigate the literary representation of power, social roles, moral courage, as well as duplicity, individuality, and the formation of identity by studying texts by Chaucer, Shakespeare, Milton, and 20th century authors such as Chinua Achebe and Elie Wiesel. Students develop critical reading skills and participate regularly in guided discussions and writing exercises and receive supportive coaching in writing, particularly in mastering the conventions of English grammar and usage as well as MLA formatting and citation. Students regularly practice and continue to develop their analytical writing skills in order to create argumentative theses supported by specific, relevant evidence from texts and clear analysis.

#### Prerequisites and Requirements:

Teacher recommendation

core  
course

grades

9

credits

1

homework  
(hrs/week)

2-3

## Honors

# English 9

*1334 ELA/Lit 9H*

Students closely examine texts beginning in Medieval and Renaissance England and ending in 20th century Europe and Africa to explore themes of conflict between and within individuals as well as between communities and nations. Students investigate the literary representation of power, social roles, moral courage, as well as duplicity, individuality, and the formation of identity by studying texts by Chaucer, Shakespeare, Milton, and 20th century authors such as Chinua Achebe and Elie Wiesel. At the honors level, students are expected to read and annotate critically in order to be prepared for meaningful discussions and to be able to independently develop and craft writing assignments and respond to teacher feedback. Supplementary reading in addition to the core texts will also be assigned. Students continue their development of critical reading skills and analytical writing skills that allow them to create argumentative theses supported by specific, relevant evidence from texts and clear analysis. Additionally, students continue to refine their mastery of the conventions of English grammar and usage as well as MLA formatting and citation.

### **Prerequisites and Requirements:**

A- in English; teacher recommendation

elective

grades

9-12

credits

0.5

homework  
(hrs/week)

1-2

## Creative Writing

*1373 CreatWrite*

Creative Writing allows students to experiment with various modes of writing in order to explore the essential questions of how writing can help us to better understand the world and how we can use knowledge of genre, character, structure, setting, plot, conflict, etc. to connect with readers. Students will develop writing skills through various modes of narrative writing, including short story, personal narrative, and poetry. Pieces are constructed entirely by students and will focus on making meaningful connections with the audience. Students will also examine a variety of texts (short stories, plays, and poetry) from many different time periods

### **Prerequisites and Requirements:**

Teacher recommendation

elective

grades

9–12

credits

0.5

homework

(hrs/week)

1–2

## Journalism

*1381 Journalism*

A “free press” is not just an abstraction guaranteed in the Constitution — it is one of the most important elements of a democratic society. Indeed, American media outlets have often been dubbed the “fourth estate,” as vital to the health of our republic (by acting as a vigilant guard against the abuses of power by reporting truths, especially unpleasant ones, to the citizenry) as the three estates of government. In this course, students will learn, in a hands-on, interactive fashion, what journalism is for, why its preservation and growth is so essential, and how it works in its various forms. Students learn how news is gathered, reported, and delivered and how that process has changed over the decades and continues to change. Students will study journalism’s evolution from colonial broadsides to the internet and learn how to write, edit, and present the news in the form of the school’s online newspaper, The AMSA Voice.

**Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades

10

credits

1

homework

(hrs/week)

2–3

## College Preparatory

### English 10

*1343 ELA/Lit 10*

Students closely examine literature from British Romanticism to the modern period in order to explore themes of nature vs. nurture, the Enlightenment, literature’s portrayal of power, and the great strengths and weaknesses of the human spirit. Students will read texts by George Orwell, Shakespeare, and Mary Shelley. Classes will continue to build critical reading skills and will focus on regular practice and supportive coaching to develop grammar and usage skills as well as analytical writing skills with an emphasis on text-based evidence. Students will also participate in and build their skills via vibrant, respectful class discussions, creative writing, and public speaking presentations to their classmates. The year culminates in an academic research project which incorporates the year’s literary texts.

**Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades  
10

credits  
1

homework  
(hrs/week)  
2-3

## Honors

# English 10

1344 ELA/Lit10H

Students closely examine literature from British Romanticism to the modern period in order to explore themes of nature vs. nurture, the Enlightenment, literature's portrayal of power, and the great strengths and weaknesses of the human spirit. Students will read texts by Mary Shelley, Shakespeare, George Orwell and William Golding. At the honors level, students are expected to be able to independently develop and craft writing assignments and respond to teacher feedback. Supplementary reading in addition to the core texts will also be assigned. Classes will continue to build critical reading and analytical writing skills with an emphasis on text-based evidence. Students will also participate in and practice their skills via vibrant, respectful class discussions, creative writing, and public speaking presentations to their classmates. The year culminates in an academic research project which incorporates the year's literary texts.

### Prerequisites and Requirements:

A- (CP) or B (H) in English; teacher recommendation

elective

grades  
10-12

credits  
0.5

homework  
(hrs/week)  
1-2

# Children's Literature

1391 Child Lit

Children's Literature is a half-credit, cross-curricular course for those seeking careers in teaching, publishing, library science, or related fields. Together, we will explore questions such as: What is childhood, and how has childhood been viewed throughout history? How has children's literature evolved over time in form and purpose? What is the connection between child development and the types of books written for children/ teens today? How are books for children created and published? How does literacy impact societal outcomes, and what can we do to remove barriers to literacy? Students in Children's Literature will complete a year-long project in which they write and promote their own children's book. The class will also partner with local business, education groups, libraries, and social services to promote literature/ literacy in the community.

### Prerequisites and Requirements:

Teacher recommendation

elective

grades

10-12

credits

0.5

homework

(hrs/week)

1

## Philosophy

*1800 Philosophy*

In a brief overview of philosophy, students will delve into the philosophical depths of their own and others' perspectives as they grapple with everyday issues as well as the great questions that have perplexed humanity for ages. The course is discussion based, but students also develop creative, critical, and argumentation skills as they analyze film, literature, and art in essays and other projects. Students are asked to carefully examine and reflect critically on their own and others' ideas using various modes of expression.

**Prerequisites and Requirements:**

Teacher recommendation

elective

grades

10-12

credits

0.5

homework

(hrs/week)

1-2

## The 20th Century American Novel

*1393 Amer Novel*

In many ways, the 20th century was, for the novel, an American century. Masters from William Faulkner, a white man from Mississippi, to Toni Morrison, an African-American woman who lived much of her adult life in Washington, D.C., and New York City, captured in brilliant prose the American experience and what it means to be human. This elective is designed much like a college English course, centered primarily on reading and discussion. It is intended to give students a more complete understanding of the American novel, with minimal work beyond doing the reading, engaging in an online discussion board, and being completely prepared for in-depth Socratic dialogue. Works under study span the cultural spectrum, represented by Faulkner, Morrison, Ernest Hemingway, James Baldwin, and Sylvia Plath.

**Prerequisites and Requirements:**

Teacher recommendation

elective

grades

10-12

credits

0.5

homework

(hrs/week)

1-2

## The Cave and the Light: Philosophy through Film

*1392 Philm*

This course uses film as a vehicle for illuminating philosophical issues such as free will, the nature of existence, the duality of man, the problem of knowledge, the possibility of grace, the foundations of morality, and even the existence of God. As a class, we will grapple with ideas by exploring the works of some of the greatest directors of the 20th and 21st centuries, including Stanley Kubrick, Ingmar Bergman, Ridley Scott, Terrence Malick, Sofia Coppola, Eric Rohmer, Clint Eastwood, Katheryn Bigelow, and Akira Kurosawa, and by examining films like 2001: A Space Odyssey, The Tree of Life, Blade Runner, The Truman Show, and Invasion of the Body Snatchers.

### **Prerequisites and Requirements:**

Teacher recommendation

elective

grades

10-12

credits

0.5

homework

(hrs/week)

1-2

## Utter Madness: Lunacy and Psychosis in Literature

*1376 MadLit*

Madman! Insane! Genius? Our society delights in labelling its members when those labels often evolve, intersect, or overlap. Through literature and nonfiction, students in this class will examine how cultures and societies define the states of madness and genius over time as well as explore the fine line that delineates the two. How does a person with madness/ mental illness perceive his /her place in the world? How does that same world evaluate genius? Can both perceptions co-exist? We will use various lenses to answer these questions and analyze literature such as One Flew Over the Cuckoo's Nest, A Streetcar Named Desire, and "The Yellow Wallpaper" as well as literary nonfiction by Oliver Sacks and other clinicians.

### **Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades

11

credits

1

homework  
(hrs/week)

2-3

## College Preparatory

### English 11

*1352 ELA/Lit 11*

Students examine American literature from the founding of the continent to the present through the lens of the American Dream and individual identity. Based on their study of literature as well as their own experience, focused discussions, and reflective writing, students investigate how different aspects of American culture and history interact with individual identity, expectations, and opportunities. Students will read texts by John Steinbeck, Nathaniel Hawthorne, Mark Twain, F. Scott Fitzgerald, and Zora Neale Hurston. Particular attention will be paid to improving students' writing abilities through a close study of what exactly makes effective writing. Students are taught how to support assertions with textual evidence, develop reasoned ideas, and use clear and concise prose. Classes will cultivate an environment of natural curiosity where students will sharpen their ability to think critically and analytically, and communicate effectively. Frequent, ongoing assessments guide the learning and lead to a culminating research essay related to themes threaded through the study texts.

#### **Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades

11

credits

1

homework  
(hrs/week)

2-3

## Honors

### English 11

*1353 ELA/Lit11H*

Students examine American literature from the founding of the continent to the present through the lens of the American Dream and individual identity. Based on their study of literature as well as their own experience, focused discussions, and reflective writing, students investigate how different aspects of American culture and history interact with individual identity, expectations, and opportunities. Students will read texts by Nathaniel Hawthorne, Mark Twain, F. Scott Fitzgerald and Zora Neale Hurston. Particular attention will be paid to improving students' writing abilities through a close study of what exactly makes effective writing. At the honors level, students are expected to be able to independently complete research, develop and craft writing assignments, and respond to teacher feedback. Supplementary reading in addition to the core texts will also be assigned. Students are taught how to support assertions with textual evidence, develop reasoned ideas, and use clear and concise prose. Classes will cultivate an environment of natural curiosity where students will sharpen their ability to think critically and analytically, and communicate effectively. Frequent, ongoing assessments guide the learning and lead to a culminating research essay related to themes threaded through the study texts.

#### **Prerequisites and Requirements:**

A- (CP) or B (H) in English; teacher recommendation

**AP course**

**grades**

11

**credits**

1

**homework  
(hrs/week)**

2-3

### **Advanced Placement**

## **Literature**

*1354 AP Lit*

This college level Advanced Placement Literature and Writing course is designed to teach academic writing through the fundamentals of rhetorical theory and follows the curricular requirements of the College Board. The AP English Literature and Composition course will engage students in the careful reading and critical analysis of imaginative literature from the sixteenth through the twenty-first centuries. Through the close reading of selected texts, students deepen their understanding of the ways writers use language to provide both meaning and pleasure for their readers. As they read, students consider a work's structure, style, and themes as well as such elements as the use of figurative language, imagery, symbolism, and tone.

#### **Prerequisites and Requirements:**

A- (H) in English; teacher recommendation

**elective**

**grades**

12

**credits**

1

**homework  
(hrs/week)**

2-3

### **College Preparatory**

## **Contemporary World Literature**

*1364 ContVoices*

This course examines the variety of voices and perspectives in our contemporary world through works in several genres (short story, novel, drama, poetry and non-fiction). Though students will examine the timeless and universal themes of coming-of-age, forming one's identity, facing injustice, and creating meaning, they will also consider the implications of doing so confronted with all of the complexity which the modern world entails. Students will discuss the philosophical implications of characters' and writers' experiences examined through a variety of literary lenses and read award-winning texts from current and 20th century authors while honing their college writing and research skills by developing critical literary analyses as well as issue-based academic arguments.

#### **Prerequisites and Requirements:**

Teacher recommendation

elective

grades

12

credits

1

homework

(hrs/week)

2-3

College Preparatory

## Gothic Fiction

*1385 Gothic Fic*

Gothic literature examines the deepest fears and anxieties of a culture. AMSA's Gothic Literature course will challenge students to understand the Gothic movement in literature and its effects on subsequent writing. Through close reading, analysis, and discussion of a variety of written and visual texts, students develop college bound skills as they examine how writers illuminate anxieties and taboos from the early years to the present day. Throughout the year, students will work to develop their own lines of literary inquiry and use primary and secondary academic sources as evidence for analysis.

**Prerequisites and Requirements:**

Teacher recommendation

elective

grades

12

credits

1

homework

(hrs/week)

2-3

College Preparatory

## Shakespeare

*1384 Shakespear*

In this course, students will study a selection of Shakespeare's plays and sonnets, isolating themes and motivations, and drawing parallels to their own lives and the modern world. Students analyze the Bard's use of language in an exploration of how we interact with one another and what drives our desires, dreams, betrayals, loyalties, loves, and hates through the works. Throughout the course, students will develop their college level academic writing skills by using primary and secondary sources to support original theses and responses to Shakespeare's work in a variety of essays, projects, and presentations.

**Prerequisites and Requirements:**

Teacher recommendation

elective

grades

12

credits

1

homework

(hrs/week)

2-3

Honors

## Contemporary World Literature

*1365 ContVoic H*

This course examines the variety of voices and perspectives in our contemporary world through works in several genres (short story, novel, drama, poetry and non-fiction). Though students will examine the timeless and universal themes of coming-of-age, forming one's identity, facing injustice, and creating meaning, they will also consider the implications of doing so confronted with all of the complexity which the modern world entails. Students will discuss the philosophical implications of characters' and writers' experiences examined through a variety of literary lenses and read award-winning texts from current and 20th century authors while honing their college writing and research skills by developing critical literary analyses as well as issue-based academic arguments.

**Prerequisites and Requirements:**

A- (CP) or B (H) in English; teacher recommendation

elective

grades

12

credits

1

homework

(hrs/week)

2-3

Honors

## Gothic Fiction

*1386 GothFic H*

Gothic literature examines the deepest fears and anxieties of a culture. AMSA's Gothic Literature course will challenge students to understand the Gothic movement in literature and its effects on subsequent writing. Through close reading, analysis, and discussion of a variety of written and visual texts, students develop college bound skills as they examine how writers illuminate American anxieties and taboos from the early years of the nation to the present day. Throughout the year, students will work to develop their own lines of literary inquiry and use primary and secondary academic sources as evidence for analysis.

**Prerequisites and Requirements:**

A- (CP) or B (H) in English; teacher recommendation

elective

grades

12

credits

1

homework  
(hrs/week)

2-3

Honors

## Shakespeare

*1382 Shkspear H*

In this course, students will study a selection of Shakespeare's plays and sonnets, isolating themes and motivations, and drawing parallels to their own lives and the modern world. Students analyze the Bard's use of language in an exploration of how we interact with one another and what drives our desires, dreams, betrayals, loyalties, loves, and hates through the works. Throughout the course, students will develop their college level academic writing skills by using primary and secondary sources to support original theses and responses to Shakespeare's work in a variety of essays, projects, and presentations.

**Prerequisites and Requirements:**

A- (CP) or B (H) in English; teacher recommendation

AP course

grades

12

credits

1

homework  
(hrs/week)

2-3

Advanced Placement

## English Language & Composition

*1361 AP Eng Lan*

This college level course prepares students to take the AP Language and Composition exam by considering non-fiction texts and what makes them effective. Students learn to analyze rhetorical situations, content, context, and diction in order to understand how writers achieve their purposes. The course is skills based, and the focus is on developing students' ability to read, write and critically analyze high quality, literary non-fiction. Though the primary focus is on writing the rhetorical analysis, argument, and research essays for the exam, students also develop their analytical skills by composing pieces in various styles and genres in order to understand the craft of writing from the writer's as well as the critic's point of view.

**Prerequisites and Requirements:**

A- (H) in English; teacher recommendation

Department of

# History and Social Sciences

**Graduation Requirement** 3 years (3 credits)

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In grade 9, students are required to take World History from the French Revolution to today. In grade 10, students take the first half of American history. In grade 11, students will take the second half of American history, as either American History or AP American History. Students may take a history elective in grade 11 as long as they also take either of the American history courses. In grade 12, students may take any history elective (as long as they meet the listed requirements, if any).

## Four-Year History Electives Plan

Please note that this plan is subject to change depending on student interest and teacher availability.

2022–2023	2023–2024	2024–2025	2025–2026
Government and Economics	Government and Economics	Government and Economics	Government and Economics
United States History III	Introduction to Anthropology	United States History III	Introduction to Anthropology
Hate: The Dark Side of American History	American Culture through Literature and Film	Hate: The Dark Side of American History	American Culture through Literature and Film
The Wild West	History of Sports	The Wild West	History of Sports
A History of Modern Africa	Milestones of Asian History	A History of Modern Africa	Milestones of Asian History
AP Microeconomics	AP Macroeconomics	AP Microeconomics	AP Macroeconomics

**Teacher recommendation is required for all College Prep, Honors, and AP courses.**

**The prerequisite for Honors level courses is a B+ or above in the current year's History course.**

core  
course

grades

9

credits

1

homework  
(hrs/week)

0.5–1.5

### College Preparatory

## Modern World History

*1534 World Hist*

Students will study modern world history from the French Revolution to today. Students will answer the essential question “What motivates people, societies, and nations to act?” through the study of 7 major units: the French Revolution, the Industrial Revolution, Imperialism, World War I, the Russian Revolution, World War II, and the Cold War. As in previous grades, students will be introduced to a central thread for each unit (such as a person or an idea) that will help enable the student to connect all of the smaller pieces of information to the larger story being told. Students will also develop and enhance their note taking skills, the development of arguments with evidence, the writing of essays with a clear thesis, the analysis of primary source documents, and chronological reasoning. Students will expand on these skills by learning how to synthesize and accurately and effectively use large amounts of content to develop convincing historical arguments. Students will also begin to develop the ability to compare and contextualize (by comparing historical processes across time, explaining multiple perspectives on historical events, and connecting historical events with particular historical eras).

#### **Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades

9

credits

1

homework  
(hrs/week)

1.5–3.0

### Honors

## Modern World History

*1536 W. Hist H*

Students will study modern world history from the French Revolution to today. Students will answer the essential question “What motivates people, societies, and nations to act?” through the study of 7 major units: the French Revolution, the Industrial Revolution, Imperialism, World War I, the Russian Revolution, World War II, and the Cold War. As in previous grades, students will be introduced to a central thread for each unit (such as a person or an idea) that will help enable the student to connect all of the smaller pieces of information to the larger story being told. Students will also develop and enhance their note taking skills, the development of arguments with evidence, the writing of essays with a clear thesis (and evidence), the analysis of primary source documents, and chronological reasoning. Students will expand on these skills by learning how to synthesize and accurately and effectively use large amounts of content to develop convincing historical arguments. Students will also begin to develop the ability to compare and contextualize (by comparing historical processes across time, explaining multiple perspectives on historical events, and connecting historical events with particular historical eras).

#### **Prerequisites and Requirements:**

B+ in history; teacher recommendation

elective

grades

9–12

credits

0.5

homework  
(hrs/week)

1–2

## Modern Africa

*1580 ModrnAfr*

Dive into the history of a continent mostly described as a supporting character in most history classes. The history of Africa course will reveal the complicated past of the continent home to more than one billion people! Portions of the course will rely on research and debate, touching on three phases of Africa's history: pre-colonization, imperialism, and the independence movements of the 20th century. The period known as pre-colonization will focus on African nations and their competition for dominance in their respective areas. A study of culture, war, and trade, including the slave trade, will be the main foci of this section. Next, the course will examine the interconnectedness and resistance movements against colonial powers during the 19th and 20th centuries. Topics will include the Scramble for Africa, the Zulu and Boer Wars, and the colonial armies who fought in both World Wars. Finally, the complexity of Africa in the 20th century will be investigated. Decolonization, wars for independence, apartheid, and genocide will all be topics of discussion. All three of these eras of focus will constantly be connected to the courses' overall question: how did the Africa that exists today come into being? The course plans to challenge preconceived notions of Africa, sparking discussion concerning the violent dynamism and external challenges facing the continent. Students will have chances to grow their knowledge of particular geographic areas such as Algeria, Darfur, Sudan, Côte d'Ivoire, Libya, Somalia, and more! See how Africans such as Ethiopian King Menelik II, King Shaka of the Zulu, Nelson Mandela, and others, helped shape the continent between the 18th century and the present. Please join us in discovering the many perspectives of the history of Africa!

**Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades  
10

credits  
1

homework  
(hrs/week)  
0.5–1.5

## College Preparatory

# U.S. History 1

*1549 US Hist 1*

The first half of American history (1491–1877) examines the essential question “Why do people and societies act — and, in this case, what motivated the nation of “America” to act by declaring Independence from England?” Major units will focus on the life, politics, and religion of Native Americans; European exploration of the Americas and the founding and growth of the first American colonies; the development of American political institutions and American slavery; the origins and consequences of the American Revolution; a strong focus on civic literacy through an extended examination of the structure and main concepts of American government as established by the Constitution; antebellum American politics and society; and the causes and consequences of the American Civil War and the failures and accomplishments of Reconstruction. Students will develop and enhance their note taking skills, the development of arguments with evidence, the writing of essays with a clear thesis, the analysis of primary source documents, chronological reasoning, and the ability to compare and contextualize.

### Prerequisites and Requirements:

Teacher recommendation

core  
course

grades  
10

credits  
1

homework  
(hrs/week)  
1.5–3.0

## Honors

# U.S. History 1

*1548 US Hist 1H*

The first half of American history (1491–1877) examines the essential question “Why do people and societies act — and, in this case, what motivated the nation of “America” to act by declaring Independence from England?” Major units will focus on the life, politics, and religion of Native Americans; European exploration of the Americas and the founding and growth of the first American colonies; the development of American political institutions and American slavery; the origins and consequences of the American Revolution; a strong focus on civic literacy through an extended examination of the structure and main concepts of American government as established by the Constitution; antebellum American politics and society; and the causes and consequences of the American Civil War and the failures and accomplishments of Reconstruction. Students will develop and enhance their note taking skills, the development of arguments with evidence, the writing of essays with a clear thesis (and evidence), the analysis of primary source documents, chronological reasoning, and the ability to compare and contextualize.

### Prerequisites and Requirements:

B+ in history; teacher recommendation

elective

grades

10-12

credits

0.5

homework

(hrs/week)

1-2

## Hate: The Dark Side of American History

*1579 DarkSide*

This course will examine the dark side of American history. In particular, this course will explore the contradiction between America's professed ideals of freedom and equality and the tragic and ugly history of racism, nativism, sexism, and homophobia. Why and how did racism take root in America? Why has it persisted? What has its impact been? What explains the very different treatment that different groups of immigrants have received in this "nation of immigrants"? Why have women consistently had to struggle for basic rights, be it the right to vote in the early 20th century or the right to be free of discrimination and harassment in the workplace of today? And how has the experience and history of gay and transgender Americans reflected on our nation's willingness to live up to our highest ideals? This course will explore all these questions and more. Along the way, we will certainly come face to face with the many terrible chapters of American history — from the nativist campaign against Chinese, Catholic and Jewish immigrants in the late 1800s and early 1900s to the racist and anti-Semitic Unite the Right rally in Charlottesville, Virginia in 2017. But so too will we encounter heroes — brave Americans like the abolitionist Frederick Douglass, feminists such as Betty Friedan, and gay rights activists such as Harvey Milk.

### **Prerequisites and Requirements:**

Teacher recommendation

elective

grades

10-12

credits

0.5

homework

(hrs/week)

1-1.5

## Indians and Outlaws: The Romance and Legacy of the Wild West

*1568 WildWest*

Would you believe the Marvel Universe is based on the American Wild West and old Hollywood westerns?

America was built on the legacies and myths of its untamed West. Before the first fortune seekers and refugees crossed the Atlantic to set foot on these shores and long before the founding fathers tried to define life, liberty and happiness, America was home to peoples who valued and desperately fought for freedom, opportunity, and family. As time went on and the West was 'won' and many of these Native American cultures were subdued the United States grew up in their footprints. What has emerged is a distinctively new 'American' culture, one that is constantly drawn back to those old legacies and myths and questions: Who are we? Where did we come from? Where are we going?

This course will selectively examine the history of the American West from the 18th century through today and the legacies created about this uniquely American place. Among the things we'll explore: early frontier life, homesteading, the great migrations of peoples from all over the world to the American West, the cowboy, American Indians, western tech and the military, the role of the US government and its citizens in claiming and controlling the West, the growth of democracy, and of course the Wild West itself!

We'll consider the romance, the myths and the legends that live on about this region of the country along with the heroes and villains that helped give them life, including: James Fenimore Cooper and Natty Bumppo, William "Buffalo Bill" Cody and his Wild West Show, Wyatt Earp and the Gunfight at the O.K. Corral, Laura Ingalls Wilder and Little House on the Prairie, John Ford and John Wayne and the Golden Age of Hollywood. Finally, we'll consider how the West has changed and continues to shape America and Americans today: It's always been a symbol of the future but, with the frontiers of the American West now faded into history, what do we look to today that mirrors those great dreams of Americans past?

Coursework includes readings from two books: Peter Cozzens' powerful *The Earth is Weeping: The Epic Story of the Indian Wars for the American West* and Dee Brown's popular narrative *The American West*. We'll also watch and analyze a lot of movies in this class - from the silent era of Hollywood up through big-budget movies of today. Hollywood has made more movies about the American West than any other genre and continues to release western-themed movies on an almost-yearly basis!

Whether you're already a fan of the Duke and the Lone Ranger or have never even heard of Clint Eastwood: if you have the spirit of adventure and discovery running through your veins this is the elective for you!

**Prerequisites and Requirements:**

**AP course****grades**

10–12

**credits**

1

**homework****(hrs/week)**

5–8

**Advanced Placement****European History***1547 AP Eur His*

The grades 10–12 Advanced Placement course will cover European history from 1350 to 2010. AP students will study — in great depth — all of the great events, themes, and personalities of early modern and modern European history, including the Renaissance, the Reformation, the Enlightenment, and the Age of Revolution. Students will also study the rise and fall of Napoleon, the Industrial Revolution, and 19th century European politics and society. They will study the origins and consequences of European imperialism and conflicts, wars, and political movements of the 20th century, including World War I, World II, the Cold War, communism, and fascism. Students will focus on the essential question “Why do people, societies, and nations act and what are the underlying forces of history?” Students will continue to develop their skills developing arguments with evidence, chronological reasoning, the ability to compare and contextualize, and the skills of historical interpretation.

**Prerequisites and Requirements:**

A- (H) or A (CP) in history; teacher recommendation

**AP course****grades**

10–12

**credits**

1

**homework****(hrs/week)**

4–5

**Advanced Placement****Microeconomics***1565 AP Micro*

AP Microeconomics is college-level course intended to give students a thorough understanding of the principles of economics that apply to the functions of individual decision makers, both producers and consumers, within the economic system. It places primary emphasis on the nature and functions of product markets, and includes the study of factor markets and of the role of government in promoting greater efficiency and equity in the economy. Students learn to use graphs, charts, and data to analyze, describe, and explain economic concepts. Students who take this course are expected to sit for the College Board’s AP Microeconomics examination in May, for which they may receive college credit depending on the policy of the college where they matriculate.

Please Note that AP Micro will only be offered in academic years that start with an even number. It will alternate years with AP Macroeconomics. The courses can easily be taken in either order; neither is a prerequisite of the other. It will not be possible to take APMicro on odd years; please plan accordingly.

**Prerequisites and Requirements:**

B+ (H) or A- (CP) in history or math; teacher recommendation

core  
course

grades

11

credits

1

homework  
(hrs/week)

0.5–1.5

## College Preparatory

# U.S. History 2

*1550 US Hist 2*

The second half of American history (1877 – today) will also, as in grade 10, focus on the essential question “Why do peoples and societies act?” Related questions include: why do nations – in this case, the U.S. – go to war? Why and how do nations change? What role do the “people” have in running and shaping basic political and economic policies? Grade 11 U.S. history will pick up from grade 10 by examining the impact of Reconstruction and the causes and consequences of the Industrial Revolution. Students will also learn about the most important events and people in modern American history, including the Progressive Era and World War I, the Great Depression, the New Deal, World War II, the Cold War, the Vietnam War, the 1960s Civil Rights movement, and America in the world today. As in grade 10, students will continue to develop their note taking skills, the development of arguments with evidence, the writing of essays with a clear thesis, the analysis of primary source documents, chronological reasoning, and the ability to compare and contextualize. Students will also be introduced to the skill of historical interpretation – the ability to effectively analyze different historical interpretations of events and to see how and why interpretations change over time.

### **Prerequisites and Requirements:**

Teacher recommendation

core  
course

grades  
11

credits  
1

homework  
(hrs/week)  
1.5–3.0

## Honors

# U.S. History 2

*1552 US Hist 2H*

The second half of American history (1877 – today) will also, as in grade 10, focus on the essential question “Why do peoples and societies act?” Related questions include: why do nations — in this case, the U.S. — go to war? Why and how do nations change? What role do the “people” have in running and shaping basic political and economic policies? Grade 11 U.S. history will pick up from grade 10 by examining the impact of Reconstruction and the causes and consequences of the Industrial Revolution. Students will also learn about the most important events and people in modern American history, including the Progressive Era and World War I, the Great Depression, the New Deal, World War II, the Cold War, the Vietnam War, the 1960s Civil Rights movement, and American in the world today. As in grade 10, students will continue to develop their note taking skills, the development of arguments with evidence, the writing of essays with a clear thesis (and evidence), the analysis of primary source documents, chronological reasoning, and the ability to compare and contextualize. Students will also be introduced to the skill of historical interpretation – the ability to effectively analyze different historical interpretations of events and to see how and why interpretations change over time.

### Prerequisites and Requirements:

B+ in history; teacher recommendation

elective

grades  
11–12

credits  
1

homework  
(hrs/week)  
0.5–1

# Government and Economics

*1585 GovEcon*

This course is designed to give students the tools they need to be informed citizens and participants in our national democracy and global economy. It will provide an introduction to U.S. civics including the Constitution, federalism, the interactions between the branches of government, and the many linkage institutions that connect citizens to the institutions of government. It will also teach students economic literacy and how economic forces operate and shape decision making. Societies do not have unlimited resources and it’s up to governments, voters, consumers, producers, entrepreneurs, workers, investors and spenders to decide who gets what. Students will learn the basic mechanics of market forces, trade, banking and other economic institutions. A portion of the course will be devoted to personal finance issues such as budgeting, investing, planning for future financial decisions like college, large purchases, and retirement, credit, taxes, and insurance.

Students who have taken either AP Macroeconomics or AP Government are encouraged to explore other electives as there will be considerable overlap between those classes and this course.

### Prerequisites and Requirements:

**AP course**

**grades**  
11–12

**credits**  
1

**homework  
(hrs/week)**  
5–8

**Advanced Placement**

## **U.S. Government**

*1560 AP USGov't*

AP U.S. Government is a college-level course designed to give students an understanding of U.S. government and economics. Students will explore the essential question “How does the American political system work?” The course will cover topics including: the Constitutional underpinnings of U.S. government, political beliefs and behaviors, political parties, interest groups, and mass media, institutions of national government (the Congress, the presidency, the bureaucracy, and the federal courts), public policy, and civil rights and civil liberties. The course will place a strong emphasis on the development of critical reasoning skills, the development of arguments with strong evidence, and the ability to infer, analyze, compare, and contextualize.

**Prerequisites and Requirements:**

A- (H) or A (CP) in history; teacher recommendation

**AP course**

**grades**  
11–12

**credits**  
1

**homework  
(hrs/week)**  
5–8

**Advanced Placement**

## **U.S. History**

*1553 AP US Hist*

AP American History is a college-level course that explores the entirety of American history from 1491 to today. Students will learn about the life, politics, and religion of American Indians. They will study European exploration of the Americas and the founding and growth of the first American colonies, including the development of American political institutions and American slavery. They will also learn about the origins and consequences of the American Revolution and the structure and main concepts of American government as established by the Constitution. Students will study 19th century American politics and society, including an examination of the causes and consequences of the American Civil War, the policies of Reconstruction, the Industrial Revolution, the Gilded Age, and America’s rise as a global power. Finally, students will learn about the most important events and people in modern American history, including the progressive era and World War I, the Great Depression, the New Deal, World War II, the Cold War, the Vietnam War, the 1960s Civil Rights movement, and major economic, social, and political developments since 1970. Students explore the essential question “Why do people, societies, and nations act and what are the underlying forces of history?” Students will enhance their skills in developing arguments with evidence, chronological reasoning, the ability to compare and contextualize, and the skills of historical interpretation.

**Prerequisites and Requirements:**

A- (H) or A (CP) in history; teacher recommendation

elective

grades

12

credits

0.5

homework

(hrs/week)

1-2

## American History III

*1590 US Hist 3*

How did we get to where we are today as a nation? What explains the current state of American politics, American culture and society, the American economy, and America's world role? This elective is designed to help you understand contemporary America. To do that, the class will take a chronological approach to modern U.S. history. The class will begin in the 1980s with the rise of a strong new conservative movement and the election of Ronald Reagan and will proceed all the way up to the present day.

Major topics that will be covered include: the fragmentation of the American political system and the causes and consequences of the growing rift between the two main political parties, the Democrats and the Republicans; the de-industrialization of the American economy and the rise of the tech industry (Microsoft, Apple, Google, Amazon, and Facebook); major changes in American society and culture such as the rise of the Religious Right in the 80s and the decline in religious faith starting in the 90s, the rise of rights-based movements such as the LGBTQ movement, the MeToo movement, and Black Lives Matter; the explosion and impact of teenage pop cultural icons like MTV, Nintendo, movie mega-theaters and massive indoor malls, the rise of 24-hour cable news and the decline of traditional forms of journalism; the impact of smart devices and social media; the origins and impact of the opioid crisis and the Covid 19 pandemic; and the changing role of America in the world as a result of the ending of the Cold War and the 9/11 terrorist attacks.

**Prerequisites and Requirements:**

Teacher recommendation

AP course

grades

12

credits

1

homework

(hrs/week)

4-5

## Advanced Placement

### Psychology

*1563 AP Psych*

The AP Psychology course is a college-level course designed to introduce students to the systematic and scientific study of the behavior and mental processes of human beings and other animals. Students are exposed to the psychological facts, principles, and phenomena associated with each of the major subfields within psychology in preparation for the AP Psychology test. They also learn about the ethics and methods psychologists use in their science and practice.

**Prerequisites and Requirements:**

A- (H) or A (CP) in history or English; teacher recommendation

# Department of World Languages

**Graduation Requirement** *2 years (2 credits)*

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The goal of the World Language department is to foster communication in the target language, through a proficiency-based approach, and promote an appreciation for diverse cultures. Two years of language study are required for high school graduation. Most colleges and universities prefer to see continuous study of the same language on a transcript, and more selective colleges often require three or four years of study. Students must meet the prerequisites in order to take a course and teacher recommendation is required.

AMSA currently offers a choice of French, Latin, and Spanish to grades 9 to 12. Students who continue their study of Latin will begin Latin 2 in grade 9. Those electing to take French or Spanish will begin with level 1. An AP course is offered in each of the three languages; teacher recommendation is required.

All proficiency levels are based on the American Council on the Teaching of Foreign Languages (ACTFL) scales.

**The prerequisite for Honors and AP level courses is a B+ or above in the current year's Honors language course and teacher recommendation.**

core  
course

grades  
9

credits  
1

homework  
(hrs/week)  
1-2

## French 1

*1636 French 1*

In French 1, students are exposed daily to speaking and writing activities in order to practice pronunciation and develop the skills needed for effective communication. Students practice all components of language learning in individual and group assignments. Through authentic reading and audio selections, students will gain an in-depth cultural awareness of French-speaking countries. Students will learn grammar structures in order to carry on basic conversations in the setting of the school, house, restaurant, supermarket and beyond. The proficiency target is novice-high.

**Prerequisites and Requirements:**

core  
course

grades  
9

credits  
1

homework  
(hrs/week)  
1-2

## Latin 2

*1641 Latin 2*

Latin 2 continues 8th grade Latin 1. Students dive deeper into all aspects of ancient Rome such as history, mythology, and art. Students access Latin through primary texts of Latin passages from famous Romans such as Vergil, Cicero, and Catullus as found in Wheelock's College Latin textbook. Equally important, students learn to connect Latin to modern careers with units on medicine, law, speech-making, chemistry, engineering, and more. For example, they will learn college Latin mottos and connect modern education to the Latin of the Renaissance. Students will acquire Latin through a variety of methods, from the traditional of rote memorization, to modern approaches of Quizlet, Youtube, and social media.

**Prerequisites and Requirements:**

**1621 LATIN 1B**

core  
course

grades  
9

credits  
1

homework  
(hrs/week)  
1-2

## Honors Latin 2

*1632 Latin 2 H*

Latin 2 continues 8th grade Latin 1. Students dive deeper into all aspects of ancient Rome such as history, mythology, and art. Students access Latin through primary texts of Latin passages from famous Romans such as Vergil, Cicero, and Catullus as found in Wheelock's College Latin textbook. Equally important, students learn to connect Latin to modern careers with units on medicine, law, speech-making, chemistry, engineering, and more. For example, they will learn college Latin mottos and connect modern education to the Latin of the Renaissance. Students will acquire Latin through a variety of methods, from the traditional of rote memorization, to modern approaches of Quizlet, Youtube, and social media. Latin 2 is a blended class with both college prep and honors levels in the same classroom. Students who have earned an A in 8th grade Latin 1 are eligible for the honors designation.

**Prerequisites and Requirements:**

**1621 LATIN 1B (B+); teacher recommendation**

core  
course

grades  
9

credits  
1

homework  
(hrs/week)  
1-2

## Spanish 1

*1633 Spanish 1*

In Spanish 1, students are exposed daily to the spoken language with the goal of achieving novice-high level proficiency. They will begin to develop their skills in the four principal areas of competency: listening, reading, writing and speaking. Through authentic reading and audio selections, students will gain an in-depth cultural awareness of the vast Spanish-speaking world. Students will learn thematic vocabulary and grammar structures in order to carry on basic conversations in the setting of the school, house, restaurant, supermarket and beyond. By the end of the course, students will be able to talk about what they do now, describe what is happening, and discuss their past actions.

**Prerequisites and Requirements:**

core  
course

grades  
10

credits  
1

homework  
(hrs/week)  
1-2

**College Preparatory**

## French 2

*1645 French 2*

This course builds on the skills of the first level program, using more complex vocabulary and phrases necessary when communicating in various situations. Students will continue to develop speaking skills through prepared and impromptu conversations and skits. This course will allow students to improve their writing skills as well as to expand their reading strategies through reading selections and adaptations of French authors. Furthermore, the essential question "How are the aspects of French culture similar and/or different from that of American culture?" will expand the knowledge learned in other disciplines. The proficiency target is Intermediate-low.

**Prerequisites and Requirements:**

**1636 FRENCH 1**

core  
course

grades  
10

credits

homework  
(hrs/week)  
1-2

### Honors

## French 2

*1635 French 2H*

This course builds on the skills of the first level program, using more complex vocabulary and phrases necessary when communicating in various situations. Students will continue to develop speaking skills through prepared and impromptu conversations and skits. This course will allow students to improve their writing skills through the introduction of other tenses, such as the subjunctive and conditional. Students will expand their reading strategies through reading selections and some adaptations of French authors. Furthermore, the essential question "How are the aspects of French culture similar and/or different from that of American culture?" will expand the knowledge learned in other disciplines. French 2 Honors students should have demonstrated mastery in French 1, as the honors course will be conducted at an accelerated pace and mostly in the target language. The proficiency target is intermediate-mid.

#### Prerequisites and Requirements:

**1636 FRENCH 1** (B+); teacher recommendation

core  
course

grades  
10

credits  
1

homework  
(hrs/week)  
1-2

### College Preparatory

## Latin 3

*1648 Latin 3*

Latin 3 students will complete a survey of Latin poetry. The course focuses on the works of the Latin poets Catullus, Horace, and Ovid. Students will discuss critically the imagery, figures of speech, and grammar in Latin poetry, and develop an understanding of the historical contexts surrounding each author and work. Students will be expected to translate unaltered Latin poetry, and understand Roman poetic meter and style. By the end of the course, students will better understand Latin poetic style, the subjunctive mood (a mode of verbs which denotes hypothetical situations) as well as scansion (the process of determining the metrical pattern of a line of poetry).

#### Prerequisites and Requirements:

**1641 LATIN 2**

core  
course

grades

10

credits

1

homework  
(hrs/week)

1-2

## Honors

### Latin 3

*1651 Latin 3H*

Latin 3 students will complete a survey of Latin poetry. The course focuses on the works of the Latin poets Catullus, Horace, and Ovid. Students will discuss critically the imagery, figures of speech, and grammar in Latin poetry, and develop an understanding of the historical contexts surrounding each author and work. Students will be expected to translate unaltered Latin poetry, and understand Roman poetic meter and style. By the end of the course, students will have mastered Latin poetic style, the subjunctive mood (a mode of verbs which denotes hypothetical situations) as well as scansion (the process of determining the metrical pattern of a line of poetry). Students in Honors should have demonstrated mastery in 2 Honors.

#### Prerequisites and Requirements:

**1632 LATIN 2 H** (B+); teacher recommendation

core  
course

grades

10

credits

1

homework  
(hrs/week)

1-2

## College Preparatory

### Spanish 2

*1643 Spanish 2*

Spanish 2 builds upon the foundation provided in Spanish 1. Students will further develop their competency skills in listening, reading, writing and speaking, with the goal of achieving intermediate-low proficiency. Authentic, literary, musical, cinematic, and technological resources will be used to broaden students' knowledge of and appreciation for the culture and language of the Spanish-speaking world. Students will be able to comprehend level appropriate target language content in written and audio form, produce a variety of written works, and make presentations in the target language. By the end of the course students are expected to carry on a basic conversation about real-life topics in the present, past, future and conditional.

#### Prerequisites and Requirements:

**1633 SPANISH 1**

core  
course

grades  
10

credits  
1

homework  
(hrs/week)  
1-2

## Honors

# Spanish 2

*1644 Spanish 2H*

Spanish 2 builds upon the foundation provided in Spanish 1. Students will further develop their competency skills in listening, reading, writing and speaking, with the goal of achieving Intermediate-mid level proficiency. Authentic, literary, musical, cinematic, and technological resources will be used to broaden students' knowledge of and appreciation for the culture and language of the Spanish-speaking world. Students will be able to comprehend level appropriate target language content in written and audio form, produce a variety of written works, and make presentations in the target language. By the end of the course students are expected to communicate well about real-life topics in the present, past, future and conditional. Spanish 2 Honors students should have demonstrated mastery in Spanish 1, as the course will be conducted at an accelerated pace and mostly in the target language.

### Prerequisites and Requirements:

**1633 SPANISH 1** (B+); teacher recommendation

core  
course

grades  
11

credits  
1

homework  
(hrs/week)  
1-2

## College Preparatory

# French 3

*1665 French 3*

The proficiency goal of this course is intermediate-mid. To that end, students study advanced vocabulary, expressions, and grammatical structures, read in-depth texts concerning cultural aspects of francophone countries, analyze literary excerpts, and produce original compositions and oral presentations. The exploration of essential questions such as "How does technology impact one's life?", "Does education guarantee a successful professional and personal life?", and "What are the global challenges we face in the 21st century?" will serve as a platform for spoken and written expression on contemporary topics.

### Prerequisites and Requirements:

**1645 FRENCH 2**

core  
course

grades

11

credits

1

homework  
(hrs/week)

1-2

## Honors

### French 3

*1655 French 3 H*

The proficiency goal of this course is intermediate-high. To that end, students study advanced vocabulary, expressions, and grammatical structures, read in-depth texts concerning cultural aspects of francophone countries, analyze literary excerpts, and produce original compositions and oral presentations. The exploration of essential questions such as "How does technology impact one's life?", "Does education guarantee a successful professional and personal life?", and "What are the global challenges we face in the 21st century?" will serve as a platform for spoken and written expression on contemporary topics. French 3 Honors students should have demonstrated mastery in French 2 Honors, as the course will be conducted at an accelerated pace and mostly in the target language.

#### Prerequisites and Requirements:

**1635 FRENCH 2H** (B+); teacher recommendation

core  
course

grades

11-12

credits

1

homework  
(hrs/week)

1-2

## College Preparatory

### Latin 4

*1649 Latin 4*

Latin 4 students will survey a number of important authors and advance to more challenging selections of prose. Students will read works by the great figures of the late Republic and early Empire, including Cicero, Livy, and Pliny. They will discuss the historical and cultural context of these authors and their relevance in the modern world. Along with the selections of Latin prose, students will review selected grammar points and examine pertinent topics in Roman history and culture.

#### Prerequisites and Requirements:

**1648 LATIN 3**

core  
course

grades

11

credits

1

homework  
(hrs/week)

1-2

## Honors

### Latin 4

*1661 Latin 4H*

Latin 4 students will survey a number of important authors and advance to more challenging selections of prose. Students will read works by the great figures of the late Republic and early Empire, including Cicero, Livy, and Pliny. They will discuss the historical and cultural context of these authors and their relevance in the modern world. Along with the selections of Latin prose, students will review selected grammar points and examine pertinent topics in Roman history and culture. Students who elect to take Latin 4 Honors will read and interpret the Latin texts through the lens of modern scholarship by reading academic articles which pertain to the Latin material and the Roman authors. Students in 4 Honors should have demonstrated mastery in 3 Honors.

#### Prerequisites and Requirements:

**1651 LATIN 3H** (B+); teacher recommendation

core  
course

grades

11

credits

1

homework  
(hrs/week)

1-2

## College Preparatory

### Spanish 3

*1663 Spanish 3*

This course builds on students' foundational knowledge from Spanish 2 and introduces new vocabulary and grammar topics. Students will further develop the four skills of listening, reading, writing and speaking, as well as learn advanced grammar in order to better communicate. To that end, we will read and analyze a variety of authentic written texts and will watch and listen to a broad range of video and audio material. In addition, students will strengthen their writing skills through a variety of written works as well as their speaking skills through paired dialogues, class discussions, presentations and skits. Furthermore, we will explore in depth the rich geography, history, art and culture of the Spanish-speaking world. By the end of the course, students are expected to communicate about real-life topics using different tenses. The proficiency target is intermediate-mid.

#### Prerequisites and Requirements:

**1643 SPANISH 2**

core  
course

grades

11

credits

1

homework  
(hrs/week)

1-2

Honors

## Spanish 3

*1650 Spanish 3H*

This course builds on students' foundational knowledge from Spanish 2 and introduces new vocabulary and grammar topics. Students will further develop the four skills of listening, reading, writing and speaking, as well as learn advanced grammar in order to better communicate. To that end, we will read and analyze a variety of authentic written texts and will watch and listen to a broad range of video and audio material. In addition, students will strengthen their writing skills through a variety of written works as well as their speaking skills through paired dialogues, class discussions, presentations and skits. Furthermore, we will explore in depth the rich geography, history, art and culture of the Spanish-speaking world. By the end of the course, students are expected to communicate about real-life topics using advanced grammar concepts. The proficiency target is intermediate-high. Spanish 3 Honors students should have demonstrated mastery in Spanish 2 Honors, as the course will be conducted at an accelerated pace and almost exclusively in the target language.

**Prerequisites and Requirements:**

**1644 SPANISH 2H** (B+); teacher recommendation

core  
course

grades

12

credits

1

homework  
(hrs/week)

1-2

College Preparatory

## French Film and Culture

*1658 French 4*

This course uses the medium of film to examine a variety of political, historical and social themes from the 19th century until today to explore the essential question "How have the French society and its social values changed throughout the years?" They will learn about the history of cinema and how to analyze film using French vocabulary. They will improve their French listening skills through authentic audio sources and their conversational skills through class discussions, presentations and analysis. The proficiency target is Intermediate-high. Students may also take this course either the same year as AP French or after it.

**Prerequisites and Requirements:**

**1665 FRENCH 3**

core  
course

grades

12

credits

1

homework  
(hrs/week)

1-2

Honors

## French Film and Culture

*1660 French 4H*

This course uses the medium of film to examine a variety of political, historical and social themes from the 19th century until today to explore the essential question "How have the French society and its social values changed throughout the years?" They will learn about the history of cinema and how to analyze film using French vocabulary. They will improve their French listening skills through authentic audio sources and their conversational skills through class discussions, presentations and analysis. The proficiency target is Intermediate-high. Students may also take this course either the same year as AP French or after it.

**Prerequisites and Requirements:**

**1655 FRENCH 3 H** (B+); teacher recommendation

core  
course

grades

12

credits

1

homework  
(hrs/week)

≤ 1

Honors

## Latin 5

*1672 Latin 5 H*

In Latin 5, students will explore various topics in Roman culture and beyond through the lens of the texts that have been handed down over the centuries. Students may explore the Hero's Journey in Ovid's famous Midas and Orpheus myths, the role of women in Roman society through the poetry of Sulpicia, Rome's only known female poet, or the Roman concepts of memory through the memoir of Emperor Augustus himself. At the end of the year, students will explore Latin's life after the fall of Rome and its place in the cultures of Western Europe and Central America.

Students will be taught to focus on comprehending the text, rather than understanding through English translations, and how to appreciate the poetic and rhetorical embellishments of ancient authors.

**Prerequisites and Requirements:**

**1649 LATIN 4** or **1661 LATIN 4H**; teacher recommendation

core  
course

grades

12

credits

1

homework  
(hrs/week)

1-2

### College Preparatory

## Spanish Film and Culture

*1657 Spanish 4*

This course examines a variety of political, historical and social themes from all across the Spanish-speaking world, through the medium of film and the study of various texts such as current events and literary works. Students will learn how to analyze film using Spanish vocabulary. Students will improve their listening, speaking, reading and writing skills through class discussions, presentations, movie analyses and essays. The proficiency target is intermediate-high. Students may also take this course either the same year as AP Spanish or after it.

#### Prerequisites and Requirements:

**1663 SPANISH 3**

core  
course

grades

12

credits

1

homework  
(hrs/week)

### Honors

## Spanish Film and Culture

*1680 Spanish 4H*

This course examines a variety of political, historical and social themes from all across the Spanish-speaking world, through the medium of film and the study of various texts such as current events and literary works. Students will learn how to analyze film using Spanish vocabulary. Students will improve their listening, speaking, reading and writing skills through class discussions, presentations, movie analyses and essays. The proficiency target is Intermediate- high. Spanish 4 Honors students should have demonstrated mastery in Spanish 3 Honors and will be expected to conduct class discussions in the target language and delve more into the texts and audio sources. Students may also take this course either the same year as AP Spanish or after it.

#### Prerequisites and Requirements:

**1650 SPANISH 3H (B+);** teacher recommendation

**AP course****grades**

11–12

**credits**

1

**homework  
(hrs/week)**

4–5

**Advanced Placement****French***1668 AP French*

The Advanced Placement (AP) French Language and Culture course is holistically designed to offer students a proficiency —based, rigorous college-level experience to maximize their potential in interpretive, interpersonal and presentational skills in French. Students will develop listening, speaking, reading, and writing skills embedded in culturally authentic contexts. They will also improve their language control, while they build a rich vocabulary and communication strategies. In order to connect the course with the ACTFL Standards for Foreign Language Learning in the 21st century, students will be expected to communicate entirely in the target language as they compare and contrast Francophone cultures with their personal communities, and connect their studies with other disciplines in their high school curriculum. The proficiency target is advanced-low. This is based on student interest and teacher availability.

**Prerequisites and Requirements:****1655 FRENCH 3 H** (B+); teacher recommendation**AP course****grades**

12

**credits**

1

**homework  
(hrs/week)**

4–5

**Advanced Placement****Latin***1667 AP Latin*

AP Latin is both a language and a literature course. In preparation for the AP Latin exam, students will read and translate substantial Latin selections from Vergil's Aeneid and Caesar's De Bello Gallico. In addition to completing literal translations of the Latin texts, students will discuss, analyze, and interpret each text as works of literature within specific historical and cultural contexts. The course will also prepare students to recognize and discuss critically the imagery, figures of speech, and grammar in each work. Students are also responsible for reading specific selections in translation. Students who elect to take AP Latin will cultivate a true mastery of the language, culture, history, and art of ancient Rome.

**Prerequisites and Requirements:****1661 LATIN 4H** (B+); teacher recommendation

**AP course**

**grades**

11-12

**credits**

1

**homework  
(hrs/week)**

4-5

**Advanced Placement**

## **Spanish**

*1666 AP Spanish*

This course is conducted entirely in Spanish! It is intended for students to reach advanced-low proficiency and prepare them for the AP Spanish Exam. The course is designed to build on the students' proficiency through a series of critical thinking activities touching upon the five world-wide themes of Global Challenges, Families and Communities, Beauty, Science and Technology, and Identities. These themes will lead them to apply their writing, speaking, listening and reading skills via a variety of authentic resources such as websites, music, podcasts, audio lectures, and film. The standards that will be assessed in the AP exam are Interpersonal Speaking (conversation); Presentational Speaking (cultural comparison); Interpersonal Writing (email reply) and Presentational Writing (Persuasive essay). By the end of the course, students will be able to express themselves well orally and in writing, understand the spoken language and have acquired advanced-low proficiency through performance.

**Prerequisites and Requirements:**

**1650 SPANISH 3H** (B+); teacher recommendation

# Department of Fine Arts

Graduation Requirement *1 credit*

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All art electives will be offered based upon student popularity and teacher availability.

**Teacher recommendation is required for the Advanced Placement course.**

**elective**

**grades**

9–12

**credits**

0.5

**homework  
(hrs/week)**

≤ 1

## 3-Dimensional Art

*1446 3D Art*

In this class you will be challenged to build hands-on sculptures, problem solve in very unique building situations, and tasked to complete projects in a timely manner. We will explore sculptural issues and 3D design principles as they relate to the integration of depth and space, volume and surface. The variety of materials that will be used consist of paper, wire, plaster, styrofoam, wood, and clay to create 3D forms. This is a class for builders and students who like to think creatively. It will ask you to solve construction problems and focus on the traditional artistic aspects of your projects; it is equal parts design and construction. We will be looking at several popular art movements throughout history including Futurism (1909–1914), Constructivism (1914–1932), Assemblage Art (1953), and Pop Art (1958–70).

**Prerequisites and Requirements:**

elective

grades

9–12

credits

0.5

homework  
(hrs/week)

## Chorus

*1478 Chorus*

Chorus is a performance-based elective focused on developing students' singing abilities. The course is designed to help students sing in harmony as part of a high school vocal ensemble. Throughout the year, vocal techniques are developed, including breath control, diction, posture, and intonation. Emphasis is also placed on improving musical literacy and sight singing. Students will study and perform music from a wide range of musical styles, encompassing a variety of periods of music history and many cultures from around the globe. Students will develop skills such as singing in unison, rounds, and in mixed-voice arrangements, including 2-, 3-, and 4-part harmony. Performances are an integral component of this course and students are required to participate as part of their commitment to this group and part of their evaluation. These performances will occur outside of regular school hours. It is possible to take chorus if you have taken it in the past and have it fulfill your fine arts requirement each time.

**Prerequisites and Requirements:**

elective

grades

9–12

credits

0.5

homework  
(hrs/week)

1

## Drawing and Painting

*1477 Draw/Paint*

Students will work with the basics of Landscape, Still Life, Figure, and Portraiture Drawing and Painting. Students will practice each of these four categories in a variety of media ranging from pencil, charcoal, water color, acrylic paint, and pastels, to name a few. Students will be introduced to the concepts through examples of artwork by famous artists. The examples will serve to inspire and provide tips. Students will work on exercises that reinforce concepts and will complete a culminating piece of artwork for each of the disciplines. Other art skills that will be touched upon are presentation skills, design skills, critique skills and the creation of art Portfolios. This course is a prerequisite for AP Art.

**Prerequisites and Requirements:**

elective

grades

9–12

credits

0.5

homework

(hrs/week)

≤ 1

## Myth in Art

1449 MythInArt

This is a studio/art history class which will focus on the way that one culture interprets, appropriates, and repurposes the beliefs and traditional tales of another society. Artists have continuously retold stories across all forms of culture- from poems to plays, opera to pop songs, and ancient paintings to video art. The stories are filled with drama, but are as relevant to aspects of the human condition as ever. In this class, we will explore the myths of world cultures and create our own responses, reimagining and retelling them in our own artwork. We will look at Indian, Native American, Norse, and Japanese myth, as well as classical Greek and Roman. Projects will include creating a short graphic novel telling the story of a mythological hero, such as comic books about superheroes.

**Prerequisites and Requirements:**

elective

grades

9–12

credits

0.5

homework

(hrs/week)

≤ 1

## Printmaking

1445 Printmakin

The printmaking elective is focused on developing an understanding of and appreciation for the art and history of printmaking. This course covers the origin of printmaking, its evolution throughout history, and the cultural influences that altered the various types of media used by artists. Students will learn a variety of different printmaking techniques, including linocut, reductive linocut, radial prints, monoprinting, collagraphs and more. Students build upon what they learned in their previous art courses to create complex and thoughtful prints in a medium they are previously unfamiliar with, furthering their understanding of the essential question: "What is art?" They are challenged to think about art and critique their classmates' work, as well as their own. Throughout the course, students make connections with various time periods and styles of prints and relate this material to what they are learning and have learned in other courses.

**Prerequisites and Requirements:**

elective

grades

10-12

credits

0.5

homework

(hrs/week)

1

## Yearbook

*1490 Yearbook*

This collaborative teacher/student-directed course gives students valuable experience in print communications. Students learn the skills needed to produce a publication including, but not limited to, photography, interviewing, writing, editing, and design. Students also learn practical skills in time management, marketing, teamwork, and note taking. The ability to complete tasks such as photo assignments, layouts, and write-ups before the deadline with minimal supervision is stressed. Deadlines often require students to work after school and on weekends. Students accomplish the impressive feat of creating and publishing all aspects of the AMSA yearbook! This course will not fulfill your fine arts requirement.

### Prerequisites and Requirements:

Application (only appointed editors may repeat the course)

AP course

grades

11-12

credits

1

homework

(hrs/week)

7-10

## Advanced Placement

### Studio Art

*1479 AP Art*

The AP Art and Design program includes three different courses and portfolio exams: AP 2-D Art and Design, AP 3-D Art and Design, and AP Drawing. Your goal is to create a portfolio of college-level work and submit it for evaluation. All three AP Art and Design Portfolio exams contain two sections. The Sustained Investigation section requires you to conduct an inquiry-guided investigation through practice, experimentation, and revision. For the Selected Works section, work is expected to demonstrate skillful synthesis of materials, processes, and ideas. By the culmination of the course, students will need to create a total of 20 pieces (15 of Sustained Investigation and 5 Selected Works) for portfolio submission to the AP College Board.

### Prerequisites and Requirements:

AP application form; interview; portfolio of 5-10 original works; **1477 DRAW/PAINT (A-)**; one other art course (excluding **1478 CHORUS** and **1490 YEARBOOK**);

elective

grades

11-12

credits

0.5

homework

(hrs/week)

≤ 1

## Digital Animation

1440 DigitalAni

Digital photography, graphic design, animation, and video are the key curricula that will be covered. The course will review the history of photography and the rules of composition. Graphic design will be covered to understand photoshop, editing, and the six types of lighting techniques in portrait photography. Students will be trained in the animation software Adobe After Effects. These units cover: Stop Motion, Claymation, and Filmmaking. Animation and video production will bring the entire class together to create a feature length film, focusing on characters and story development that the class has developed. By the end of the course, students will have a portfolio that consists of: Photography, Graphic Design, Animation, Stop Motion, Claymation, and Filmmaking.

In order to get into this class, you must submit a digital portfolio to the Google Classroom: "Digital Animation Portfolio Submission Form" (class code: 43kvjeo). Details on what is required to complete your application will be found in the classroom submission form.

### Prerequisites and Requirements:

Application; handheld device for pictures; digital portfolio; **1934 WEB DESIGN** or **1932 INTRO JAVA** or **1944 INT CAD**

Department of

# Physical Education and Health

**Graduation Requirement** 4 years (1.75 credits)

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The Wellness Department here at AMSA Charter School offers a challenging and encompassing Sport Education curriculum in physical education and a comprehensive curriculum in health education that focuses on building our students skills to make healthy choices throughout life. These curriculums are in line with Massachusetts state physical education and health education standards. Our students take physical education in grades 6-12, and health education in grades 6th, 8th and 10th. Our health education program is taught for an entire semester here at AMSA, this is to help ensure that students are building on skills throughout the semester and to ensure that we can teach every aspect we feel that students need to be exposed to. Our goal in physical education is to give students a physical outlet to explore and learn about how their bodies move as well as a global experience in many different sports and games that come from different cultures and backgrounds to promote multiculturalism, team-work and positive self-image. We are hoping students find at least one activity that they enjoy, to help keep them active for their entire life and build the skills necessary to maintain a healthy lifestyle as they move on from AMSA.

**core  
course**

**grades**  
9, 11

**credits**  
0.5

**homework  
(hrs/week)**

## Physical Education

1731 P.E. 11/9

The high school physical education program at AMSA is designed to give students the opportunity to learn through a comprehensive Kinesiology and Physical Education program in accordance with the MA frameworks for Physical Education. Students will be empowered to make healthy choices, meet challenges and develop positive behaviors in fitness, wellness and movement activity for a lifetime. Emphasis is placed on analyzing skills for effective movement. Units of instruction include: fitness (including fitness technology), individual and dual activities, rhythms/dance and project adventure.

**Prerequisites and Requirements:**

core  
course

grades  
10

credits  
0.5

homework  
(hrs/week)

## Health & Wellness

1772 HlthWlns10

The high school physical education program at AMSA is designed to give students the opportunity to learn through a comprehensive Kinesiology and Physical Education program in accordance with the MA frameworks for Physical Education. Students will be empowered to make healthy choices, meet challenges and develop positive behaviors in fitness, wellness and movement activity for a lifetime. Emphasis is placed on students analyzing skills for effective movement. Units of instruction include: fitness (including fitness technology), individual and dual activities, rhythms/dance and project adventure.

**Prerequisites and Requirements:**

core  
course

grades  
12

credits  
0.25

homework  
(hrs/week)

## Health & Wellness

1773 HlthWlns12

The senior physical education program at AMSA is designed to give students the opportunity to put to use all the skills, gross and fine motor that they have learned previously throughout their time here in the wellness program. Seniors this year will be taught even more in depth skills surrounding personal health, fitness and life skills than in previous years, preparing them for life outside of AMSA.

**Prerequisites and Requirements:**

# Special Courses

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**elective**

**grades**

11-12

**credits**

0.5

**homework  
(hrs/week)**

## **Business Leadership**

*1804 BusiLeader*

The Business Leadership course will cover topics such as:

- Career exploration
- Preparing resumes and cover letters
- Interviewing skills (with mock interviews as part of the unit)
- How to succeed and advance in your career field
- How to lead others
  - Leadership styles
  - Communication skills
  - Missions, visions, and core values
  - Conflict resolution
  - Implementing change

Students will present on topics, engage in discussion, and take part in independent and small-group work activities.

The Business Leadership course intends to feature some guest appearances of local leaders to discuss the areas of career exploration, search, advancement, and leadership. Students interested in learning how to succeed in the workplace of the modern world are encouraged to enroll in this course.

**Prerequisites and Requirements:**

elective

grades

9–12

credits

homework  
(hrs/week)

## Academic Lab

*1308 Academic Lab*

The Special Education department provides services to students who qualify under federal and state laws. After a referral is made and an evaluation completed, an Individualized Education Plan (IEP) is written, and appropriate services are delivered. Utilizing a combination of personnel, the department offers a range of supports to assist students in accessing the curriculum in an inclusive model. The services include supported classrooms, related services, and direct skill remediation in an Academic Lab.

The goals of the Academic Lab are:

- To remediate areas of weakness
- To develop areas of strength
- To support regular classroom curricula
- To develop study and organizational skills
- To correlate regular class goals with special education goals
- To facilitate communication with parents
- To facilitate communication within the school
- To provide up-to-date assessment results
- To encourage students to reach their highest potential
- To support and facilitate student growth to promote greater independence

**Prerequisites and Requirements:**

core  
course

## English Language Learners

9998 ELL

grades  
9–12

ELL (English Language Learners) class is reserved for students who are determined to need support in at least one of the four language domains of English: these are reading, writing, listening and speaking. These needs may be in either or both conversational and/or academic ELL language needs.

credits

homework  
(hrs/week)

ELL is a highly supportive and adaptive class, which builds upon the skills of the students currently enrolled. Topics cover a variety of high interest student-centered focuses to build up these multiple language domains, and additionally, reiterates topics and language covered in grade specific mainstream classes.

AMSA's ELL program follows WiDA standards in the creation of its core curriculum.

ELL class focuses on two main parts:

1. foundational English language skills
2. language support with mainstream content

**Prerequisites and Requirements:**

Qualification based on WiDA screener/ACCESS

core  
course

## Reading Support

9999 Reading

grades  
9–12

AMSA provides extra reading support for students who are reading below their actual grade level. Placement in reading class is based on entering students' results on a reading assessment.

credits

homework  
(hrs/week)

Research has shown that middle and high school students who are reading below grade level typically require extra support in the areas of reading fluency, vocabulary, and comprehension. Some students also require help with decoding issues such as higher-order phonics; and most students benefit from learning strategies to tackle unfamiliar multisyllabic words.

Through a diverse range of texts, students learn and practice reading skills and metacognitive (good-reader) strategies that develop active and proficient reading in and out of school. Students will increase overall reading time in class and for homework assignments and build critical reading competence by applying taught strategies that advance fluency, vocabulary, and comprehension.

**Prerequisites and Requirements:**

Qualification based on Lexia assessment

elective

grades

9–12

credits

homework  
(hrs/week)

## Upper School Study Hall

*1001 US StdHall*

Monitored quiet time where students can work on their homework, projects and other academics.

**Prerequisites and Requirements:**