

UPPER SCHOOL  
**CURRICULUM  
GUIDE**



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# OVERVIEW

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The Upper School Curriculum Guide is a broad schematic for learning. The school sets a course of study that promotes individual curiosity and planned intellectual development, one that fosters creativity, critical thought, and personal growth through risk and challenge. Our first objective is to prepare students for the future, with a foundational readiness for college and essential skills for modern professional life.

Our students achieve academic excellence and demonstrate intellectual gifts in many forms. We offer options for advanced learning and accelerated curricula, both within and beyond the classroom walls. But we also note that all curriculum is advanced. Our core courses are master narratives in the Liberal Arts: English, History, Mathematics, and Science. Our expectation is that students learn to read, write, analyze, and quantify with purpose, focus, and clarity.

## UPPER SCHOOL DEANS

In close conversation with advisees and families, Upper School Deans plan the course-of-study. This curriculum guide is a good explication and description of our offerings, but it should only be used in conjunction with consulting Deans.

## POLY'S ADVANCED PLACEMENT (AP) PROGRAM

Advanced Placement has a long history at the school dating back to the early 1970s. Each year approximately 350 exams are administered to over 170 juniors and seniors. Approximately 70 percent of the senior class will sit for at least one AP exam by the time of graduation. The school policy—in keeping with commitments to the College Board—is that students who are enrolled in AP courses must sit for the annual May exam. And conversely, students may not sit for exams where they have not been enrolled in the relevant course.

As prerequisite to AP study, which typically occurs only in grades 11 and 12, the school offers advanced courses in Classics, Math, Science, and World Languages. The Deans are conduits for the various paths toward placement in these courses.

## DEPARTMENTAL ELECTIVES PROGRAM

In providing more advanced learning options to match varied intellectual passions and interests, the school promotes its elective offerings. In English, students can select early on a creative writing elective followed in senior year by a full range of genre-themed studies. In History, there are courses covering a breadth of modern historical and political topics; in Mathematics, Discrete Math and Statistics are available; in Science, students choose from a range that extends to modern forensics, genetics, and environmental science; and outside of the core departments electives appear in Art, Computer Science, Psychology, and Economics.

## SCIENCE RESEARCH PROGRAM

Science Research is a three-year-program beginning sophomore year, which introduces students to the demands and satisfactions of rigorous scientific experimentation. Students develop a protocol for research through investigation of scientific journal articles in their area of interest, their own creativity and ingenuity, and, in some cases, collaboration with an outside mentor or professional scientist. Students from this program compete in regional and national competitions, such as the New York City Science and Engineering Fair and the Intel contest.

## INDEPENDENT STUDY

Independent study options enable students to explore in much greater depth an area of study, discipline, subject, or specific topic not offered in the formal curriculum. Working with a faculty advisor, students undertake research that is completed outside the traditional classroom.

# GRADUATION REQUIREMENTS



A minimum 5 academic courses are required for each semester. A total of 21 academic credits are required for graduation. Full-year courses earn 1.0 credit; semester-long courses earn 0.5 credit.

- 4 years of English
- 3 years of History
- 3 years of Mathematics
- 3 years of Science
- 3 years of World Languages or Classics (with Level III completion)
- 4 years of Physical Education
- 4 semesters of Arts
- 2 semesters of Health
- 2 semesters of Non-Departmental Courses (Communications/Information Technology)
- Senior Plan

# DEPARTMENT CORE REQUIREMENTS



- **Arts:** Foundations, Music, and Electives  
*1.0 credit of Arts is waived with 2-year participation in non-credit bearing activities: Band, Choir, Strings, Dance, or Chamber Music*
- **English:** Literary Awakening, Voices of Modernity, American Literature, Senior Seminar and Electives or AP English  
*Students are enrolled in English every term 9th through 12th grade*
- **History:** Foundations of the Modern World, 20<sup>th</sup>-Century World History, and United States History
- **Languages:** 3 years of World Languages or Classics, with Level III completion
- **Mathematics:** Geometry, Algebra II, and Precalculus
- **Physical Education:** 4 years of personal fitness classes or team sport participation
- **Science:** Biology and Chemistry

# POLY'S CURRICULUM BY DISCIPLINE

## UPPER SCHOOL PROGRAM SEQUENCE

	GRADE 9	GRADE 10	GRADE 11	GRADE 12
<b>ENGLISH</b>	Literary Awakenings	World Voices Electives	AP English Language The American Experience Electives	AP English Literature Senior Seminar Electives
<b>HISTORY</b>	Foundations of the Modern World	Histories of the Contemporary World	AP United States History Unites States History: Settlement to Present Electives	AP European History AP Government & Politics Electives
<b>MATH</b>	Advanced Geometry Geometry Math Lab	Advanced Math 10 (Precalculus) Algebra II Discrete Math Math Lab	Advanced Math 11 (AP Calculus AB) AP Statistics Precalculus Precalculus Pt. 1 Statistics Discrete Math	Advanced Math 12 (AP Calculus BC) AP Calculus AB AP Statistics Calculus Precalculus Pt. 2 Statistics Discrete Math
<b>SCIENCE</b>	Advanced Chemistry (Honors) Biology	AP Biology (Honors) Chemistry Research Course	AP Physics 1 AP Biology AP Chemistry Physics Electives Research Course	AP Physics 1 AP Physics 2 AP Chemistry AP Biology Electives
<b>CLASSICS</b>	*Latin I-III	*Latin II-III	AP Latin Literature *Latin III-IV	AP Latin Literature Advanced Latin IV Latin IV Latin IVB
<b>WORLD LANGUAGES</b>	*French I-III *Mandarin I-III *Spanish I-III	*French II-III *Mandarin II-III *Spanish II-III	*French III-IV *Mandarin III-IV *Spanish III-IV	AP Chinese AP French AP Spanish AP Spanish Literature French Literature French IV-V Mandarin III-V Spanish IV-V Italian I

*\*With Advanced Sections and AP Coursework for Qualified Students*

<b>COMPUTER SCIENCE</b>	Computer Science Intro. Programming Intro.	Computer Science Intro. Digital Life Skills Game Design Programming Intro.	AP Computer Science AP CS Principles Digital Life Skills Game Design Programming Intro.	AP Computer Science AP CS Principles Advanced CS Applications
<b>PERFORMING ARTS</b>	Band Concert Choir Dance Jazz Band String Ensemble Electives	Band Concert Choir Dance Jazz Band String Ensemble Electives	Band Concert Choir Dance Jazz Band String Ensemble Electives	Band Concert Choir Dance Jazz Band String Ensemble Electives
<b>VISUAL ARTS</b>	Art Foundations Electives	Advanced Drawing Advanced Painting Electives	AP Music Theory AP Art History Advanced Painting Advanced Drawing Electives	AP Music Theory AP Art History Advanced Painting Advanced Drawing Electives
<b>HEALTH</b>	Health	Health		Health Internship
<b>PHYSICAL EDUCATION</b>	Personal Fitness Electives	Personal Fitness Electives	Personal Fitness Electives	Personal Fitness Electives

**ELECTIVE OFFERINGS BY DEPARTMENT**  
*EXCLUSIVE OF THOSE NOTED ABOVE*

<b>ENGLISH</b>	African-American Literature, Creative Writing, Gender Studies, Gods & Monsters, Literature to Film, Magical Realism, Men, Women, & Weapons, Modern Novel, Page to Stage, Philosophy (An Introduction), Shakespeare
<b>HISTORY</b>	American Law, History of News, Indigenous Histories, International Relations, Latin American History, Migrations, Modern Middle East, New York City History, Political Philosophy, Southeast Asia History, Women's History
<b>SCIENCE</b>	Anatomy & Physiology, Engineering Design, Epidemiology, Forensics, Geology, Science of Identity, Sustainable Systems
<b>SOCIAL SCIENCE</b>	AP Psychology, Economics, Philosophy (An Introduction), Psychology (An Introduction)
<b>ARTS: PERFORMING &amp; VISUAL</b>	Advanced Acting, Advanced Dance, Art & Social Change, Ceramics, Debate, Film, Music Studies, Painting, Scientific Illustration, Speech, Stagecraft & Set Design <i>Performance ensembles have advanced track options</i>
<b>PHYSICAL EDUCATION</b>	Athletic Conditioning, Kickboxing, Lifeguarding, Swimming, Strength-Training
<b>WORLD LANGUAGES</b>	French Literature, Italian I

## ADVANCED COURSE TRAJECTIONS

	GRADE 9	GRADE 10	GRADE 11	GRADE 12	
<b>ENGLISH: 2-YEAR ADVANCED</b>			AP English Language and Composition	AP English Literature and Composition	
<b>HISTORY: 2-YEAR ADVANCED</b>			AP United States History	AP European History AP U.S. Govt. & Politics	
<b>MATH: 4-YEAR ADVANCED</b>	Advanced Geometry	Advanced Math 10 (Precalculus)	Advanced Math 11 (AP AB Calculus)	Advanced Math 12 (AP BC Calculus) AP AB Calculus	AP Statistics (Dual Math Placement)
<b>SCIENCE: 4-YEAR ADVANCED</b>	Advanced Chemistry (Honors 9)	AP Biology (Honors 10)	AP Physics 1 AP Biology	AP Chemistry AP Physics 2 AP Biology	
<b>LANGUAGES: 4-YEAR ADVANCED</b>	Advanced Latin II	Advanced Latin III	Advanced Latin IV AP Latin	AP Latin	
	Advanced Spanish II	Advanced Spanish III	Advanced Spanish IV AP Spanish Language	AP Spanish Literature AP Spanish Language	
	Advanced French II	Advanced French III	Advanced French IV AP French Language	Advanced Topics in French Literature	
			AP Chinese Language and Culture	AP Chinese Language and Culture	
<b>COMPUTER SCIENCE: 2-YEAR ADVANCED</b>			AP Computer Science A AP Computer Science Principles	AP Computer Science A AP Computer Science Principles	
<b>ART</b>			AP Art History AP Music Theory	AP Art History AP Music Theory	Studio Art
<b>SOCIAL SCIENCE</b>			AP Psychology	AP Psychology	

# CLASSICS

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## **Latin I**

**Grade:** 9

**Term Length:** 2

**Credit:** 1

The curriculum includes all the materials and skills taught in the Latin A/B sequence (using *Ecce Romani*, Book I). The emphasis is on understanding the structure of the language, building vocabulary in Latin and English, and gaining facility in translation. Roman culture and history are examined. Politics, religion, and the literature of the Late Republic and Early Empire are topics of reading and discussion.

## **Latin II / Advanced Latin II**

**Grades:** 9, 10

**Term Length:** 2

**Credit:** 1

Working with Book II of the *Ecce Romani* series, students learn the use of the pronominal system, fourth and fifth declension nouns, passive verb forms, and the ablative absolute. Students investigate some aspect of Roman culture or literature more closely through a project, such as a class presentation on a Horatian ode in the spring semester. Latin IIA, for which the prerequisite is approval by the department, covers the same ground as Latin II, but at a faster pace. It aims at a greater variety of readings, including close analysis of original poetry.

**Prerequisite:** Latin I or prior Middle School level I

**Note:** Department approval

## **Latin III and Advanced Latin III**

**Grades:** 10, 11, 12

**Term Length:** 2

**Credit:** 1

In the first semester of Latin III, students master the remaining topics in Latin grammar, including indirect discourse, conditional sentences, impersonal constructions, and gerunds. Thereafter, students read excerpts first adapted and then unadapted from the standard Latin classics: Cicero, Ovid, Catullus, Horace, and Virgil. Students independently present projects that illustrate literary, political, and social life in the age of Cicero or Augustus. In Advanced Latin III, which is structured as a rigorous preparation for AP Latin, the grammar sequence is completed early in the year, and much of the spring semester is given over to reading in the original. Advanced Latin III, for which the prerequisite is approval by the department, covers the same ground as Latin III, but at a faster pace. It aims at a greater variety of readings, including close analysis of original poetry and prose, and the study of metrics, rhetorical figures, and literary allusions.

**Prerequisite:** Advanced Latin II, Latin II

**Note:** Department approval

## **Advanced Latin IV**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 1

This course is intended for students who wish to pursue the study of Latin beyond the formal completion of the grammar sequence. In part, it is a course intended to prepare students for AP Latin, and, as such, a full review of grammar is incorporated at the outset. The course features poetry and prose in alternating years. The main fabric of this course consists of readings in the original (Cicero, Livy, Pliny, and Eutropius in the prose-based year; Catullus, Horace, Ovid, and Virgil in the poetry-based year). Topics routinely covered are: Roman religion, politics, and history; the cultural influence of Greece over Rome; class conflict; and the interaction of Rome and North Africa.

**Prerequisite:** Advanced Latin III

**Note:** Department approval

# CLASSICS



## **Latin IVB: Life of Ovid Latin IVB: Roman Civic Ideals**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

Each of these courses is a yearlong cultural study and they are offered independently of one another. The readings are largely in English, with important sections considered closely in the original Latin. Students write essays and do research on topics presented in class. The first course focuses on the life and writings of Ovid, with special attention to the political climate of Augustan Rome; the second is a historical survey of the ideas and ideals of citizenship, covering all of classical antiquity from Homer to Augustine. These Latin IV courses are intended for students who wish to continue the study of Latin on a non-AP track.

Prerequisite: Latin III

Note: Department approval

## **AP Latin**

**Grades:** 10, 11, 12

**Term Length:** 2

**Credit:** 1

This course is dedicated to reading significant portions of Caesar's *Gallic Wars* and Virgil's *Aeneid* in the original Latin. The focus is on comprehension of the text and on rhetoric and metrics. Students learn to appreciate political and historical references in the readings. Topics for discussion and for student essays include: Roman imperialism and Roman notions of piety, the interplay between the iconography of Cleopatra and Virgil's Dido (as well as the modern interpretations of these figures), and the influence of Stoic and Epicurean philosophy on these two authors.

Prerequisite: Advanced Latin III or IV

Note: Department approval

# ENGLISH

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## **English 9: Literary Awakenings**

**Grade: 9**

**Term Length: 2**

**Credit: 1**

Seeking the universal in the specific, 9th graders dive into stories of multiple genres and lengths to connect writers' singular visions to a shared human experience. In the fall, we explore the self and its multiple, contradictory, sometimes warring facets. In the spring, we grapple with the confrontation of self and world, and the struggle to assert individual goals, values, and dreams in the face of society and nature. With all its vast potential and severe limitations, the environment we navigate can be uncomprehending, indifferent, or even hostile, much as it may also astound and delight us. In this introduction to Upper School English, students develop reading, writing, and critical thinking skills while studying a selection of both classic and modern texts in a variety of genres. Diverse literature from writers such as Barbara Kingsolver, Jon Krakauer, William Shakespeare, and Robert Louis Stevenson pushes students to discover, name, and discuss how themes both reflect and transcend time, place, and culture. Ninth graders might find themselves looking at artifacts to recreate the world of Henry Jekyll in 19th-century London, composing an essay examining imagery and metaphor in a Walt Whitman poem, or creating visual and verbal elements of a proposal to adapt a novel to film. Teaching toward a process of writing is also fundamental to this course. As students draft, workshop, and revise, they become confident academic writers, questioning and analyzing literature closely while honing their unique voices as writers.

Note: Required in Grade 9

## **English 10: World Voices**

**Grade: 10**

**Term Length: 2**

**Credit: 1**

World Voices is devoted to exploring literary perspectives from around the world. The course aims to expose students to a variety of vantage points from which Americans living in the early 21st century may better examine their assumptions about gender roles, political power, racial identity, and the significance of literature in our world. The heart of the course, which is run as a seminar, is the close reading of works from around the globe. The reading list includes writers such as Adiche, Camus, Garcia Marquez, Ibsen, Kafka, Kincaid, and Shakespeare, as well as a wide assortment of canonical and contemporary poets. To improve their critical abilities and presentation skills, students will participate in discussions about specific passages, characters, symbols, and themes, always grounding their broader interpretations of literature in specific references to the texts. Writing analytical paragraphs, essays, short stories, and poems will afford students chances not only to explore their own creative ideas, but also to appreciate the artistic achievements of the featured authors. Because effective writing demands a strong diction and a command of language, the course also endeavors to expand students' working vocabulary and their understanding of grammar. Ideally, students will leave this class with improved reading skills and greater confidence in their writing, ready for the challenges of the upper level English courses.

Note: Required in Grade 10

## **English 11: The American Experience**

**Grade: 11**

**Term Length: 2**

**Credit: 1**

To be good citizens and participate fully in the great process we call democracy, we must understand the nation of which we are citizens, with all of its glory and flaws. In junior year, on the cusp of acquiring the right to vote and shape our nation's future, it is imperative that our students learn the culture and history that shaped our past and informs our present. The pulse of the American Dream that we find beating in the pages of *The Great Gatsby* and *Goodbye, Columbus*; the ache of righteous protest and social disturbance that strafe *The Crucible* and *Narrative of the Life of Frederick Douglass, an American Slave*; even the rumble of change that shakes the lives in *Sula* and *Cat on a Hot Tin Roof* inform the way we make sense of the United States' history through the literature it has shaped. We read to learn what underpins the country's greatest impulses and heartaches. By contrast, we write

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to make an impact on today. Our work on analysis and critical thinking is all in the service of crafting vital, dynamic prose that might shake loose the old chains and urge forward a better tomorrow. English 11 aims to create thinkers, readers, and writers who have a nuanced grasp of the great experiment called the United States of America.

Note: Required in Grade 11

## **English 12: Senior Seminar**

**Grade: 12**

**Term Length: 1**

**Credit: 0.5**

This senior writing course focuses on creative nonfiction. In his description of the genre, Lee Gutkind writes, “In some ways, creative nonfiction is like jazz: it’s a rich mix of flavors, ideas, and techniques, some of which are newly invented and others as old as writing itself. Creative nonfiction can be an essay, a journal article, a research paper, a memoir, or a poem; it can be personal or not, or it can be all of these.” With this description for inspiration, students write and revise various essays in many different modes (narrative, descriptive, argumentative, and analytical). Essayists such as Annie Dillard, E.B. White, Joan Didion, Alice Walker, Brent Staples, Edward Abbey, and Andre Aciman provide models for students to gain insight and inspiration for their work. An integral component to the class involves the “seminar” aspect of the course. The workshop model actively engages writers in the act of making and receiving feedback and constructive criticism from their peers. Students discuss what “works” in a piece of writing, and what could “work better,” gaining new perspectives and seeing that there are many ways to write powerfully and movingly. Students often find a kindred spirit or a perceptive critic in a classmate; these writing partnerships generate profound growth. Students maintain a portfolio throughout the semester, engaging in self-analysis with each piece. Whether they are describing a place dear to their hearts, chronicling an exciting experience, or profiling someone new in their lives, students understand themselves more deeply and strengthen their writing voices with each piece.

Note: Required in Grade 12, except for those enrolled in AP English Literature

## **AP English Language and Composition**

**Grade: 11**

**Term Length: 2**

**Credit: 1**

In AP English Language and Composition we examine the art of rhetoric: how a speech can embolden us to act; how an essay can move us from interest to ardor in a matter of paragraphs; how a few carefully crafted sentences can engender profound empathy. With writers such as Ralph Waldo Emerson, George Orwell, Martin Luther King Jr., Toni Morrison, Annie Dillard, and Francine Prose as our teachers, we are surrounded by voices that sing from the page and offer us the opportunity to luxuriate in the richness of the English language. But images, too, are created with rhetorical purpose, and to that end we make a study of political cartoons, advertisements, and documentary films. These media offer new questions for us to consider. When does a cartoon step over the line? What makes a magazine ad enticing? Can a documentary ever be unbiased? We view the world with a critical eye, seeing every television commercial, political speech, and op-ed piece more sharply. We engage actively in the writing process with the regular writing and revision of analytical and reflective drafts. We examine how structure, language, and style enhance authorial purpose and convey meaning. In her Nobel lecture, Toni Morrison stated, “Word-work is sublime because it is generative; it makes meaning that secures our difference, our human difference—the way in which we are like no other life.” And so, we engage in the art of “word-work” each day.

Note: Department approval and placement essay

## **AP English Literature**

**Grade: 11**

**Term Length: 2**

**Credit: 1**

“As we tell stories about the lives of others, we learn how to imagine what another creature might feel in response to various events. At the same time, we identify with the other creature and learn something about ourselves,” writes the American

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philosopher, Martha Nussbaum. Memorable and meaningful works of literature delight and inspire us. They invite us to explore worlds both familiar and unfamiliar. They also challenge us with difficult questions. How do we find meaning in the face of a finite existence? Why must we suffer? How can we rise above our limitations? Where do we find joy? When we read Euripides' *Medea* or Shaffer's *Equus*, we confront madness. Shakespeare's *King Lear* and Morrison's *Beloved* speak to us of profound cruelty and loss. But all is not tragic. Offred in *The Handmaid's Tale* and John Grady in *All the Pretty Horses* show us unwavering courage and hope. We learn to celebrate the seemingly small moments in our lives as Joyce's *Dubliners* do. With each of these texts we return to our central question: What does it mean to be human? Our writing is shaped by our conversations and meditations on these texts. Literary analysis is our primary writing focus, and students hone their critical thinking skills as they examine texts closely. Literary analysis allows us to contextualize such seemingly unwieldy questions; in anchoring our interpretations to the text, we express an understanding of a particular work in a particular era with a particular viewpoint. Other forms of writing allow us to reflect upon these viewpoints and compare them to others. In all our writing, we develop our individual voices and gain sophistication and fluency.

Note: Department approval and placement essay

## **Creative Writing Workshop**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

To live the life of a writer is to live with your ears and your eyes open, attuned to the music of strangers' conversations and the beauty of both the commonplace and the unusual. To live the life of a writer is to carry snippets of stories and poems in one's head, compelled to bring these musings and observations to life on the page. In this course, students study the craft of good storytelling and poetry, practicing what they have learned from contemporary masters of the genres. The workshop structure of the course allows students to receive continual feedback in order to develop polished work ready for publication. Although some pieces are likely never truly "done," with each new draft a work moves closer to the writer's vision. Throughout the term, students enter writing contests and participate in both class and public readings of their work. Anaïs Nin states, "We write to taste life twice, in the moment, and in retrospection... We write to be able to transcend our life, to reach beyond it. We write to teach ourselves to speak with others, to record the journey into the labyrinth." We invite all students to write their stories.

## **From Page to Stage**

**Grades:** 9, 10, 11

**Term Length:** 1

**Credit:** 0.5

When we write essays for English class, what is it we're actually doing? And why is it that we do it? While some may find it tortuous, and others, exhilarating, it's important for us, as students of English literature, to understand what literary criticism is: how we do it, why we do it, and what we do with it. In this class, we will read one central text, which we will break down through careful analysis, conversation, and comparison to other "texts" (music, TV shows, documentaries, memes, TED talks, other literary criticism). Then, we will bring our understandings to life in an original, devised performance piece, which we will share publicly with the Poly community. In the process of building our performance piece, we'll work with a series of guest artists who will help build performance skills and expose us to different means of expression (dance, music, puppetry, etc.). The goal is to perform our criticism of the central texts, as well as to write about them, and then identify ways in which we can use this messy, fun, experimental process to inform our essay writing in the future. This class is not just for those interested in theatre, nor is it just for those who find themselves particularly adept at literary criticism; this is a class for anyone who wishes to hone their skills as collaborators, creators, and experimenters.

Note: Elective only open to Grades 9, 10, and 11

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## **African American Literature**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

While African-American literature offers a unique insight into the country's values and moral strivings, the writing itself possesses a "two-toned" heritage that gestures both toward the Western canon and the "semantic freeplay" of the Black vernacular tradition. In this course we chart the evolution of this Afro-traditional aesthetic and the literary attempt to redefine, restructure and re-imagine the meaning of Blackness in western culture. We explore the specific tropes unique to African-American literature: descent underground, vertical ascent from South to North, "myriad figures of the double," and the concept of double consciousness. We also explore the nature of the speaking Black voice in writing and the way Black texts respond and "talk" to one another. While the question of how these writers write is fascinating, what they write about is of equal importance. We explore their impulse to reconstruct an African-American social identity. Utilizing notions of race as a social construct, we can begin to explore the evolution of W.E.B. DuBois' concept of double-consciousness into the Post-Black embrace of racial fluidity and self-identification that surrounds us today.

## **Gender Studies through Literature**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

In order to understand gender and its varied representations, it is essential to begin with questions and an acceptance that there is no "nugget of pure truth." Gender Studies through Literature asks students to question the literary worlds they encounter in the hopes of opening up spaces for new forms of gendered articulation and questioning. Through reading texts with protagonists of varied genders in conjunction with gender theory, we provide students with the opportunity to encounter gender in new and varied ways. We also introduce students to theorists that question the foundations of cultural understandings of gender. Judith Butler introduces the idea that "sex" is not simply what one has, or a static description of what one is: it will be one of the norms by which the "one" becomes viable at all, that which qualifies a body for life within the domain of cultural intelligibility. How then do we investigate the body within the realm of fiction? From Judith Butler's notions of gender and cultural intelligibility to Barbara Christian's reflections on being the object and subject of literature, we give students the tools to create what bell hooks calls an "oppositional gaze" and find joy in the process of critiquing and disrupting traditional notions of gender representation. Students will facilitate discussions, utilize theory to enhance their own writing, evaluate perceptions of gender, and examine the gendered world around them.

## **Gods and Monsters**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

Throughout human existence, we have looked to the skies for answers and cursed the ground for hardships. For centuries, our popular culture has often depicted the human search for meaning and responsibility. This course examines literature, films, and images from a variety of periods and cultures and might include the Hindu epic *The Ramayana*, the Latin poet Ovid's *Metamorphoses*; the Old English epic, *Beowulf*, and its contemporary counterpart, *Grendel*, by John Gardner; medieval altarpieces depicting demons and angels; Renaissance and Baroque paintings of classical Greek and Roman myths; C.S. Lewis' classic children's novel, *The Lion, the Witch, and the Wardrobe*; and a variety of contemporary films that show how, even in the 21st century, we continue to wonder about chaos, control, and the limits of the human imagination. In order to develop our own understanding of the mythical and the monstrous in the world we inhabit, we will also examine the concept of divinity, magic, monstrosity, and the otherworldly to inform and inspire the creation of a mythology of our own.

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## **Literature to Film**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

In this course, students consider the relationship between literature and cinema by examining the filmic adaptations of stories from multiple literary genres. Students will read a selection of novels, plays, short stories, essays, poems, and myths in conjunction with their filmic retellings. In considering the similarities and differences between these two versions, they will hone their skills of literary analysis, while also gaining a vocabulary to discuss film and media critically, close reading and “re-reading” films. We will begin with an exploration of how film, though inherently plot driven, can represent interiority elegantly, challenge linearity. Rather than view the film as a degraded version of the literature, we will look at film as being an act of criticism in itself, as an interpretive lens, and as part of a conversation about the literary text. This understanding of the film as artistic expression will also revolve around issues of identity or the use of adaptation to communicate a political or social agenda—post-colonial, queer, minority, and feminist artists.

## **Magical Realism: The Art of Surprises**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

Literary critic Angel Flores writes that, “In magical realism we find the transformation of the common and the everyday into the awesome and the unreal. It is predominantly an art of surprises.” Twelve years later, critic Luis Leal responded to Flores with his own definition: “In magical realism the writer confronts reality and tries to untangle it, to discover what is mysterious in things, in life, in human acts.” The authors writing in this genre engage in “the art of surprises” as a way of investigating what reality means. The Latin American writers (Borges, Cortzar, Garcia Marquez) who are among the creators of the genre serve as the foundation of our course. But the genre crosses cultures in the works of writers such as Calvino, Danticat, Rushdie, and Morrison, who provide us with a broader view. With our readings and discussions we explore the many dualities that authors of the genre concern themselves with: the real and the surreal; the mundane and the sublime; the familiar and the mysterious. These explorations will raise particular questions for 21st-century students. In a world as technologically advanced as ours, does mystery still exist? What miracles remain to offer transcendence? In comparing the “classic” writers of the genre with more contemporary practitioners, students discuss magical realism’s evolution and debate its ability to illuminate our 21st-century existence.

## **Men and Women with Weapons, a.k.a. “Weapons of Gender”**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

What does a narrator imply by stating, “Soldiers and women. That’s how the world is. Any other role is temporary. Any other role is a gesture”? When an imperial colonel—who interrogates and then tortures nomads—claims, “Pain is truth: all else is subject to doubt,” is he barbaric? Does having another man’s life in the palm of one’s hand (by way of a .38 Special) make “all the difference”? The aforementioned questions are the types of questions this course poses. A book list full of exposed outlaws includes Coetzee’s *Waiting for the Barbarians*, Himes’ *If He Hollers Let Him Go*, Johnson’s *Jesus’ Son*, O’Brien’s *The Things They Carried*, and Winterson’s *The Passion*. While weaponry proves to be an elastic concept in the works, notions of gender shatter and risk-taking becomes an act of recovery. For, it is in the recounting of violence that narrators attempt to alter their circumstances. Class meetings invite students to look closely at language generated by authors committed to merging genres, and writing assignments propel participants into discourse that, ideally, leads to understanding, agitation, imagination, empathy, and, maybe, even awe.

# ENGLISH

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## **The Modern Novel**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

"Make it new." –Ezra Pound

Many writers believe that literature, by design, is an act of rebellion: rebellion against institutional rules accompanied by the proclamation of alternative perspectives—as Joyce’s protagonist Stephen Dedalus says, “I will not serve,” when refusing to receive the Eucharist and, by doing so, refuses to appease church, family, and nation. For the purposes of this course, we work with a loose notion of the coming-of-age narrative to consider modernity. Think of coming-of-age resembling an artist’s self-referential development and self-conscious effort to break from the past. The books we read include Joyce’s *A Portrait of the Artist as a Young Man*, Lispector’s *The Hour of the Star*, Banks’ *Rule of the Bone*, Bolaño’s *Amulet*, and Rankine’s *Citizen: An American Lyric*. After a bit of modeling and gradual release, students direct how we spend class time together, all the while investigating how written words aim to express the often unspoken soul.

## **Philosophy: An Introduction**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

This introduction to important moments in Western thought starts by examining rationalism’s claim for primacy. Opening with Russell’s “Appearance and Reality” and tracing a line of thinkers that extends from antiquity (Plato) through rationalism (Descartes) to empiricist skepticism (Hume) on to broader metaphysical counterpoint (Kant) and emerging in pragmatism’s middle way (James, Dewey), and finally ending in existentialism’s (Nietzsche, Sartre) finding humanistic action in the face of lost historical purpose, we come to broadly grasp a long development and ultimate decline posed to the limits of knowledge and the possibilities of self-understanding and useful action. A second movement in the course is a broader more contemporary survey of philosophical problems including, but not limited to, issues of social justice (Mills, Rawls, West), feminism and gender identity (de Beauvoir, Mckinnon, Tronto, Hooks), freedom’s conceptual framework (Ayer, Blatchford), the possibilities of language (Wittgenstein, Davidson, Chomsky), and ethics (Singer, Nussbaum, Rachels). The class focus and loci are centered on the probing, questioning, interrogative methodologies of Socrates. We work to deconstruct our own beliefs while considering: what is personal epistemology; how do we understand and make meaning from action; what gives us our place and authenticity in the world; and what is the nature and consequence of choices we make? In terms of requirements, apart from holding an open mind and willingness to engage, we keep daily journals on the readings, and write essays, as a broadly idiosyncratic, self-reflective, and always autobiographical realization of the self.

## **Shakespeare**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

Why is William Shakespeare still the most quoted poet and most regularly produced playwright of our time? For those students who wish to answer this question and enhance their appreciation of the greatest writer in the English language, this course will offer the skills they need to comprehend his poetic language and his thematic relevance to our contemporary world. Through a close reading of five plays, students will learn strategies to read the text accurately and imaginatively. Recent syllabi have included *Richard III*, *The Merchant of Venice*, *Twelfth Night*, *King Lear*, *Hamlet*, *Henry IV (Part 1)*, and *The Tempest*. In discussions, various writing tasks, and more formal essays, students will gain deeper understanding of what they have read. Students will also explore performance elements through a series of in-class activities, a look at film clips, and very likely a trip to a live production. Students should leave the class confident in their abilities to read and view more of Shakespeare’s plays.

# HISTORY

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## **Foundations of the Modern World**

**Grade: 9**

**Term Length: 2**

**Credit: 1**

This foundational course provides Upper School students with a global view of the world from the Columbian Exchange and the beginning of the Transatlantic slave trade to the imperialist conflicts of the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. In the first semester, students use a variety of primary and secondary sources to develop historical thinking skills and establish a nuanced view of the Transatlantic slave trade and our sources of knowledge about it. In the second semester, we assess the role of Enlightenment ideas and political and economic circumstances in prompting revolutions across the globe, as well as the changes that industrialization brought to Europe. Throughout, students are asked to draw connections between world historical events and to critically assess their global repercussions. A culminating research project addresses colonized peoples' responses to imperialism as students focus on how a specific country (e.g., India, Nigeria, Cuba) adapted to the changing international, political, and economic conditions of the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. This course aims to introduce students to a wide array of historical analysis skills and empowers them to find their own voices as historians. Research projects, analysis of primary sources, and essay writing provide students with the skills needed to think critically and write coherently about complex historical issues and questions.

Note: Required in Grade 9

## **Histories of the Contemporary World**

**Grade: 10**

**Term Length: 2**

**Credit: 1**

This course, which examines the transition from an era defined by industrialism and imperialism during the late 19<sup>th</sup> century to one of extensive globalization during the 21<sup>st</sup>, is animated by a series of questions: What is a nation, and how did nationalist ideologies propel world history during this tumultuous century? Why was war so often the preferred mechanism for change? What purposes did new ideologies such as communism and fascism serve? Why did grand ideals give way to ugly, indeed murderous, realities? How did the diverse societies of Asia, Latin America, and Africa challenge the international status quo and chart paths to development and political independence in the wake of two cataclysmic world wars? In our ever-connected global society, how has the relationship between developed and developing nations been reconstructed? Drawing on close readings of primary and secondary source texts, students engage in the historiography of the events of the 20<sup>th</sup> and early 21<sup>st</sup> centuries in order to gain a more complete and nuanced understanding of the world in which we currently live. We focus on developing oral communication skills during discussions, debates, and Socratic seminars. In addition, students develop their writing skills by producing argumentative essays, thesis-driven research papers, and policy memoranda. A student-led academic conference culminates the year, allowing students to engage in dialogue with keynote speakers and their peers as they work to deepen their understanding of the complexities of past and present alike.

Note: Required in Grade 10

## **AP United States History**

**Grade: 11**

**Term Length: 2**

**Credit: 1**

AP United States History challenges students to consider key issues in the American narrative from colonial settlement to the present. It is intended for students who are passionate about history and committed to study it in depth. The course places a premium on important skills: the ability to read and comprehend difficult texts, write cogently with clarity and insight, and discuss and debate the events that have shaped the United States in the modern era. Students hone skills via essay writing, interpretation of original documents, an understanding of bias and points of view in both primary and secondary sources, and discussion of major historiographical debates. This course also emphasizes the importance of the student's awareness of current events. A major research paper due after the required AP exam in May allows students to delve more deeply into a topic of their own choosing and to revisit their earlier preconceived assumptions with a scholar's critical eye. This course is intellectually and

# HISTORY

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academically challenging and gives the study of American history the depth and analysis it deserves. We have chosen readings partly for their collective coverage of the period, but more importantly because they represent a wide variety of types of historical writing. Eric Foner’s *Give Me Liberty!* provides chronological background for our discussions; an anthology titled *American Issues* offers both source documents and interpretative essays. When useful, we also read fiction and other secondary studies in order to illuminate our course of study.

Note: Department approval

## **AP U.S. Government and Politics**

**Grade: 12**

**Term Length: 2**

**Credit: 1**

This course engages students in deep study of our political system, the central—and perhaps most potent—organizing feature of our lives in this country. As we interrogate current political and social developments, we seek to comprehend and critically assess that system’s origins, as well as its current manifestations, strengths, weaknesses, and challenges. Key topics include the underpinnings of U.S. constitutional democracy; political beliefs and behaviors; parties, interest groups, and mass media; campaigns and elections; governmental institutions (Congress, the presidency, the bureaucracy, and the judiciary); civil rights and civil liberties; and foreign, economic, and social policymaking. In addition to expanding students’ knowledge of U.S. government and politics, this course aims to foster habits of mind that prompt critical thinking and effective communication, both orally and in writing. Throughout the year, assignments aim to build the skills that political scientists and historians use to assess political, social, and economic phenomena. Among the most important of these are: interpreting quantitative and qualitative data; analyzing patterns and trends in the development of the American political system, from founding to present; assessing connections between institutional structures and the political behaviors they engender; analyzing primary and secondary sources; crafting and supporting arguments using evidence from credible political science and journalistic sources; and engaging in seminar-style discussions, which foster open-minded exchange based on interpretation of evidence. As ideological polarization erodes the quality of discourse in our country, we challenge one another to build bridges to understanding and develop sound reasoning as a means to navigating our most pressing political and societal concerns.

Note: Department approval and placement test

## **AP European History**

**Grade: 12**

**Term Length: 2**

**Credit: 1**

European history is rich, dense, complicated, contested, and fascinating. Historians have visited and revisited events on this continent as the subject matter for studies of agency, authority, public expression, gender, and class, and yet continue to find material and evidence to support new ideas and theories. In this class, students grapple not only with past events, but also with how they have been understood and interpreted by historians and how they shape Europe today. For each period of study, we examine contemporary literature, political tracts, newspapers, architecture, paintings, and propaganda, as well as scholarly works that seek to understand and frame the importance of the European past. Major readings include Machiavelli’s famous tract *The Prince*, Marx’s call to political radicalism in *The Communist Manifesto*, Beckett’s capturing of a post-war mindset in *Waiting for Godot*, and Natalie Zemon Davis’s masterful analysis of early modern peasant life in *The Return of Martin Guerre*. Students practice alternative styles of writing including book reviews and historiographical essays, as well as traditional AP assessments including document-based questions. Most importantly, they become immersed in the practice and principles of historical thinking and writing. They prioritize context, value language, critique arguments, and argue contentions, and through it all gain deeper appreciation of Europe’s immense influence on their own world and thought.

Note: Department approval and placement test

# HISTORY



## **American Women's History**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

This elective course aims to give representation to a historically underrepresented group of people: women. In this course, students focus on various aspects of American women's history. Adopting both a chronological and thematic approach, students examine women's changing roles from the colonial period to the present. Selected topics include the role of women in the founding of the republic, female reformers of the Progressive Era, the modern feminist movement, and other issues such as birth control, abortion rights, and the Equal Rights Amendment. Students have the opportunity to participate in focused, seminar-style discussions; examine a variety of sources and media (including photographs, songs, and movies); and undertake an independent research project.

## **American Constitutional Law**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

In this course, we examine current legal issues through the lens of the Constitution of the United States and Supreme Court decisions, both historical and current, which frame, shape, and decide these issues. We cover selected topics and sections of the Constitution relevant to the course theme of "Life, Liberty, and the Pursuit of Happiness." The goal of the course is to provide students with the foundation and tools necessary to analyze and dissect those legal issues faced daily in American life. We delve into the privacy rights of Americans. Should citizens be able to control their end-of-life choices? Does the Fourteenth Amendment require a state to license a marriage between two people of the same sex? We also examine areas of criminal justice. What constitutes cruel and unusual punishment under the Eighth Amendment? When, and under what circumstances, can the police conduct a search or interrogate a suspect? Can the information or evidence thus obtained be used in court? We probe the boundaries of the First Amendment. Can, or should, "hate speech" be regulated? What student speech is protected in a school forum? We investigate the powers of the president and Congress. What legitimate actions can the respective branches take in the war on terrorism? How should we treat enemy combatants? Finally, we explore the concepts of due process and equal protection. Are students denied equal protection by virtue of affirmative action plans? By inquiring into these topics and others, participants in this course develop a strong understanding of constitutional issues and the American legal system while honing their critical thinking and writing skills.

## **African-American History**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

On a fundamental level, African-American history is American history. To relegate it to the sidelines of the traditional narrative of American exceptionalism is to do an egregious disservice not only to people of color, who have been marginalized in this narrative, but also to every citizen of this country, who should be confronted with uncomfortable truths about their nation's past and encouraged to think critically about how the ghosts of slavery and Jim Crow segregation continue to haunt us in the present. This course, therefore, focuses on upending the traditional narrative of African-American history as it has existed in American history courses to date. First, we move the multitudinous aspects of the African-American experience into the center of our narrative. Then, we seek out greater nuance in the way this narrative has unfolded over time. Lastly, we delve into different waves of Black empowerment, from the origins of self-help in the 19th century to the more current Black Lives Matter movement.

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## **History and Politics of the Modern Middle East**

**Grades:** 11,12

**Term Length:** 1

**Credit:** 0.5

What defines this complex region geographically, culturally, religiously, politically, and economically? What are its historical and current strengths and weaknesses? Where are its major fault lines? Who are its peoples and what are their aspirations? What might we predict about the future of the Middle East and its effect(s) on the world at large? This course offers students an opportunity to address these and other questions in focused seminar discussions informed by scholarly literature in this field (and, occasionally, cinematic depictions of the region by local filmmakers). Focusing on the modern era, we trace the historical roots of current issues in the Middle East, from the establishment in the region of Islamic “gunpowder empires” to the intrusion of 19th-century Western imperialism and the emergence of a Middle East state system in the wake of World War I. We then delve deeply into an analysis of some of those issues, including the Arab-Israeli and Palestinian-Israeli conflicts, the Iranian Revolution, the politics of oil, the role of political Islam, emerging challenges related to the scarcity of water resources, and the post-2011 reverberations of regional quests for reform. Throughout, we address the evolving relationship between state and society in the Middle East; the role of nationalism on the one hand, and of regional ideologies on the other; and the prospects for new configurations of power in the region.

## **History of News and Press**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

In this course, students explore the history of news production from medieval Venice to today, from manuscript newsletters to Twitter. They engage with historical questions surrounding materiality, communication networks, freedom of the press, the public sphere, and diversity in news reporting. We interrogate historical roots and current conditions in order to identify what is novel about news production and communication today and what is part of a long tradition. Students read John Milton, Marshall McLuhan, Nellie Bly, and Jürgen Habermas and ask questions about the roles and responsibilities of the press. How does the medium by which information is communicated shape the audience’s interaction with and conception of the news? What determines which stories and places are covered in the newspaper? Is new information reported or discovered? Who decides what news is in the public interest? Does it matter if news writers are professional or amateur? How do interpersonal communication networks shape the news? How does a desire for news shape networks of communication? Students write weekly reading response journals addressing these questions, building toward a research project on continuities and changes in news communication.

## **Indigenous Histories of the Americas**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

This course explores the histories of the Americas from the perspectives of the continent’s first peoples, investigating contemporary debates surrounding the peopling of the Western Hemisphere at the end of the last Ice Age and the various ways in which those human populations affected and were affected by the continent’s diverse ecosystems. To what degree does the Bering Land Bridge theory represent contemporary understandings of how Eurasian populations proliferated across North and South America? Did pre-Columbian societies actually live in some kind of environmental homeostasis? Or do myths of the “ecological Indian” tell us more about Europeans than the indigenous communities they purport to describe? We explore case studies of the major “pre-Columbian” societies through examinations of archaeological, artistic, and other non-written sources. What can material culture and oral tradition tell us? How did Mesoamerican and Andean societies consolidate power and control people and resources over immense and ecologically extreme territories? The second half of the course brings our study into more familiar “American” histories, beginning with the Contact Period from the late 15th century forward. What were the demographic, social, and cultural impacts of contact with Europeans? How might indigenous histories help us to rethink slippery concepts like “empire,” “ethnicity,”

# HISTORY



“tribe,” “nation,” and “civilization”? How did nationalist revolutions affect European and indigenous relations beginning in the 18th century? And how did indigenous American communities fare in the wake of encroaching national-states from the Arctic to Patagonia? Turning toward contemporary issues, students explore recent forms of active/passive resistance, consider the generational impact of boarding schools and state-sponsored assimilation practices, engage with “indigeneity” discourses, and explore ongoing pursuits of political and environmental justice. At semester’s end, students conduct original research based on ethnohistorical, scholarly, and service learning methods, in collaboration with scholars and Indigenous activists.

## **International Relations**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

Today’s international system is typically beset by issues that easily overwhelm national borders, linguistic divides, and cultural differences. At the same time, economic interdependence, regional integration, and global migrations link the peoples of the world in ways and magnitudes never seen before. In this course, students encounter and interrogate theories of international relations whose objective is to make sense of a complex world, its patterns, and outliers. Reasoned debate and reflection on war, human rights, human networks, the international political economy, the capacities of states, and the role of both international agencies and non-state actors engage students in deep exploration of some of the most challenging international issues today, including the Syrian civil war, the threat of North Korean nuclear weapons development, trade wars and the proliferation of failed states in various regions. Using tools and methodologies of international relations specialists and historians, students apply competing theories and simulate international negotiations in an effort to identify long-term trends and emerging challenges.

## **Migration in the Modern World**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

The historian Dirk Hoerder has written that “migration, once defined as a crossing of borders between states, is now understood as a social process and appears as a basic condition of human societies.” In short, people move and move often. In this course, students are introduced to migration and mobility as part and parcel of our common human condition. Our periodization focuses primarily on the 19th and 20th centuries as a critical era of mass migration in the making of the modern world. Through readings, discussions, and research in the disciplines of history, anthropology, and sociology, we investigate the following questions: what role has human movement played in the formation and dissolution of state structures? What roles do colonialism, capitalism, labor, and race play in the construction of global migration regimes? How are categories of “migrant,” “illegal immigrant,” “refugee,” “economic migrant,” and “foreigner” historically constructed? How do terms like “homeland,” “diaspora,” and “nation” intersect with competing forms of identity? And how have the forces of globalization accelerated mass migration while simultaneously reinforcing regimes of restriction and exclusion? Readings include excerpts from migrant memoirs, fiction, and secondary scholarly literature. The course culminates in a student project with both a formal written component and public presentation of research findings, driven by an oral history assignment that connects students to migrant communities in Brooklyn and the greater New York area and to larger scholarly discussions in the field of migration studies (e.g., forced migration, economic migration, and refugee resettlement).

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## **Political Philosophy**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

The course is an introduction to political philosophy and focuses on basic texts of selected political thinkers, from the ancient Greeks to the Renaissance. We read selected works by Thucydides, Plato, Aristotle, Cicero, Augustine, Aquinas, and Machiavelli in order to understand the development of foundational political ideas. What is justice? What does a just political order require? How should we understand equality? How can we balance liberty and community? We also consider the relationship between the nature of rule and different forms of rule (i.e., different types of government or regimes): monarchy, aristocracy, democracy, tyranny, despotism, oligarchy, constitutionalism, and republicanism. We situate theorists in their particular historical periods, and try to understand why they asked particular questions and how they sought to answer them. Finally, we also seek to turn our reflective and critical skills to these theories and assess their coherence and usefulness for helping answer the political questions of our time. Weekly reading journals help students understand and connect theories and themes across the course, and build toward a final symposium in which students are tasked with answering a class-generated question based on their readings over the course of the semester.

# MATHEMATICS

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## **Advanced Geometry**

**Grade: 9**

**Term Length: 2**

**Credit: 1**

In this course, students explore many of the definitions, postulates, and theorems contained in Euclid's *Elements*. Students begin by developing an understanding of the undefined terms point, line, and plane, and they learn to create deductive proofs through a study of truth-functional logic, which is the basis of digital computing. Students learn about angle pairs, properties of parallel lines, methods for proving triangles congruent, similar and right triangles, classification of quadrilaterals, relationships in circles, coordinate geometry, and three-dimensional geometry. Students engage in non-routine problem-solving through the Exeter Mathematics 2 Problem Sets, and the course uses a Harkness Roundtable Approach that allows students to engage in meaningful discourse. By the end of the course, students will have mastered the basics of Euclidean geometry and will be prepared for success in Advanced Math 10.

Prerequisite: Algebra I

Note: Department approval

## **Geometry**

**Grade: 9**

**Term Length: 2**

**Credit: 1**

In Geometry, students explore the concepts of Euclidean geometry through project-based activities. Students begin their geometric exploration with parallel lines and the angle relationships created by a transversal using Geometer's SketchPad. They also use this program to investigate the properties of the medians, altitudes, and bisectors of triangles. Students become more adept with the program and create animated kaleidoscopes, as well as simulated geometric constructs. Students study the properties of different quadrilaterals, as well as the many properties of circles. Two projects they complete focus on indirectly measuring the height of tall objects on campus. In the first, students use their knowledge of similar triangles and placing mirrors on the floor to measure the flagpole and the clock tower. After studying right triangle trigonometry, students use a clinometer to measure the same structures. Another highlight includes a yearlong project where students build a device and also research and present the geometric principles that underlie its operation. Many of these devices, such as the cross staff, sextant, and mariner's quadrant, are not in use today, but were used in the past for navigation. By the end of the course, students have explored Euclidean geometry and are prepared for Algebra II.

Prerequisite: Algebra I

## **Math Lab 9**

**Grade: 9**

**Term Length: 2**

**Credit: Non-Credit**

Math Lab 9 serves as an accompaniment to the standard Geometry class. Students review algebraic concepts and procedures with an emphasis on developing conceptual understanding in order to improve procedural fluency. Students solve first-degree equations and inequalities, perform operations on polynomials, and factor different types of polynomials. Once students achieve mastery of factoring, they solve second-degree equations by factoring, as well as by completing the square and using the quadratic formula. Mastery of these algebraic procedures coincides with their required use in Geometry. In addition to achieving procedural fluency, students use graphing technology to develop an understanding of the properties of different types of functions, including linear, quadratic, exponential, and radical functions. Lastly, students perform operations on rational expressions.

Note: Placement determined by departmental review

# MATHEMATICS

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## **Advanced Math 10 (Precalculus)**

**Grade:** 10

**Term Length:** 2

**Credit:** 1

In this course, students engage in a thorough analysis of linear, absolute value, quadratic, radical, polynomial, rational, exponential, and logarithmic functions. Students use each function to model appropriate real-world situations, such as using quadratic functions to model the path of a projectile and using exponential functions to model the depreciation of a vehicle. Using graphing calculators and algebraic techniques, students analyze functions from multiple perspectives. Students also study trigonometry including the graphing of curves, inverse trig, verifications, and solving triangles. Other highlights include sequences and series, matrices, and conic sections. By the end of the course, students will have the skills necessary to study calculus in Advanced Math 11 (AP Calculus AB).

**Prerequisite:** Advanced Geometry and Algebra II

**Note:** Placement determined by departmental review

## **Algebra II**

**Grade:** 10

**Term Length:** 2

**Credit:** 1

This course is a continuation and extension of Algebra I and Geometry and enables students to pursue higher levels of mathematics. Within this course, students' understanding of the number system will expand to include complex numbers. Students expand their knowledge of functions as they study quadratic, polynomial, absolute value, radical, exponential, logarithmic, and rational functions. Students learn to graph these families of functions, and they solve problems both graphically and algebraically, as they engage in discussion of alternative methods. Finally, students learn to use their graphing calculators for both function analysis and for data analysis to create linear and quadratic equations to model real-world situations. This course prepares students to take Precalculus or Selected Topics: Precalculus Part I.

**Prerequisite:** Geometry

## **Math Lab 10**

**Grade:** 10

**Term Length:** 2

**Credit:** Non-Credit

Math Lab 10 serves as an accompaniment to the Algebra II class. Students in Math Lab 10 review a selection of topics from Algebra I that serve as prerequisites to success in Algebra II. These topics include graphing linear functions, writing linear equations, solving linear systems, and factoring quadratic trinomials. This course then provides opportunities for review, differentiated instruction, and enrichment of students' Algebra II lessons. Topics run concurrently with the lessons from Algebra II classes, providing students with extra opportunities for concept development and procedural fluency. Use of a Texas Instruments graphing calculator enables students to study the properties of functions with an emphasis on quadratic, absolute value, exponential, radical, and logarithmic functions. Structured group work allows ample opportunities for small group and individualized instruction.

**Note:** Placement determined by departmental review

## **Advanced Math 11 (AP Calculus AB)**

**Grade:** 11

**Term Length:** 2

**Credit:** 1

Advanced Math 11 prepares mathematically talented students for the AP Calculus AB exam. Students focus on major concepts in calculus, including limits, derivatives and their applications, linear approximations of functions, integration and its applications,

# MATHEMATICS

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and the Fundamental Theorems of Calculus. Additionally, students examine the relationship between different representations of functions including graphical, tabular, analytical, and written. Students use graphing calculators to graph functions, to find points of intersection, to find derivatives at a point, and to find definite integrals numerically. The course expectations include written explanations of the reasoning used to solve problems. Students who complete this course understand the methods of calculus used to solve real-world problems in a variety of disciplines and will be prepared to continue their study in advanced mathematics.

Prerequisite: Advanced Math 10

## **Precalculus**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

In this course, students discover the theoretical study of mathematics and learn to integrate concepts and skills in preparation for calculus. Students enhance their ability to grasp these concepts and skills through real-world applications, including population growth, carbon dating, the spread of a virus, and the magnitude of earthquakes. Students explore polynomial, rational, trigonometric, exponential, and logarithmic functions in depth. Graphing techniques are refined in both the Cartesian and polar coordinate systems. Included in the course is the study of the binomial theorem, probability, sequences and series, data analysis, and discrete mathematics. The use of graphing calculators and technology is fully integrated, supporting students with different learning styles. Upon completion of the course, students are prepared for AP Calculus AB, Calculus, AP Statistics, or Statistics.

Prerequisite: Algebra II

Note: Placement determined by departmental review

## **Precalculus Part I**

**Grade:** 11

**Term Length:** 2

**Credit:** 1

This course allows students to hone the skills introduced in Algebra II. The course infuses technology and expands the use of visual aids to both enhance and explain the theoretical aspects of linear, quadratic, exponential, and logarithmic functions. Students learn about applications in business communications and consumer economics, and also study financial markets. Additionally, students learn how to use matrices to solve equations. In addition to traditional assessments, students demonstrate their learning through various projects. This course prepares students for Selected Topics in Precalculus Part II.

Prerequisite: Algebra II

Note: Placement determined by departmental review

## **Advanced Math 12 (AP Calculus BC)**

**Grade:** 12

**Term Length:** 2

**Credit:** 1

Advanced Math 12 prepares mathematically talented students for the AP Calculus BC exam. The course extends and expands the concepts covered in AP Calculus AB, as well as introducing more challenging topics. Students learn new techniques of integration such as integration by parts, trigonometric integrals, trigonometric substitution, and partial fractions, and they also determine whether an improper integral converges. Derivatives, integrals, arclength, area and volumes are found for relations in Cartesian, polar, and parametric form. The ideas of sequence, series, and convergence are developed and the tests for the convergence of series are used. Power series, Taylor series, and Fourier series are used to approximate functions. Students continue to examine the relationship between the different representations of functions, including graphical, tabular, analytical, and written representations. The course expectations include written explanations of the reasoning used to solve problems. Students who

# MATHEMATICS

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complete this course understand the methods of calculus used to solve real world problems in a variety of disciplines and are more prepared to continue their study of advanced mathematics.

Note: Departmental permission

## **Calculus**

**Grade: 12**

**Term Length: 2**

**Credit: 1**

In this course, students explore some of mathematics' most profound yet relevant concepts. Students engage in a theoretical study of limits, derivatives, integrals, rates of change, and differential equations, and they use the graphing calculator to allow for a deeper understanding of derivatives at a point and definite integrals, and for a visualization of solutions, along with finding points of intersection. This course uses the Exeter Mathematics Harkness Table approach, which emphasizes student discovery and meaningful discourse. Informal explanations along with visual representations enhance this non-AP course. Students, in a cooperative setting, encounter the connections between calculus and physics, economics, biology, and business. Special emphasis on written and oral explanations of reasoning processes are used during problem-solving. After completing the course, students are well-prepared to continue the study of calculus at the next level.

Prerequisite: Precalculus

## **Precalculus Part II**

**Grade: 12**

**Term Length: 2**

**Credit: 1**

In this course, students continue to build algebraic and problem-solving skills, become critical thinkers, solve real-world problems, and use technology. Through the use of the graphing calculator, students explore and enhance their understanding of trigonometric functions, which are critical to fields ranging from computer arts and satellite communications to the study of waves. Students study analytic trigonometry, which enables architects and builders to formulate plans needed in construction. Then students explore sequences and series, where mathematical patterns are recognized, combinatorics, the theory of counting, probability, where the likelihood of events is examined empirically and theoretically, and finally statistics, where they validate information and interpret data. Upon completing the course, students are prepared for a first-year calculus course in college.

Note: Selected Topics in Precalculus Part I

## **AP Calculus AB**

**Grades: 11, 12**

**Term Length: 2**

**Credit: 1**

AP Calculus AB emphasizes the understanding of the concepts and the methods of calculus, with a focus on preparing the students for the AP Calculus AB exam. Students focus on major concepts in calculus, including limits, derivatives and their applications, linear approximations of functions, integration and its applications, and the Fundamental Theorems of Calculus. Additionally, students examine the relationship between different representations of functions, including graphical, tabular, analytical, and written. Students use graphing calculators to graph functions, to find points of intersection, to find derivatives at a point, and to find definite integrals numerically. The course expectations include written explanations of the reasoning used to solve problems. Students who complete this course understand the methods of calculus used to solve real-world problems in a variety of disciplines and are prepared to continue their study in advanced mathematics.

Note: Department approval

# MATHEMATICS



## **AP Statistics**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

In AP Statistics, students study the major concepts and the methods of statistics in preparation for the AP Statistics exam. The main ideas of the class include distributions of data, graphical representations, numerical measures, comparisons of distributions, linear regression analysis, methods of sampling, design of experiments, probability, simulations of experiments, estimating population parameters, and testing hypotheses. The class makes extensive use of graphing calculators and computers since questions on the AP exam require the use of calculators and the interpretation of computer output. Students use the graphing calculator for graphing both categorical and quantitative data, computing numerical measures, linear regression analysis, simulations, probabilities for some distributions, and the computations necessary for confidence intervals and hypothesis tests. Students use the statistical program Minitab to determine patterns in data, especially in simulations of sampling distributions, probability distributions of random variables, and linear regression. The data, which the students analyze in class, is real data from researchers and current polling data. The course emphasizes written explanations of both the concepts and the results from the technology. Students who complete this course are prepared to use statistics in various disciplines, such as business, science, and social science.

Prerequisite: Precalculus

Note: Department approval

## **Discrete Mathematics**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

This course is a non-traditional, project-based study of topics in mathematics that rarely are covered in a traditional course sequence. Topics include topology, graph and network theory, matrices, and Euler paths and circuits. Students tackle problems similar to the classic Tower of Hanoi and Bridges of Konigsberg, and they present their work to their peers.

Prerequisite: Algebra II

## **Statistics**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

This is a yearlong course designed to keep up with the ongoing growth of worldwide interest in data analysis. The public awareness of widespread applicability across disciplines, and the power and importance of statistical analysis has never been higher. Students study methods of gathering data, relationships between variables, probability and randomness, distributions of data, graphical representations, numerical measures, and comparisons of distributions. Additionally, the students make extensive use of graphing calculators. Assessments include exams, quizzes, research projects, and presentations. Students who complete this course will be prepared to use statistics in various disciplines, such as business, science, and social science.

Prerequisite: Algebra II

Note: Department Approval

# SCIENCE

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## **Advanced Chemistry (Honors 9)**

**Grade:** 9

**Term Length:** 2

**Credit:** 1

Advanced Chemistry (Honors 9) is the first year of a two-year advanced program in science. The course covers the basic chemistry concepts of a first-year Upper School chemistry course and the biochemistry needed for students to progress to the AP Biology course in 2nd year. The focus will be on helping students to develop the skills and content foundation necessary to advance to the Advanced Biology (AP Biology) course in year two and to the optional AP Chemistry in an ensuing year. The course emphasizes both conceptual understanding and quantitative problem-solving. Students examine and relate the three main ideas of chemistry—periodicity, thermodynamics, and the electron structure of atoms and molecules—to arrive at an understanding of the physical properties of matter and the nature of chemical reactions. Laboratory experiments are important throughout the course to help students not only apply their understanding of the concepts, but also develop analytical and observational skills.

Note: Department approval and placement exam

## **Biology**

**Grade:** 9

**Term Length:** 2

**Credit:** 1

How and why do species evolve over time? How can there be so many similarities among organisms, and yet so much biodiversity? And how are the characteristics of one generation related to the characteristics of the next? Biology strives to help students answer these big questions, as well as introduce students to the characteristics of living systems and reinforce the general principles of scientific methodology. We begin the year observing the ecology of Poly's 25-acre Dyker Heights campus. Students then study basic organic chemistry to acquire an understanding of biologically important molecules and the chemical reactions that sustain organisms. Biology students explore the continuity of life, through cell structure and function, genetics, evolution, and cellular reproduction. In addition, major body systems are incorporated into related topics throughout the year. As a laboratory course, biology students gain experience collaborating on and designing their own investigations. By evaluating the validity of data they produce and collect, students enhance their understanding of the concepts discussed in class.

Note: Non-honors requirement in Grade 9

## **AP Biology Honors 10**

**Grade:** 10

**Term Length:** 2

**Credit:** 1

This college-level biology course is taught as a first-year biology course to sophomores in the honors program in Science and follows the AP Biology framework. Emphasis is placed on students gaining conceptual understanding of the fundamental enduring ideas in biology. These ideas are that the process of evolution drives the diversity and unity of life; that biological systems utilize energy and molecular building blocks to grow, reproduce, and maintain homeostasis; that living systems retrieve, transmit, and respond to information essential to life processes; and that biological systems interact, and these interactions possess complex properties. While students learn a large amount of content in this course, inquiry and reasoning are equally important. Classes focus on connecting concepts across main ideas, establishing lines of evidence, continuing development of experimental design and data collection techniques, and applying mathematical skills. Students in this class must be highly motivated and able to plan and organize their work, budget time effectively, and take considerable responsibility for their own learning. Lab investigations are an essential part of the course, and we expect students to stay after school for extended periods on lab days. All students take the AP exam in May. This course is not open to students who have already completed high school biology.

Prerequisite: Advanced Chemistry (Honors 9)

Note: Department approval

# SCIENCE

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## **Chemistry**

**Grade: 10**

**Term Length: 2**

**Credit: 1**

Chemistry is a standard college preparatory curriculum that focuses on molecular behavior in the physical setting. The six major goals of the course are for students to understand the structure of the atom, to be able to utilize the periodic table to make predictions, to understand the mole concept and to apply it to understanding the mathematics of reactions, to understand the role of energy in matter and to understand how chemical systems interact and respond. Topics include measurement, atomic structure, periodic properties, molecular bonding, chemical reactions (including stoichiometry), thermodynamics, kinetics, and equilibrium. Lab work is an integral part of this course. Each experiment is carefully chosen to emphasize a particular concept or technique and then students are provided with a hands-on illustration of these same concepts and techniques. Students also use these experiments to help them visualize and understand the physical world more clearly. Whether it is in the lab or while practicing problem-solving, students are expected to work collaboratively to hone their critical-thinking skills.

Note: Non-honors requirement in Grade 10

## **Physics**

**Grades: 11, 12**

**Term Length: 2**

**Credit: 1**

Physics is the study of how objects move and interact with each other. In this yearlong course, students develop the ability to apply both conceptual and mathematical reasoning to understanding the physical world. Algebraic skill and an understanding of basic trigonometry are important for success, but principles will be represented in non-mathematical modes, as well. Lab experiments are an integral part of the course as they illustrate the process of scientific discovery and show how scientists discover physical laws and principles by experimentation. Through observation and analysis of lab data, students develop the models scientists use to understand the physical world. We spend significant class time working in groups sharing ideas orally and with handheld whiteboards. Topics covered in this course include kinematics, the description of motion; dynamics—Newton's laws and their applications, including satellite motion; and conservation laws. Students use Vernier probeware to gather data, Logger Pro software to graph and analyze data, and computer simulations to explore physics concepts. We use print materials from the American Modeling Teachers Association, collated and organized into a workbook organized by trimester.

Prerequisite: Biology and Chemistry

## **Science Research**

**Grades: 10, 11, 12**

**Term Length: 2**

**Credit: 0.5**

Science Research is a three-year program, sophomore through senior years, which introduces students to the demands and satisfactions of rigorous scientific experimentation. Students apply for admission to the program in the spring of their freshman year. Typically, 5-7 10th grade students begin the program each year, and they join members of the other two cohorts of young investigators in shared class meeting time. In this class, students design and develop their own research projects, for which they write a series of formal papers and submit them to both local and national competitions, such as the New York City Science and Engineering Fair and the Intel contest. Students develop a protocol for research through the investigation of scientific journal articles in their area of interest, their own creativity and ingenuity, and in collaboration with an outside mentor or professional scientist. The data and information that students gather, primarily in the junior year, become the basis of their final paper, which they craft, revise, and polish in the senior year. Students hone presentation and public speaking skills through presentations to class members and the Poly community. This class also satisfies the Poly speech requirement. This class is taken in addition to the normal science sequence and is pass/fail only.

Note: Department approval and written application

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## **AP Biology**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

AP Biology is a second-year Biology course that prepares students for the AP Biology exam. It builds on knowledge and skills introduced in Biology and Chemistry courses in freshman and sophomore years. Emphasis is placed on students gaining conceptual understanding of the fundamental enduring ideas in biology. The course is organized around four Big Ideas: that the process of evolution drives the diversity and unity of life; that biological systems utilize energy and molecular building blocks to grow, reproduce, and maintain homeostasis; that living systems retrieve, transmit, and respond to information essential to life processes; and that biological systems interact, and these interactions possess complex properties. While students learn a large amount of content in this course, inquiry and reasoning are equally important. The course focuses on connecting concepts across main ideas, establishing lines of evidence, continuing development of experimental design and data collection techniques, and applying mathematical skills. Lab investigations are an essential part of the course, and students are expected to stay after school for extended periods on lab days. All students take the AP exam in May.

Prerequisite: Biology and Chemistry

Note: Department approval

## **AP Chemistry**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

AP Chemistry is typically taken in the junior or senior year by top science and math students. In this fast-paced and challenging course, students delve more deeply into chemical topics based on six Big Ideas: Structure of Matter; Bonding and Intermolecular forces; Chemical reactions; Kinetics; Thermodynamics; and Chemical Equilibrium. Students engage in frequent hands-on lab activities, and they collect and analyze data using advanced technology and techniques commonly used in a college lab. Most lab experiences involve designing experiments and the use of equipment, such as Vernier probeware, to collect data and Logger Pro software to catalog and analyze this data. Students are challenged to develop a deep and nuanced understanding of the foundational concepts of molecular structure and energy flow within a system. They also develop sophisticated problem-solving skills and the ability to perform college-level lab tests and data analysis. Lab investigations are an essential part of the course, and students are expected to stay after school for extended lab periods on Thursdays. All students must take the AP Chemistry exam in May.

Prerequisite: Chemistry or Advanced Chemistry (Honors 9)

Note: Department approval

## **AP Physics 1**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

In AP Physics 1, students design labs to discover the mathematical models that underpin the physical world and that have extraordinary predictive power. These are the mathematical equations that are the core of Newtonian Physics. The course is based on six "Big Ideas," which encompass core scientific principles, theories, and processes that cut across traditional boundaries and provide a broad way of thinking about the physical world: Objects and systems have properties such as mass and charge and systems may have internal structure; fields existing in space can be used to explain interactions; the interactions of an object with other objects can be described by forces and interactions between systems and can result in changes in those systems; changes that occur as a result of interactions are constrained by conservation laws; and waves can transfer energy and momentum from one location to another without the permanent transfer of mass and serve as a mathematical model for the description of other phenomena. All students must take the AP Physics I exam in May.

Note: Department approval and placement exam

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## **AP Physics 2**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

A continuation of AP Physics 1, AP Physics 2 will enable students to explore the principles of fluids, thermodynamics, electricity, magnetism, optics, and topics in modern physics through the same six “Big Ideas” as in Physics 1 and one additional “Big Idea” that the mathematics of probability can be used to describe the behavior of complex systems and to interpret the behavior of quantum mechanical systems. Continuing the experimental design theme from AP Physics 1, students will collect data in labs and use graphical analysis to construct physics principles from real world. In addition to laboratory work, students will synthesize a conceptual and mathematical framework for abstract physical phenomena including particles’ interactions with electromagnetism and a kinetic theory of gases. All students must take the AP Physics 2 exam in May.

Prerequisite: AP Physics 1

Note: Department approval

## **Sustainable Systems**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

This course discusses the interactions and relationships between humans and the Earth. Students gain a basic understanding of the Earth’s systems, the main concepts and pillars of sustainability and sustainable development, and the issues facing a rapidly growing global population. Students explore how they might address these issues for themselves within their own communities. A unique aspect of this science-based course is the inclusion of service-learning components. Students using their knowledge of the foundational concepts and principles, develop a Sustainability Report for Poly Prep as their capstone project, and present their findings to various stakeholders to positively affect the Poly community and/or Poly’s surrounding community. This is a distinct opportunity to take what they have learned inside the classroom and lab and apply it to provide solutions to impact their community.

Prerequisite: Biology and Chemistry

## **Innovative Thinking and Engineering Design**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

Everyone pursuing work in 21st-century professional fields benefit from developing their ability to design and innovate. This course seeks to give students a space to solve problems through design, as engineers do. These problems may require the production of an object or something more abstract, such as a better system. In either pursuit, two principles will be key: no solution can be developed without a deep empathy for users and failures in the process will be inevitable and embraced as opportunities to better empathize. As in the real world, students will work in design teams to collaboratively solve problems. Engagement with that process will be valued and assessed more than any particular solution. The ambition of the class is to begin with problems that are local to our classroom and gradually reach out over the course of the year to include the greater Poly community, New York City and beyond. Students will learn the tools of designing and making that suit the problem they are attempting to solve, which may include computer-aided design and 3D printers.

Prerequisite: Biology and Chemistry

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## **Anatomy and Physiology**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

In the junior/senior full-year Anatomy and Physiology course, students study the human body and its numerous individual systems. Students learn anatomical terminology as they are encouraged to hone their inductive and deductive reasoning skills. Labs include dissections, case studies, and visits from athletic trainers and safety guards, who share their unique perspectives on the musculoskeletal system. Students learn about the integumentary system, kinesthesiology and the inputs-and-outputs of the digestive, circulatory, respiratory, reproductive, nervous, and excretory systems. YouTube surgery viewings, as well as articles and online tutorials, complement textbook learning. Highlights include microscopy and an exploratory fetal pig dissection. Upon completion of Anatomy and Physiology, students understand and appreciate how the body systems work together to maintain the overall health and well-being of a person.

Prerequisite: [Biology and Chemistry](#)

## **Epidemiology**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

Epidemiology is a full-year elective in which students are introduced to the principles and methods of epidemiology and the application of these to public health and scientific research. The course provides fundamental skills needed for students to begin to interpret and critically evaluate literature relevant to public health professionals and to anyone who would like to improve their scientific literacy. Topics include measures of disease frequency and association, epidemiologic study designs, bias, ethics, and screening for disease. Class lectures are interspersed with active learning exercises consisting of a mixture of in-class problems, exercises, and discussions, and online and independent learning modules. Students design and carry out a case control study.

Prerequisite: [Biology and Chemistry](#)

## **Forensic Science**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

Forensic Science is the application of science to law. This course emphasizes the study of how evidence is collected at a crime scene and then processed in a crime lab. Learning how to analyze information without making assumptions about it is the foundation of the course. Students spend much of their time in the lab performing procedures similar to those conducted by forensic scientists. By doing so, they learn how to focus on the information contained solely in the data and how to apply their collective understanding to various crime scenarios. In forensic science, students explore traditional areas of science, biology, chemistry, and physics in unique ways. Blood spatter and DNA analysis, matching hair and fiber samples microscopically, fingerprinting, and the toxicology of drugs and poisons are all examples of topics that build on skills learned in earlier science courses. This is a collaborative course where students are expected to work with the instructor to explore and experience the exciting world of forensic science.

Prerequisite: [Biology and Chemistry](#)

Note: [Course can be repeated once](#)

## **Earth Systems and Structures Part I**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

Part I focuses on the structure of the earth. In addition to studying rocks and minerals that make up the earth, the structures and forces that give the landscape of the planet its shape are investigated. This exploration leads to an understanding of the theory of

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plate tectonics. The role of catastrophes such as floods, earthquakes, and volcanic eruptions add drama to the study of geology. The effects of erosion and glaciation, the most recent sculptors of our landscape, are examined. Students may take this course separately or together with Part II.

## **Earth Systems and Structures Part II**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

Part II focuses on coastlines. The course examines how atmospheric events, including natural disasters such as tornadoes and hurricanes, shape coastlines. A major focus of the semester is climate cycles and climate change. Further exploration investigates how structure of coastlines affects the development of ecological systems. The focus of this study is the New York area. Students may take this course as spring term only or together with Part I.

# WORLD LANGUAGES

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## **French I**

**Grades:** 9, 10

**Term Length:** 2

**Credit:** 1

This full-year beginner French class introduces Upper School students to the French language and the francophone world. Through the use of a highly integrated language program, students read, hear, and see how French is used around the world in specific situations. Students learn to speak and write about a variety of topics in French I, including: personal introductions, telling time, discussing the weather, ordering food at a French restaurant, going shopping with friends, and recounting past events. Students are assessed through tests and quizzes, conversations, role-plays, and video projects, such as student-designed fashion shows, and videos demonstrating critical vocabulary learned in the textbook. In addition to the textbook and its accompanying videos, two films are used to teach about francophone culture, as well as French grammar. The SmartBoard plays a critical role, as students interact with the French world via the Internet on a regular basis. We teach this course almost exclusively in French from the first day. By the end of the year, students are able to ask simple questions in French and express themselves in the target language.

## **French II**

**Grades:** 9, 10

**Term Length:** 2

**Credit:** 1

In French II, students continue to develop their listening, speaking, reading, and writing skills by studying topics in context. With a spotlight on a communicative and interactive approach, students study a variety of topics, including: leisure activities, food, entertainment, health and sports, home and neighborhoods, fashion and clothing, and travel. Students engage in conversations, role-play exercises, multimedia activities, and oral presentations, where they talk about themselves and the world around them. In order for students to discover the world beyond themselves, we highlight francophone culture with projects such as researching and presenting information about a French-speaking country. We use multimedia activities to teach French. Students watch videos, listen to audio, and use the Internet. We also incorporate authentic, level-appropriate material in the classroom. Students listen to songs, as well as read poetry and stories such as Goscinný's *Petit Nicolas* and excerpts from *Le Petit Prince*. They also watch parts of films, including *Man on Wire* and *Paris, je t'aime*, all while relating what they are reading, hearing, and viewing to the topics presented in class. Students interact with these materials by expressing their opinions, writing movie reviews, and creating their own stories, among other activities.

**Prerequisite:** French I or prior Middle School level I

**Note:** Department approval

## **Advanced French II**

**Grades:** 9, 10

**Term Length:** 2

**Credit:** 1

As in French II, students in Advanced French II continue to develop their listening, speaking, reading, and writing skills by studying topics in context. Students move at an accelerated pace. Using a communicative and interactive approach, students learn a variety of topics, such as leisure activities, food, entertainment, health and sports, home and neighborhood, fashion and clothing, and travel. Students engage in conversations, role-play activities, multimedia activities, and oral presentations where they talk about themselves and the world around them. In order for students to discover the world beyond themselves, we highlight francophone culture with projects such as researching and presenting information about a French-speaking country. We also discuss cross-cultural differences in class. Multimedia activities are used to teach French. Students watch videos, listen to audio, and use the Internet. We also incorporate authentic, level-appropriate material in the classroom. Students listen to songs, as well as read poetry and stories such as Goscinný's *Petit Nicolas* and excerpts from *Le Petit Prince*. Students watch parts of films such as *À bout de souffle*, *Joyeux Noël*, *Man on Wire*, and *Paris, je t'aime*, all while relating what they are reading, hearing, and viewing

# WORLD LANGUAGES

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to the topics they are learning in class. Students interact with these materials by expressing their opinions, writing movie reviews, creating their own stories, and comparing their own culture to a francophone one, among other activities.

Prerequisite: French I or prior Middle School level I

Note: Department approval

## **French III**

**Grades: 10, 11**

**Term Length: 2**

**Credit: 1**

Taught exclusively in French, this third-year language class focuses on using French for communicative purposes. Students review all verb tenses previously studied, then learn new moods such as the conditional and subjunctive. Students speak and write about a wide variety of topics from summer vacation, the workforce, and their ideal careers, to the French educational experience, fairy tales and legends, relationships, and the “great outdoors.” In addition to the textbook and ancillary literary materials, students view a number of films to augment their understanding of French culture with various genres of film. Through the use of music, film, and various audio sources, students continuously hear authentic examples of the French language, mimic these examples, and express themselves freely. Students are assessed through quizzes and tests, class participation, projects, and role-playing.

Prerequisite: French II

## **Advanced French III**

**Grades: 10, 11**

**Term Length: 2**

**Credit: 1**

Advanced French III reinforces basic vocabulary and grammatical structures, while introducing advanced constructions and more abstract language through encoding (speaking and writing) and decoding (listening and reading) skills. Every aspect of the course is conducted in the target language, and we expose students to a variety of native speakers through music, recorded discourse, films, and video clips drawn from native language sources. On a regular basis, students read authentic, level-appropriate literature, and write essays on related themes. By the end of the year, students will have studied all the verb tenses, pronouns, and major structural grammar, while being drilled and examined in both formal assessments and informal classroom “play.” Students also express themselves orally and in writing on a variety of subjects using a diverse, appropriate vocabulary. Students who succeed in this rigorous course will continue to Advanced French IV or Advanced Placement (AP) French Language.

Prerequisite: French II or Advanced II and department approval

## **French IV**

**Grades: 10, 11, 12**

**Term Length: 2**

**Credit: 1**

Students in French IV continue to strengthen their listening, speaking, reading, and writing skills in the target language, with an emphasis on the conversational elements of the language and a cultural focus throughout the year. We explore real-life practical situations, and students expand their knowledge of French and francophone culture through the exploration of short films by contemporary filmmakers, literary readings, and newscasts on current events, such as the effects of Hurricane Maria in Haiti and the armed conflict in Mali. In addition, students watch the film *Ma vie en rose* and discuss its characters and themes. We integrate cultural competency into the curriculum by exposing students to various countries in the francophone world, ranging from France itself to French-speaking African and Caribbean countries. At this level, we expect students to apply what they have learned in a more complex and precise manner, and we reinforce vocabulary, grammar, and syntax. We guide students from the concrete to more abstract levels of thought and expression; this process includes the comprehension of complex ideas and the ability to produce well-organized ideas via oral expression and composition. Among other activities, students engage in class discussions, give oral presentations, and write compositions.

Prerequisite: French III

# WORLD LANGUAGES

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## **AP French**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

What words come to mind when someone says “individualism”? Would you be surprised that the French have different ideas about individualism than we do as Americans? Through discussions that pose such questions, AP French students expand their knowledge of French and francophone culture. Moreover, students continue to develop listening, speaking, reading, and writing skills at an advanced level and within the context of the following College Board themes: global challenges, science and technology, contemporary life, personal and public identities, families and communities, and beauty and aesthetics. We guide students from the concrete to more abstract levels of thought and expression: this includes the comprehension of complex ideas and the ability to produce well-organized ideas via oral expression and composition. We also introduce students to the format of the AP exam via situational dialogues, presentations on cultural comparisons and current events, analysis of literary and other texts, and interpersonal and presentational writing.

Prerequisite: Advanced French IV (or Advanced III)

Note: Department approval

## **Mandarin I**

**Grades:** 9, 10

**Term Length:** 2

**Credit:** 1

This yearlong beginning Mandarin class introduces high school students to the unknown Mandarin language and the Mandarin-speaking world! Over the year, students with no previous Mandarin knowledge will meet four times a week to explore Mandarin and Chinese culture in various formats. Students start out learning the character systems, the importance of the tones, and what roles Mandarin plays in our current society. Throughout the course, students learn how to read, write, and type characters, as well as speak and understand. Despite the common perception of Mandarin’s difficulty, students usually know the basic greetings, how to count up to 9999, dates, and even how to tell time, both in written and spoken format, by the second week of this course because of the language’s simple and logistic patterns. Throughout the year, students have the opportunity to explore and learn the language in interactive, fun, and productive ways. As students get more familiar and comfortable hearing and speaking the language, they will perform improvisation-based skits and converse in class to make the language come alive. Students also work on some projects, such as Chinese cities/ geography, a Chinese tea ceremony, Chinese calligraphy, and a Chinese ethnic group study.

## **Mandarin II**

**Grades:** 9, 10

**Term Length:** 2

**Credit:** 1

The Mandarin II class is designed for students who have previously taken Mandarin. We expect students in this course to be ready to add to their basic understandings of the language in all aspects: listening, speaking, reading, and writing (both typing and handwriting). Throughout the year, students have more opportunities to actually use the language in a real setting. For example, after studying a clothing/shopping unit or a food/restaurant unit, students will travel to Chinatown in Manhattan or Brooklyn to practice their language skills with actual native Mandarin speakers. Students videotape the activity, share with their classmates, and give constructive feedback to one another. In addition, students visit one of the Chinese-related museums in Manhattan to attend workshops, as well as learn about different Chinese-related topics, such as immigrants in New York City and Chinese New Year. Students regularly research, present on, and share different topics on current Chinese society to deepen their understanding of Chinese society as a whole.

Prerequisite: Mandarin I or prior Middle School level I and department approval

# WORLD LANGUAGES

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## **Mandarin III**

**Grades:** 9, 10, 11, 12

**Term Length:** 2

**Credit:** 1

In Mandarin III, students advance their learning and understanding of the Mandarin language and culture by adding culturally rich context into their learning. Similarly to Mandarin II, students continue to improve their understanding of Mandarin through different activities and in culture/society by continuing to discuss current events. This course adds a new dimension that focuses on presentation skills in the target language. Students in this course read and learn about various customs/traditions and topics that are special to Chinese society. They also present on these topics solely in the target language. These traditions can vary from Chinese gift-giving, modern online communication traditions, famous Chinese legends, and Chinese symbolism of animals. This course also introduces Chinese traditional medicine and its basics in the target language. We invite a traditional Chinese medicine practitioner to the class to talk about her practice. In addition, students visit one of the Chinese medicine clinics or a Chinese herbal shop to experience this extraordinary and rich aspect of Chinese culture.

Prerequisite: Mandarin II

## **Mandarin IV**

**Grades:** 9, 10, 11, 12

**Term Length:** 2

**Credit:** 1

The students in Mandarin IV will continue using the Integrated Chinese series as their textbook and will be starting the Level 2, Part 1 volume in that series. In addition to studying different Chinese traditions through textbook dialogues and written passages, students will also watch documentaries and selected excerpts from news broadcasts to learn about current events in China. Students will review and learn about Chinese culture and Chinese cultural traditions in much more depth in the target language and will also look into regional variations in Chinese culture based on geography. We will assess students primarily on an individual basis as they write essays and make presentations on cultural themes such as education in China, Chinese traditional arts, ethnic minorities, holidays, history, and so on.

Prerequisite: Mandarin III

## **Spanish I**

**Grades:** 9, 10

**Term Length:** 2

**Credit:** 1

Spanish I is an introductory course in which students develop their listening, speaking, reading, and writing skills and learn basic grammar, syntax, and vocabulary through a variety of methods and opportunities. Students connect with the Spanish-speaking world through technology, making use of film, video, YouTube, and social media. We encourage students to create their own dialogues and conversations and provide students the opportunity to use what they have learned through projects. Students will communicate in Spanish with greetings and farewells; discuss personal information and daily activities; share nationalities, characteristics of people and things, food, beverages, travel, leisure, and friends; and describe family members, friends, weather, seasons, and holidays. Spanish I promotes basic communication in Spanish and a love for Hispanic and Latino culture, as well as the language.

## **Spanish II**

**Grades:** 9, 10

**Term Length:** 2

**Credit:** 1

As a continuation from Spanish I, or an extension of prior years of study, Spanish II has a primary focus on a relationship between students and others in the world, or "ellos." While students continue to examine who they are in Spanish, they will be able to compare and contrast their life and culture with those of others in the world. In order to do this, we study a variety of global

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contexts, specifically in the Spanish-speaking world, from offices to rain forests and technology to the arts. In this class, we work on Spanish writing, speaking, reading, and listening skills, through a number of resources, including texts, websites, videos, and songs. All of these tools will help work toward using Spanish in a practical and critical way.

Prerequisite: Spanish I or Spanish B

Note: Department approval

## **Spanish III**

**Grades: 10, 11**

**Term Length: 2**

**Credit: 1**

As Spanish III students continue building the foundations for listening, reading, writing, and speaking the target language, they see and make Spanish grammar and vocabulary come alive and “real” through authentic songs, videos, and other multimedia forms in which Hispanic culture and heritage is described by its main protagonists. Through a variety of activities and technology resources, we challenge students to simultaneously develop the four language skills reading, writing, listening, and speaking at a high level of proficiency. Students learn how to express themselves orally and in writing in formal and informal settings. We introduce grammatical structures and frame them in a situational context in which students also learn about the cultural richness of Spanish and Latin American cultures. The course covers the eight most common verbal tenses in all three grammatical moods (imperative, indicative, and subjunctive) and uses literary texts to identify and reinforce language structures. Students work on creative projects such as making a Telenovela in groups, they also engage in class discussions on a very exciting Spanish series called “El Internado.”

Prerequisite: Spanish II

Note: Department approval

## **Advanced Spanish IV**

**Grades: 10, 11, 12**

**Term Length: 2**

**Credit: 1**

An alternative to Advanced Placement (AP) Spanish Language, this course is just as challenging and rigorous. A variety of texts on a myriad of topics is the foundation of the syllabus. As a point of departure, Spanish IVA focuses on reading and analyzing, and deconstructing phrases from within the texts to understand the dynamics of grammar and syntax. It is a reversed or upside-down approach from previous courses. Through this practice, we will broaden the student’s writing skills and help them acquire a more sophisticated vocabulary. Authentic written and recorded materials will inspire discussions in class. Students are required to engage in dialogues and discussions at every session. In order to succeed at this advanced level, students are expected to transcend the boundaries of the classroom and expand their learning and practice of the language to everyday life outside the school. Our polyglot New York is a ready-made opportunity to do this. This course also offers a comprehensive and deeper appreciation of Spanish and Latin American contemporary culture through art, literature, film, and music.

Prerequisite: Advanced Spanish III

Note: Department approval

## **Spanish IV**

**Grades: 11, 12**

**Term Length: 2**

**Credit: 1**

A juggling act moving toward language dexterity, in Spanish IV students further develop the indispensable four skills reading, writing, listening, and speaking to communicate comfortably in Spanish. Tuned into the 21st century, the syllabus is based on topics relevant to our global village. Ecology and environment, technology and science, the economy, politics, and history represent the pragmatic half of this course. The study of Hispanic-American art, as well as literature and film, constitute the

# WORLD LANGUAGES

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theoretical half. Through the mirror of short stories and the poetic reflections of a handful of Latin American writers, students shape their own word combinations. The objective is to create a small portfolio of compositions throughout the course. Each semester we explore a film as a cultural product' duet of Pedro Almodóvar, and Gonzalez Inarritu, for example. We require oral practice in every session. At least one cultural activity beyond the classroom walls is mandatory every year. The understanding of grammar, or what takes place behind the language, is a necessary tool, not a goal in itself. Spanish IV is meant to be yet another step in the lifelong bilingual career of the Poly Prep student.

Prerequisite: Spanish III

## **Spanish V**

**Grade: 12**

**Term Length: 2**

**Credit: 1**

Spanish V is a conversational course offered to senior students who have completed their language requirement, but want to continue practicing the language before college. The course uses over a dozen films from Spain and Latin America as the basis for conversations and discussions on topics such as politics, religion, love, gender, and cultural differences. We evaluate students on their daily contribution to class discussions and on regular oral presentations on topics related to the films. In these presentations (modeled after Poly's Senior Plan) students present their points of view on a given topic, then answer questions from their peers. For their final projects, students produce an 8-minute short film based on their own adaptations of Latin American short stories discussed in class.

Prerequisite: Spanish IV

## **AP Spanish Language**

**Grades: 10, 11, 12**

**Term Length: 2**

**Credit: 1**

Was "salsa" music born in New York City? What social and political realities were portrayed in musician and urban poet Rubén Blades' lyrics? Who ended the life of perhaps the most infamous fictional characters of Latino pop culture, Pedro Navaja? Whether it is as a music or film critic of state-of-the-art films such as *El Secreto de sus ojos*, *El hijo de la novia*, or Pedro Almodovar's *Volver* or as "Radio Naciones Unidas" news correspondents, students in this college-level course engage and perfect the use of the different shapes and forms of the Spanish language and Latin American culture. The program aims for excellence in language proficiency through the use of exciting sources and technology. Using the target language entirely, this record-breaking class trains students to become effective writers, listeners, and readers of Spanish through the exploration of inspiring pieces of literature, journalism, films, and music, which are carefully selected to promote and inspire awareness and are mindful of Latin American and Spanish history, current events, societies, art, and politics. This course prepares students to take the AP Spanish Language exam.

Prerequisite: Advanced Spanish III or IV

Note: Department approval

## **AP Spanish Literature and Culture**

**Grades: 10, 11, 12**

**Term Length: 2**

**Credit: 1**

As organized by the College Board, this college-level class offers a unique opportunity to enter 38 literary works of Spanish and Latin American authors such as Cervantes, García Márquez, and García Lorca, among many others. The course focuses on developing critical-thinking skills through the study of literature, but also the sociological, historical, and geopolitical context in which the texts were written. The class features six course themes promoting connections between genres, periods, and movements: "La dualidad del ser, Las sociedades en contacto, La construcción del género, Las relaciones interpersonales, La

# WORLD LANGUAGES

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creación literaria y El tiempo y el espacio.”Students also learn to compare and contrast art forms like painting, photography, or cinema to literary texts. Listening comprehension perfected via authentic audio materials and videos (e.g., interviews with authors) furthers the goals of this extraordinary course, designed to challenge the most advanced students of Spanish language at Poly. This course prepares students to take the AP Spanish Literature exam.

Prerequisite: AP Spanish Language or Advanced Spanish IV

Note: Department approval

## **Advanced Spanish II**

**Grades:** 9, 10

**Term Length:** 2

**Credit:** 1

We have designed this course for advanced students interested in eventually taking the Spanish Advanced Placement (AP) Language and AP Literature courses. Through a variety of activities and technology resources, we challenge students to simultaneously develop the four language skills reading, writing, listening, and speaking at a high level of proficiency. Students learn how to express themselves orally and in writing in formal and informal settings. We introduce grammatical structures and frame them in a situational context in which students also learn about the cultural richness of Spanish and Latin American cultures. The course covers the eight most common verbal tenses in all three grammatical moods (imperative, indicative, and subjunctive) and uses literary texts to identify and reinforce language structures. Assessments consist of oral presentation (including role-playing), composition writing, and a variety of reading and listening comprehension exercises.

Prerequisite: Spanish I or prior Middle School level I

Note: Department approval

## **Advanced Topics in Chinese Language and Literature**

**Grades:** 10, 11, 12

**Term Length:** 2

**Credit:** 1

Advanced Topics in Chinese Language and Literature gives students the opportunity to continue their study of Chinese language and culture after completing the AP Chinese course. Its primary goal is to improve each student’s reading, writing, and speaking abilities in Chinese while simultaneously giving them a greater understanding of traditional and modern Chinese culture. The majority of the curriculum is based upon famous Chinese literary works taken from the uniform national curriculum of an 8th grade Mandarin class in China. Poems, autobiographies, and short stories are a few examples of the wide variety of literature in this course. Some of them are contemporary, others dating back to 400 AD. As students familiarize themselves with each text, they will find themselves grasping not just the meaning of the language, but also its emotion, complexity, and subtle beauties, as well.

Prerequisite: Mandarin IV

## **AP Chinese Language and Culture**

**Grades:** 10, 11, 12

**Term Length:** 2

**Credit:** 1

Advanced Placement (AP) Chinese Language and Culture is a college-level course that combines an exploration of Chinese literature with an intensive study of grammar. In this accelerated course, we expose students to authentic contemporary literary writings, newspapers, articles, and online sites in order to perfect all four skills critical to learning a foreign language: listening, reading, writing, and speaking. As another resource, we will also use Barron’s AP Chinese Language and Culture with MP3/CD, 2nd Edition as we ask students to engage in discussions about multiple current issues in contemporary Chinese society, including geography and population, ethnic and regional diversity, travel and transportation, climate and weather, holidays and food, sports and games, and current affairs. Students also explore the realm of Chinese societal relationships, examining how individuals interact with family members, elders, and peers, and integrate this knowledge into their interpersonal communications.

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Students will learn never-before studied idiomatic expressions that truly bring them to the heart of Chinese culture today. This course prepares students to take the AP Exam in Chinese Language and Literature in May, and all students enrolled in this course are expected to sit for the exam.

Prerequisite: Mandarin IV

## **Italian I: An Introduction**

**Grade: 12**

**Term Length: 2**

**Credit: 1**

Italy has a long, rich history of superb painting, sculpture, literature, music, architecture, science, and philosophy going back to the Dark Ages. For centuries, Italians set the “cultural agenda” for the rest of Europe. It is also an ancestral culture for millions of Italian Americans. Today, Italian cooking, food products, design, fashion, and decorative arts still exert a significant global influence. This full-year course will provide a fast-paced introduction to Italian language and culture and is open only to seniors who have completed their three-year language sequence in Poly’s Upper School, or to those who would like to study a second language concurrently. We will conduct the class almost exclusively in Italian, and students will explore many focal aspects of Italian culture, such as food, art, film (such as *Divorce Italian Style*, *Cinema Paradiso*, and *La Vita e` Bella*) and opera. The course will include one field trip for students to learn the art of pizza making with an Italian pizza maker, speaking only in Italian. We will assess students through role-play, video projects, presentations, and oral and written exams.

Prerequisite: Successful completion of 3-year Upper School language requirement

Note: Department approval

# SOCIAL SCIENCES

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## **Economics**

**Grades:** 12

**Term Length:** 1

**Credit:** 0.5

The first half of this elective, intended for the student interested in the workings of the American economy, is devoted to understanding capitalism, particularly as it has been analyzed in the theories of prominent economists such as Adam Smith, Karl Marx, and John Maynard Keynes. Students examine contemporary economic concepts and issues by drawing on a wide variety of readings, activities, film clips, and Robert Heilbroner's text, *Economics Explained*. Based on this understanding, students then develop their analytical and decision-making skills in the last quarter of the term, when they are tasked with designing and marketing an urban development in a real estate simulation, which will be judged by prominent New York City entrepreneurs.

## **AP Psychology**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

Can we measure love? Are leaders and murderers born as such? Or do experiences during their lifetimes shape their fates? How is it that babies and adults think alike? How accurate are our long-term and short-term memories? Can I trust my memory? And what does intelligence really mean? Students will explore and discuss scientific questions like these, which are central to psychology, in order to understand mental processes and behavior within an objective, evidence-based, and analytic framework. In addition to developing the ability to examine psychological principles in their own lives, this course also requires students to understand the ethics and methods embedded in behavioral sciences, and apply essential psychological concepts to questions of human perception, motivation, and action across many disciplines. As an Advanced Placement (AP) class, this course is designed as a college-level course in which students must strongly commit to its academic rigor and use their critical thinking abilities and communication skills to both concisely and efficiently understand and explain why we do the things we do. As a broad survey course, work is consistent and rigorous. Students are asked to draw on significant critical reading and writing skills.

Note: Department approval

## **Psychology: An Introduction**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

The goal is to introduce students with the study of human behavior and mental processes. "Why do we like some people and not others?" "How do we explain what other people do?" "and "Why and with whom do we fall in love?" are some examples of questions we analyze through the scientific lens. Students become acquainted with and put in practice a variety of methods psychologists use to investigate the mind, measure brain activity, and other research methods often used in the field. This course also aims to provide a broad theoretical and applied background from which students may pursue more advanced coursework in psychology and/other behavioral sciences at the high school and/or college level.

# PERFORMING ARTS

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## **Speech**

**Grades:** 10, 11

**Term Length:** 1

**Credit:** 0.5

Speech serves as a launching pad in public speaking. In today's world, the individual with self-confidence and strong communication skills has a professional advantage over those who are less able to express themselves. Speech is a graded, one-semester course for sophomores that offers students an opportunity to work on both the physical skills necessary for good speaking vocal projection, diction, posture, and effective eye contact and the organizational skills needed to produce a clear and compelling outline. The class also listens to and analyzes televised speeches, and examines the role of the political speaker and the speechwriter in our democracy.

Note: Graduation requirement

## **Dance**

**Grades:** 9, 10, 11, 12

**Term Length:** 2

**Credit:** Non-Credit

Dance is open to grade 9-12 students of all levels. This course is designed for students who wish to develop their dance technique and explore different dance styles such as ballet, hip-hop, jazz, musical theater, modern and world dance. In addition, students participate in a variety of choreographic projects, which may be featured in the Afternoon of Student Choreography. Performance in the Annual Spring Dance Concert is a final requirement for this course.

Note: 0.5 credit waiver on 2-year Arts requirements

## **Advanced Dance**

**Grades:** 9, 10, 11, 12

**Term Length:** 2

**Credit:** 1

Advanced Dance is open to students in grades 9-12 who exhibit proficiency in technical and compositional skills. This course focuses on advanced technique, composition and performance skills. Students expand on their skills in a variety of dance styles, including ballet, jazz, musical theater, modern, and world dance. Students explore advanced-level choreographic projects, which may be featured in the Afternoon of Student Choreography. Performance in the Annual Spring Dance Concert is a final requirement for this course.

Note: Department approval

## **Debate**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

In Debate, conflict, confrontation, and clash are celebrated and rewarded. Students are taught how to develop their own voice literally and figuratively and to assertively advocate both their point of view and the opposing point of view. All students learn and perform three persuasive speaking events: public forum debate, extemporaneous speaking, and original oratory. Students who are interested in the more theatrical events like dramatic interpretation and humorous interpretation will also receive instruction in and an opportunity to perform those events. Students are required to compete in at least one interscholastic tournament. Many students choose to compete in more tournaments and become active, ongoing members of the Poly Speech and Debate Team.

Note: Fulfills Speech requirement

# PERFORMING ARTS

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## **Fundamentals of Music Theory**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

Fundamentals of Music Theory explores the mechanics and architecture of music. Students will learn about notation, key signatures, chord structure, improve their melodic and rhythmic reading skills, and learn basic part-writing skills.

## **Music Studies**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

Music Studies is a graded, semester-long requirement for students who are not enrolled in a performance ensemble (Concert Band, Concert Choir, Jazz Band, String Ensemble). Through hands-on projects, research, listening and analysis exercises, sampling music from around the world, students will explore the fundamental characteristics of music in many cultures and seek to answer the question "Why is music such an important part of our shared humanity."

Note: Required in Grade 10 or 11

## **AP Music Theory**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

AP Music Theory is for students who have successfully taken Fundamentals of Music Theory, are in the midst of mastering an instrument, and would like to more fully explore the concepts and compositional systems underlying their practice. In AP Music Theory, students learn harmonic practices, sight singing, how to recognize musical styles and structures, and basic composing areas covered on the AP Music Theory exam. Texts such as Clendinning and Marvin *Theory and Analysis* and Scoggin's *AP Music Theory*, facilitate classroom work and assignments. Students utilize relevant apps and the software programs Tenuto (ear training and sight singing) and Finale Notepad (composition and notation). Students leave the class well-prepared for the AP exam, and to learn music at a higher level.

Prerequisite: Fundamentals of Music Theory

Note: Department approval and placement test

## **Set Design**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

The course starts with a brief overview of basic theatre structure as an art form and as an individual institution. Through a series of seven assignments the students are introduced to Vectorworks CAD (computer aided drafting) program as a tool to produce the plans, elevations and three-dimensional renderings necessary for a designer to communicate their ideas. This section culminates in each student providing a design package for their own bedroom that can be displayed in 3D on the virtual stage of the Richard Perry Theatre. In the second part of the course, students are asked to read and analyze a one-act play and design a set and produce a design package for their chosen production.

Prerequisite: Stagecraft

# PERFORMING ARTS

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## **Stagecraft**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

This course begins with a brief introduction to the different types and styles of theater and to general theater terminology. Students learn skills that include reading plans, tying knots, planning a construction project, wiring electrical plugs, soldering sound connectors, recording sound cues, hanging and focusing a lighting instrument, and safely using tools and machinery in the workshop. Construction projects include the basic scenic elements of a platform and flat. The class helps in the construction of scenic elements for the two fall Upper School productions. We encourage students to participate as members of the running crew for those productions.

## **Introduction to Acting**

**Grades:** 9, 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

This class serves as an introduction to the art of acting. The focus will be on improvisation, which is the basic skill that underlies all acting technique. Students will participate in a variety of improvisation and theatre games and learn to develop their concentration and the ability to give and take with their scene partners. Students will gain an understanding of how to use their voice and body as instruments in acting, as well as basic stage directions.

Note: Fulfills Speech requirement

## **Acting**

**Grades:** 10, 11, 12

**Term Length:** 2

**Credit:** 1

This yearlong course provides students with the opportunity to develop the skills introduced in Introduction to Acting and deepens their understanding of the craft of acting. Physical theater exercises, games, and improvisation work will help develop students' basic acting techniques and vocal and physical training will develop their performance skills. Students will learn how to complete a textual analysis as they prepare and perform scenes and monologues by a variety of playwrights, both classic and contemporary, such as David Mamet, David Ives, William Shakespeare, Anton Chekhov, and Rebecca Gilman. Students will analyze their own work through the use of videos, and engage in peer evaluation. Throughout the year, students will perform scenes that they have prepared for the student body. Texts: "The Actor In You" by Robert Benedetti, various plays, scenes, and monologues.

Prerequisite: Introduction to Acting or commensurate experience

## **Advanced Acting**

**Grades:** 11, 12

**Term Length:** 1

**Credit:** 0.5

This class is highly specialized for already developed acting students, designed for those who are applying to conservatory drama programs or college scholarship programs. Participation in the National Arts Search Talent scholarship is a critical element of Advanced Acting.

Prerequisite: Acting

Note: Department approval

# PERFORMING ARTS

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## **Film and Video Production**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

With access to state-of-the art, top-notch equipment, including Canon XA10 cameras, tripods, microphones, boom poles, and headphones, students in our Film and Video class learn the basics of filmmaking from soup to nuts. The nine assignments students receive over two semesters range from creating an animated production logo to covering a sit-down interview. Each assignment builds on the previous one, giving students valuable tutelage on how equipment works and schooling them in techniques for editing, framing and composition, camera movement, and sound and lighting. Their lessons are balanced with theoretical ideas, as well as an emphasis on filmmaking as visual storytelling. Students apply to a final project—a collaborative, five-minute piece, which often takes the form of a short documentary or music video.

## **Concert Band**

**Grades:** 9, 10, 11, 12

**Term Length:** 2

**Credit:** Non-Credit

Concert Band, open to all Upper School students who play woodwind, brass, or percussion instruments, explores a wide instrumental repertoire and exposes students to music of the Western art, American, and world traditions. Although students in Concert Band receive specialized instruction from artists-teachers who regularly attend rehearsals, we encourage these young musicians to take instrumental lessons, either through Poly's after-school programs, at a recognized music school, or with a private teacher. Instrumental Performance Ensemble for Grades 9 -12. An advanced track is available to interested students enrolled in this performance ensemble. Placement is determined by audition and is granted only to the top 30% of the ensemble. In addition to their work with the rest of the ensemble, advanced track students will prepare new repertoire, be eligible for additional performance opportunities and, when applicable, work on college audition material. Students in the advanced track will receive a grade and credit.

Note: 0.5 credit waiver on 2-year Arts requirements

## **Concert Choir**

**Grades:** 9, 10, 11, 12

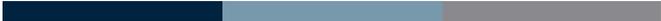
**Term Length:** 2

**Credit:** Non-Credit

Concert Choir is the mainstay of Poly's Upper School choral program. This vocal ensemble focuses on a wide variety of vocal music representative of the Western art, American, and world traditions. Vocalists in Concert Choir develop their musicality and vocal technique, performance and ensemble skills, and music literacy while preparing for two major performances per year. Every two years, members of Concert Choir travel during spring break as Cultural Ambassadors of Poly Prep. Recent destinations have included Costa Rica, Berlin and Prague, and Cuba. During years the choir does not travel, they perform at prestigious New York City venues such as Carnegie Hall and Lincoln Center. An advanced track is available to interested students enrolled. Placement is determined by audition and is granted only to the top 30% of the ensemble. In addition to their work with the rest of the ensemble, advanced track students will prepare advanced level repertoire, be eligible for additional performance opportunities and, when applicable, work on college audition material. Students in the advanced track will receive a grade and credit for the course.

Note: 0.5 credit waiver on 2-year Arts requirements

# PERFORMING ARTS



## **Jazz Band**

**Grades:** 9, 10, 11, 12

**Term Length:** 2

**Credit:** Non-Credit

Jazz Band provides students with an invigorating and challenging adjunct to Concert Band. Students explore the various styles of jazz that arose from the 1930s to the 1970s, thereby expanding their knowledge and use of major and minor scales and modes. Except in rare cases, with the approval of the department, students joining Jazz Band will have completed one year of Concert Band. Instrumental Performance Ensemble for Grades 10-12; students must be in Concert Band to qualify for Jazz Band.

Note: 0.5 credit waiver on 2-year Arts requirements

## **String Chamber Ensemble**

**Grades:** 9, 10, 11, 12

**Term Length:** 2

**Credit:** Non-Credit

Violinists, violists, cellists, and bassists meet to explore music written for strings of the Baroque and Classical eras, as well as contemporary music. Students taking String Chamber Ensemble must be able to read music at a sophisticated level, and we require them to take instrumental lessons, either through Poly's after-school music program, a recognized music school, or with a private teacher.

Note: 0.5 credit waiver on 2-year Arts requirements

# VISUAL ARTS

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## **AP Art History**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

AP Art History is a college-equivalent survey course exploring the nature of art, art making, and responses to art. By investigating a core of 250 works of art characterized by diverse artistic traditions from prehistory to the present, students develop in-depth, holistic understanding of the history of art and architecture from a global perspective, from Asia and Africa to Europe, the Pacific, and the Americas. Students become active participants in the global art world, engaging with its forms and content. They experience, research, discuss, read, and write about art, artists, art making, responses to, and interpretations of art.

Note: Department approval

## **Art Foundations**

**Grades:** 9

**Term Length:** 1

**Credit:** 0.5

Grade 9 students explore the fundamentals of art making. Art Foundations surveys a variety of techniques and media to build necessary skills and introduce historical context that gives students a deeper sense of creative potential and practice. Each student will find success in drawing with exercises and projects intended to bolster confidence and results in rendering the visual elements (line, shape, space, light/shadow, and color), along with design principles (movement, rhythm, balance, and pattern). As students progress through the course, more complex materials and methods will be incorporated into lessons, scaffolding on students' development in creative investigations and cultural relevance.

Note: Required in Grade 9

## **Advanced Drawing**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

In Advanced Drawing students concentrate on developing the skills to explore how they can most effectively create a unique personal style. Students work from still life and from models, drawing under both natural and controlled conditions. This course continues the study of various techniques and media, with an emphasis on drawing from observation, the development of composition, and an exploration of personal imagery. Critiques, demonstrations, videos, and slides, plus exhibition opportunities throughout the semester, enhance students' experience and efforts.

Prerequisite: Department approval

## **Advanced Painting**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

Advanced Painting focuses on the continued development of appropriate painting skills, as well as an enhanced understanding of the relationship between historical knowledge and painting styles. We explore traditional and non-traditional methods and emphasize the role of painting and its relationship to other contemporary visual art practices. Class critiques evaluate students' performance and progress.

Note: Advanced Painting (as studio class) may be repeated

# VISUAL ARTS

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## **Art and Social Change**

**Grades:** 10,11,12

**Term Length:** 1

**Credit:** 0.5

How can we begin to decipher our image-saturated world and the messages that they convey? Images define our lives and social issues like race, class, gender, ability, and religion bombard each of us daily. Art and Social Change explores works of art from the late nineteenth century through today's contemporary artists, in an effort to navigate our visual experience and make sense of the images engulfing us. Learn how to look closely and slowly at art with a critical lens, and to analyze the strategies artists use to disrupt our common perceptions in fast-paced routines. Discover your own voice as you make your own art that draws upon art history, popular culture, and the tools of activism.

## **Ceramics**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

Students build on knowledge of the hand-building techniques of coil, pinch, and slab construction, and develop basic skills using the potter's wheel. They use this medium to create both functional and nonfunctional wares as they explore the tactile quality of raw clay, from its plastic pliable state on to firing. Students develop a basic understanding of the application of glazes and the firing process. By using an electric kiln, a reduction kiln, and the Japanese method of raku, students are exposed to the historical traditions of ceramics in both the ancient and contemporary worlds of the East and West.

*Note: Ceramics (as a studio class) may be repeated*

## **Scientific Illustration**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

Come explore the fascinating world of flora and fauna by developing classical drawing skills used in scientific illustration. Learn the joy of meditative mindfulness through close observation and sharpen your drawing skills through weekly visits to Poly's greenhouse and working from taxidermied animals. From ferns to bird skulls, you will learn how to properly render using various shading techniques. Botanical structure and basic anatomy will be covered over the course of the class. Artists we will explore include William Bartram, John Audubon, Olivia Patrides, and Walton Ford.

## **This Must Be the Place**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

What do Stonehenge in Wiltshire, England, Anish Kapoor's Cloud Gate in Chicago's Millennium Park, and the Vietnam Veterans Memorial in Washington, D.C., have in common? The inspiration of place! In this class, explore how a site's history and stories influence what an artist creates and how an artist's creations can, in turn, change and reshape a place. Look through the lens of contemporary art historians as we develop classical and alternative art-making techniques in painting, drawing, soft sculpture, installation, and performance and transform the campus. Participate in a real-world studio setting where risk-taking and critical dialog with peers and contemporary artists are actively encouraged.

# VISUAL ARTS



## **Brooklyn Museum Studies**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

Who ever said that learning must to be done in the classroom? In this unique class, spend select mornings at the Brooklyn Museum for an in-depth exploration of its collection. Get to know the artists and issues that tell provocative stories, engage in conversation with curators, educators, archivists, and other museum professionals as they share their experiences and expertise about how they study, prepare, and engage with artworks in the galleries. When not at the museum, we will study, prepare and engage with artworks in the classroom so that by the end of the course, we will have the opportunity to organize an exhibition at Poly of artworks from the Brooklyn Museum's collection.

## **Queens, Goddesses, and Feminists: How We Look at Women**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

In our age of social media, we are undeniably caught in an obsessive cycle of looking and desiring. In art history, women, whether divine or merely mortal, have been depicted mostly by men and idealized through their eyes. From Classical Greek sculpture to Renaissance painting, from African masks to modern and global contemporary art, explore how artists have helped shape and disrupt our ideals of women's looks and behavior by observing artworks, critiquing the writing of theorists and historians, and creating our own narratives about the history of the representation of women in our visual culture about how they study, prepare, and engage with artworks in the galleries. When not at the museum, we will study, prepare, and engage with artworks in the classroom so that by the end of the course, we will have the opportunity to organize an exhibition at Poly of artworks from the Brooklyn Museum's collection.

# COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

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## **Introduction to Computer Science**

**Grades:** 9, 10

**Term Length:** 1

**Credit:** 0.5

Students are introduced to the field of computer science through hands-on, project-based learning experiences that explore a wide array of topics. An initial area of study includes the human-computer interaction such as understanding computer hardware, software, the interaction of components, search engine fundamentals, and collaborative tools. Theory and practice merge through the creation of digital artifacts such as web design, programming, and microcontrollers. Programming is introduced using graphical programming languages such as Scratch (a visual programming language and online community created by the MIT Media Lab), and text-based interfaces such as App Lab. Throughout the term, students delve into the rich history of computer science and explore emerging trends in the fields of robotics, artificial intelligence, network security, and the societal impacts of computing. Through this course, students develop critical thinking and problem-solving skills that will benefit them as they progress through the field of computer science, as well as when approaching general problems both in and out of the classroom. Given the dynamic nature of technology, the tools used in this course are flexible to keep up with advances in the field.

## **Introduction to Programming**

**Grades:** 9, 10

**Term Length:** 1

**Credit:** 0.5

The recent explosion of mobile device availability has opened up a new marketplace where companies, groups, and even individuals can write and sell their own programs and apps. Coding is no longer limited to computers and cubicles, as many devices now rely on coding including cars, drones, and even basic household utilities like refrigerators. In this course, students learn how to write programs from the bottom up, from the problem-defining stage, through planning, coding, and testing. Through this interactive, project-based course, students learn how to make the transition to text-based programming languages, as well as begin to understand the object-oriented paradigm, and its effect on one's approach to coding. As a preparation for Game Design, students work in the C# programming language, while working to understand how the approach and skills developed allow programmers to become more platform and language agnostic, in order to keep up with rapidly changing field of computer science and technology.

**Prerequisite:** [Introduction to Computer Science](#)

## **Digital Life Skills**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

This course focuses on exploring current popular technologies, and finding the ways in which students can use them effectively and productively. Students will first be exposed to the various tools available to them both at Poly and home. Through various projects, students will learn how to identify the best tool for a particular goal, and then how to use it properly. Students then learn how to perform research while using readily accessible technologies, and how to gather, store, and retrieve their data using tools, such as databases and spreadsheets. After having created their data sets, students analyze their data, and identify the components most relevant to achieving their goals. Digital citizenship and productive uses of social media are next, as students learn how to use tools they are currently familiar with (Twitter, Facebook, etc.) in ways that benefit them both academically and professionally.

**Note:** Course is required unless otherwise enrolled in Computer Science curriculum

# COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

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## **Game Design**

**Grades:** 10, 11, 12

**Term Length:** 1

**Credit:** 0.5

Game Design introduces students to the fundamental elements of planning, developing, and programming games. Students will learn: how to create 3D characters, ways in which to animate such objects, game design theory, story and game creation, design and creation of virtual environments, setup and control of cameras and lighting, asset management and animation, game monetization strategies, sound management and effects, 3D design, physics engines, programming, and project management. Students will explore various popular platforms such as Unity, and experiment with new technologies including the Microsoft Kinect, Oculus Rift, Google's Project Tango device, microcontrollers and more. Students will be exploring the way augmented reality and virtual reality is changing the way we think about communication and game design. Being a project/inquiry-based course, we strongly encourage students to take ownership of their own learning as they explore and define their own particular passions and interests. This course is a prerequisite for AP Computer Science, which covers computing in greater breadth and depth.

Note: Department approval

## **AP Computer Science A**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

AP Computer Science is designed to take properly prepared students from understanding computer programming to the science of computing. Building on the concepts and materials taught in Introduction to Computer Science and Game Design, this course will prepare students for the AP Computer Science exam in May. Topics include: procedural programming, abstraction, data structures, recursion, inheritance, interfaces, basic algorithms, and object-oriented programming. Students will focus on how basic skills and paradigms can solve large and important social issues. This course also trains the next generation of computer scientists in effective collaboration, exploration, and research into new areas. In the exploratory coding section of the course, students are challenged with building real-world advanced computing artifacts, such as a chatbot, a photo editor, a movie recommender, MP3 player, games (such as virtual solitaire), or bioinformatic systems.

Prerequisite: Game Design

Note: Department approval

## **AP Computer Science Principles**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

AP Computer Science Principles takes a multidisciplinary approach to computer science. Students are expected to think creatively and incorporate computer science concepts and skill into their designs, projects, and problem-solving approaches. There are not enough people in business and society that understand the role of computer science in their lives and innovations. This course allows students to gain the knowledge, critical thinking skills, and exposure to the possibilities and creativity related to technology and computer science. No prior computer science experience is required as the course is intended to be accessible to all and to broaden exposure and participation in the field of computer science. The "Big Ideas" of the course are creativity, abstraction, data and information, algorithms, programming, the internet, and global impact. The "Computational Thinking Practices" interwoven through these Big Ideas include connecting computing, creating computational artifacts, abstracting, analyzing problems and artifacts, communicating, and collaborating. Through this course, students must complete two major projects dealing with technology, to be submitted to the College Board as part of the overall AP assessment. Having to create such artifacts ensures students have immediate application of the skills learned, as well as the opportunity to develop a technology portfolio.

Prerequisite: Algebra II and DLS or similar research experience

# COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

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## **Advanced Computer Science Applications**

**Grades:** 11, 12

**Term Length:** 2

**Credit:** 1

This course is designed to offer a survey of different fields which advanced STEAM students can pursue in college and beyond. Students work to prepare for tech internships and explore techniques that can be used in other academic fields. The curriculum of this course may change in order to keep up with advancements in CS, but the primary units are: App Development (how to create engaging interfaces that allow others to interact with your research/data ), Artificial Intelligence (how to represent knowledge and processes in the way a computer can understand in order to emulate human intelligence), Machine Learning (the ability to predict future events based on past data), Data (how to collect, structure, and retrieve information about the world), and Networking/ Cluster Computing (how to set up powerful computer systems to solve large computational problems). Students continue to strengthen their computer science foundations in order to explore many of the cutting edge fields in CS, as well as develop skills that can be applied to other STEAM courses. Students are assessed through the creation of various projects, culminating in a final capstone project, with the aim of developing a portfolio of a large complex project involving some of the same skills that are required in large tech firms such as Google and Facebook.

**Prerequisite:** AP Computer Science

**Note:** Department approval

# COURSE WORKSHEET



SUBJECT	YEARS	FALL	SPRING
ENGLISH	4		
HISTORY	3		
MATH	3 Required, 4 Expected		
SCIENCE	3		
CLASSICS	3 Consecutive		
WORLD LANGUAGES	3 Consecutive		
COMPUTER SCIENCE	1 Semester		
PERFORMING & VISUAL ARTS	4 Semesters		
HEALTH	1 Semester Each Grade 9 Grade 10		
PHYSICAL EDUCATION	4		

EXTRACURRICULAR ACTIVITIES			
FALL			
WINTER			
SPRING			



